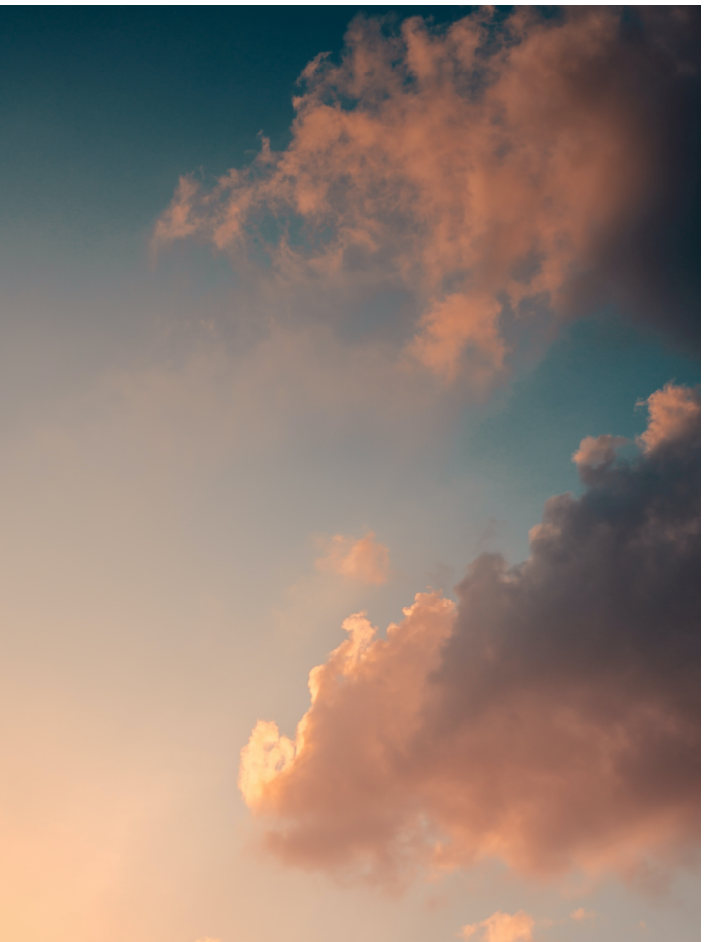


FUSCOE ENGINEERING

901 MISSION AVENUE

PRELIMINARY DRAINAGE STUDY

PREPARED FOR:
JPI DEVELOPMENT COMPANY
12250 EL CAMINO REAL, SUITE 380
SAN DIEGO, CA 92130

PROJECT MANAGER
JULIAN BLEVINS

DATE PREPARED: OCTOBER 2024

PROJECT NUMBER: 4178-001

FUSCOE ENGINEERING, INC.
6390 GREENWICH DR. STE: 170
SAN DIEGO, CA 92122

fuscoe.com

PRELIMINARY DRAINAGE STUDY

901 MISSION AVENUE

OCEANSIDE, CA

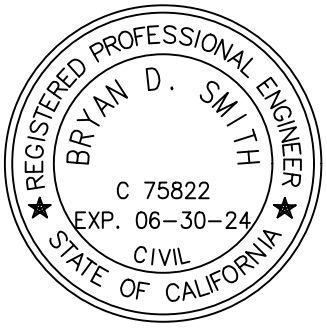
APN#
147-196-10

Prepared by Jaemin Blackwelder, PE 92959 Under the Responsible Charge of:

10/31/2024

Bryan Smith, PE RCE 75822

Fuscoe Engineering, San Diego, Inc.
6390 Greenwich Dr., Ste 170 San Diego, CA 92122
858-554-1500
bsmith@fuscoe.com



For

JPI Development Company
12250 El Camino Real, Suite 380
San Diego, CA 92130

OCOTOBER 2024

TABLE OF CONTENTS

1. INTRODUCTION

The purpose of this drainage study is to compare the 100-year storm event existing and proposed-development stormwater runoff flows for the 901 Mission Project located at 901 Mission Avenue. This study will verify that the proposed development will not generate an increase of stormwater runoff compared to existing conditions, preventing an impact to the existing storm drainage facilities downstream. Per the City of Oceanside requirements, the criteria used for this drainage study is the San Diego County Hydrology Manual (June 2003) Criteria, City of Oceanside Drainage Ordinance, City of Oceanside Master Plan of Drainage Update 2013 (MPD), FEMA, Army Corp and other applicable agencies.

1.1 Project Description

The project proposes entitlements for a mixed-use, transit-oriented development on a 1.5 gross acre site. The site is bordered by Clementine St. to the southwest, Mission Ave. to the northwest, Horne St. to the northeast and Seagaze Dr. to the southeast. The proposed development consists of a 7-story mid-rise building containing 268 dwelling units and approximately 5,550 sf of retail space with a courtyard/amenity space and pool on level 3. The proposed project will also include curb, gutter, and sidewalk improvements to street frontages surrounding the property.

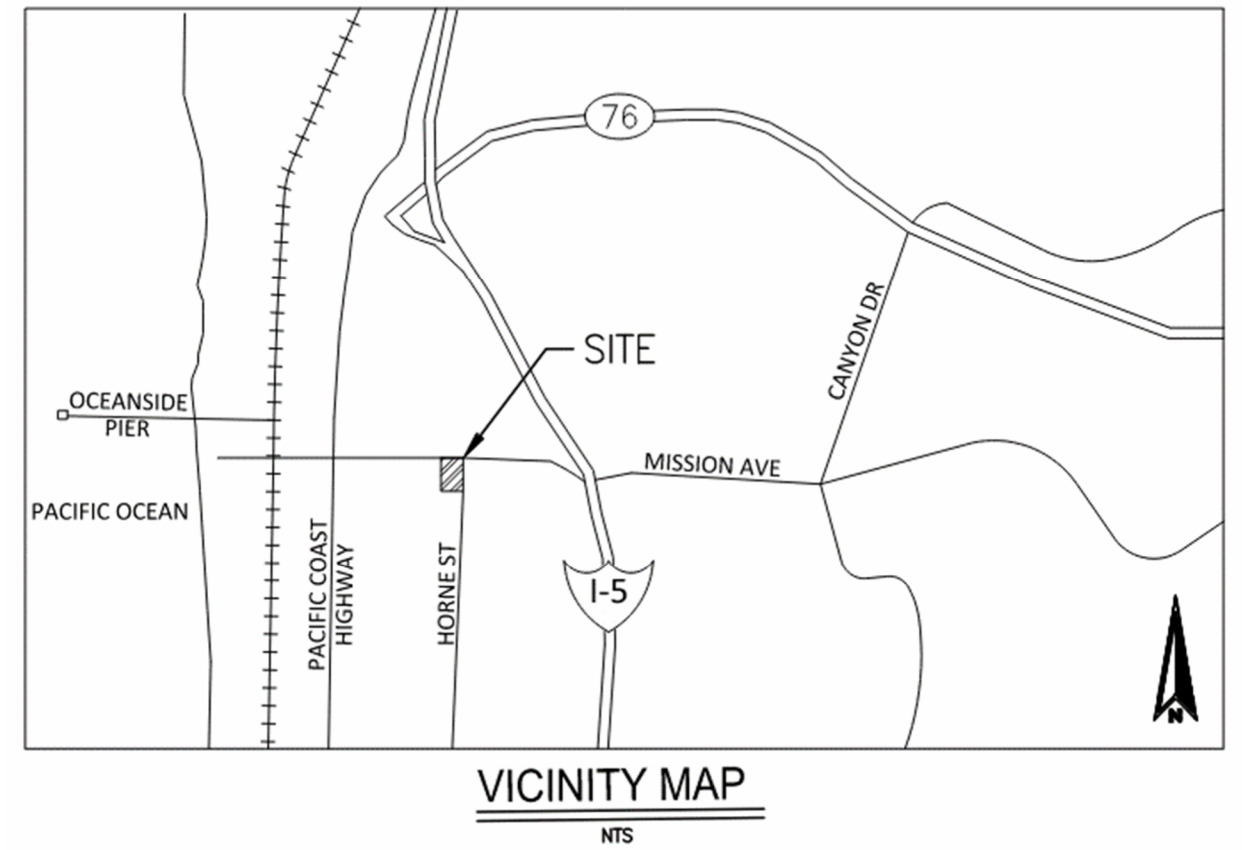


Figure 1. Vicinity Map

1.2 Existing Conditions

The project site in its existing condition consists of an approximately 1.5-acre vacant lot. Existing ground cover consists of grasses, weeds and small shrubs with an asphalt concrete alley bisecting the lot running from Horne St to Clementine St. Existing public utilities including sewer, water, gas and underground/overhead electrical exist within the alley. The site slopes from northeast to southwest at an average slope of 6-7%, there is approximately 15' of elevation difference across the site. Based on aerial photographs accessed on historicaerials.com, the site was graded prior to 1938 and has gone through several stages of improvements and occupancies, all of which have been demolished. The site has sat vacant since 2009.

Storm water runoff from the site consists primarily of sheet flow that drains southwest and confluences in the curb and gutter along the northeast side of Clementine St. Flow travels by curb and gutter northwest to Mission Ave and confluences with flows from Mission Ave in a cross gutter. Flows then enter a green street planter at the south corner of the intersection of Mission Ave and Clementine St. Excess flows that bypass the green street planter continue southwest down Mission Ave and pass through a series of green street planters. Flows that bypass the Mission Ave green street planters enter curb inlets located near the east corner of the intersection of Mission Ave and Coast Highway. From the curb inlet, flows enter an existing storm drain system and travel northwest to an outlet at Surfrider St and The Strand North where it discharges directly into the Pacific Ocean.

The existing public storm drain system that conveys the site's flow to the Pacific Ocean is deemed inadequate for the 10, 25 & 100-year storm event according to, "The City of Oceanside Master Plan of Drainage, Update 2013," (MPD) prepared by Torrey Walker Engineering, Inc. The City of Oceanside plans to upgrade the public storm drain system to meet the demands of its watershed however the storm drain upgrades are not yet constructed.

1.3 Proposed Conditions

The proposed mixed-use, transit-oriented development will consist of 268 dwelling units, approximately 5,550 SF of commercial/office and commercial/retail space, and associated amenity spaces. The existing site improvements will be demolished and the existing utilities bisecting the site (water, sewer, gas and underground electrical) will be rerouted around the site within the public right-of-way.

The project is not located within the FEMA 100-year Floodplain or Floodway. The project is in an area of minimal flood hazard (Zone X), per FEMA FIRM Map Number 06073C0734J, see Appendix 6. A Conditional Letter of Map Revision (CLOMR) will not be required to be processed with FEMA.

The project will maintain existing drainage patterns to the maximum extent practical. Onsite drainage within series 100 consists of sheet flow and mild concentrated flows that drain south/southwest, having an average slope of 1-2%. Onsite storm water runoff is conveyed to a series of inlets that collect and convey storm water runoff through storm

drains to a detention vault located in the underground parking level B1. Flows then pass through a storm drain cleanout with a flood control weir & orifice. Flows requiring treatment are directed to a proprietary treatment control BMP and then to a pump (both on underground parking level B2); excess flows bypass the treatment control BMP and go to the pump. The pump discharges through a velocity control structure and sidewalk underdrain out to the curb and gutter along the northeast side of Clementine St. As in existing conditions, stormwater runoff from the proposed development will ultimately discharge to the Pacific Ocean via the existing drainage patterns as described in the previous section.

The project will not result in increased 100-yr peak flow rates in the proposed condition after mitigation of the 100-year runoff. As shown in section 3.1 of this report, the Proposed-Mitigated 100-yr peak discharge will be ≤3.3 cfs, the discharge rate will be controlled by the pump. To mitigate the proposed conditions approximately 5,400cf of storage volume is proposed as determined in Appendix 8. Stage storage calculations are in progress and will be included in final engineering. The proposed project is not anticipated to negatively affect the downstream facilities compared to existing conditions including the existing green street planters along Mission Ave.

The site is exempt from hydromodification management because runoff is conveyed by concrete lined surfaces and underground storm drains to its point of discharge to the Pacific Ocean.

2. METHODOLOGY

2.1 Rational Method

Runoff was calculated using the Modified Rational Method equation below:

$Q = C \times I \times A$

Where:
Q = Flow rate in cubic feet per second (cfs) C = Runoff coefficient
I = Rainfall Intensity in inches per hour (in/hr) A = Drainage basin area in acres, (ac)

Modified Rational Method calculations were performed using the Advanced Engineering Software AES 2014) computer program. To perform the hydrology routing, the total watershed area was divided into sub-areas which discharge at designated nodes. The procedure for the sub-area summation model is as follows:

(1) Subdivide the watershed into an initial sub-area (generally 1 lot) and subsequent sub- areas, which are generally less than 10 acres in size. Assign upstream and downstream node numbers to each sub-area.

(2) Estimate an initial T_c by using the appropriate nomograph or overland flow

velocity estimation. The minimum T_c considered is 5.0 minutes.

(3) Using the initial T_c, determine the corresponding values of I. Then Q = CIA.

(4) Using Q, estimate the travel time between this node and the next by Manning's equation as applied to particular channel or conduit linking the two nodes. Then, repeat the calculation for Q based on the revised intensity (which is a function of the revised time of concentration)

The nodes are joined together by links, which may be street gutter flows, drainage swales, drainage ditches, pipe flow, or various channel flows. The AES 2014 computer software sub-area menu is as follows:

SUBAREA HYDROLOGIC PROCESS

1. Confluence analysis at node.
2. Initial sub-area analysis (including time of concentration calculation).
3. Pipe flow travel time (computer estimated).
4. Pipe flow travel time (user specified).
5. Trapezoidal channel travel time.
6. Street flow analysis through sub-area.
7. User-specified information at node.
8. Addition of sub-area runoff to main line.
9. V-gutter flow through area.
10. Copy main stream data to memory bank
11. Confluence main stream data with a memory bank
12. Clear a memory bank

At the confluence point of two or more basins, the following procedure is used to combine peak flow rates to account for differences in the basin's times of concentration. This adjustment is based on the assumption that each basin's hydrographs are triangular in shape.

(1). If the collection streams have the same times of concentration, then the Q values are directly summed,

$$Q_p = Q_a + Q_b;\ T_p = T_a = T_b$$

(2). If the collection streams have different times of concentration, the smaller of the tributary Q values may be adjusted as follows:

(i). The most frequent case is where the collection stream with the longer time of concentration has the larger Q. The smaller Q value is adjusted by a ratio of rainfall intensities.

$$Q_p = Q_b + Q_a\,(I_b/I_a);\ T_p = T_a$$

(ii). In some cases, the collection stream with the shorter time of concentration has the larger Q. Then the smaller Q is adjusted by a ratio of the T values.

$Q_p = Q_b + Q_a (T_b/T_a)$; $T_p = T_b$

2.2 Computing Detention Pond Routing

Detention pond routing is the process of passing a flood hydrograph through a storage reservoir or detention pond. This process changes the pattern of flow with respect to time but conserves volume. The purpose of detention pond routing is usually to reduce the peak flow to a predetermined level, or to delay the peak. The routing procedure used by Hydraflow Hydrographs Extension is known as the Storage Indication method and begins with a stage- storage-discharge relationship, an inflow hydrograph, and the following equation:

$$I - O = \frac{ds}{dt}$$

Where:
I = inflow, O = outflow, ds/dt = change in storage

2.3 Runoff Coefficient

For existing conditions, the runoff coefficient for the project was calculated using Table 3-1: Runoff Coefficients for Urban Areas, of the 2003 San Diego County Hydrology Manual, and the corresponding percentage of impervious surface for each tributary area. The site contains Hydrologic Soil Group D soils and has a runoff coefficient of 0.35.

For the proposed condition, the runoff coefficient for the project was calculated using Table 3-1: Runoff Coefficients for Urban Areas, of the 2003 San Diego County Hydrology Manual. For roofs and concrete areas a run-off coefficient of 0.90 was used; for landscape areas a run-off coefficient of 0.10 was used. A weighted run-off coefficient was calculated using the corresponding percentage of impervious surface for each tributary area. For a detailed breakdown of tributary areas and runoff coefficients see the DMA Summary Table included in the project SWQMP as Attachment 1b.

2.4 Rainfall Intensity

Rainfall intensity was determined by using AES software, which utilizes Figure 3-2: Rainfall Intensity-Duration Design Chart of the San Diego County Hydrology Manual, see Appendix 9.

2.5 Tributary Areas

Drainage basins are delineated on the Existing and Proposed Hydrology Condition Maps in Appendix 1 and 2.

2.6 Stage Storage

Hydraflow Hydrograph by Autodesk will be used to perform stage storage detention basin routing of the underground storage system (HMP 1) during final engineering. The underground storage system will be modeled to determine the volume capacity and peak flow attenuation of the basin during a 100-year storm event. See Appendix 8 for basin routing calculations (to be provided in final engineering).

The underground storage system outflows obtained from Hydraflow will be used in the AES mitigated conditions to analyze the total cumulative flow at Node 100. 100-year storm attenuation will be performed for HMP 1 during final engineering.

3. CALCULATIONS/RESULTS

3.1 Peak Flow Comparison

The summary tables below present the comparison between pre- and post-development flows for each point of compliance.

EXISTING CONDITION HYDROLOGY SUMMARY		
NODE	**AREA (AC)**	**EXISTING 100-YEAR DISCHARGE (CFS)**
100	1.47	3.3

PROPOSED CONDITION HYDROLOGY SUMMARY		
NODE	**AREA (AC)**	**PROPOSED 100-YEAR DISCHARGE (CFS)**
100	1.47	7.7

PROPOSED-MITIGATED CONDITION HYDROLOGY SUMMARY		
NODE	**AREA (AC)**	**MITIGATED 100-YEAR DISCHARGE (CFS)**
100	1.47	≤3.3

3.2 Public Storm Drain

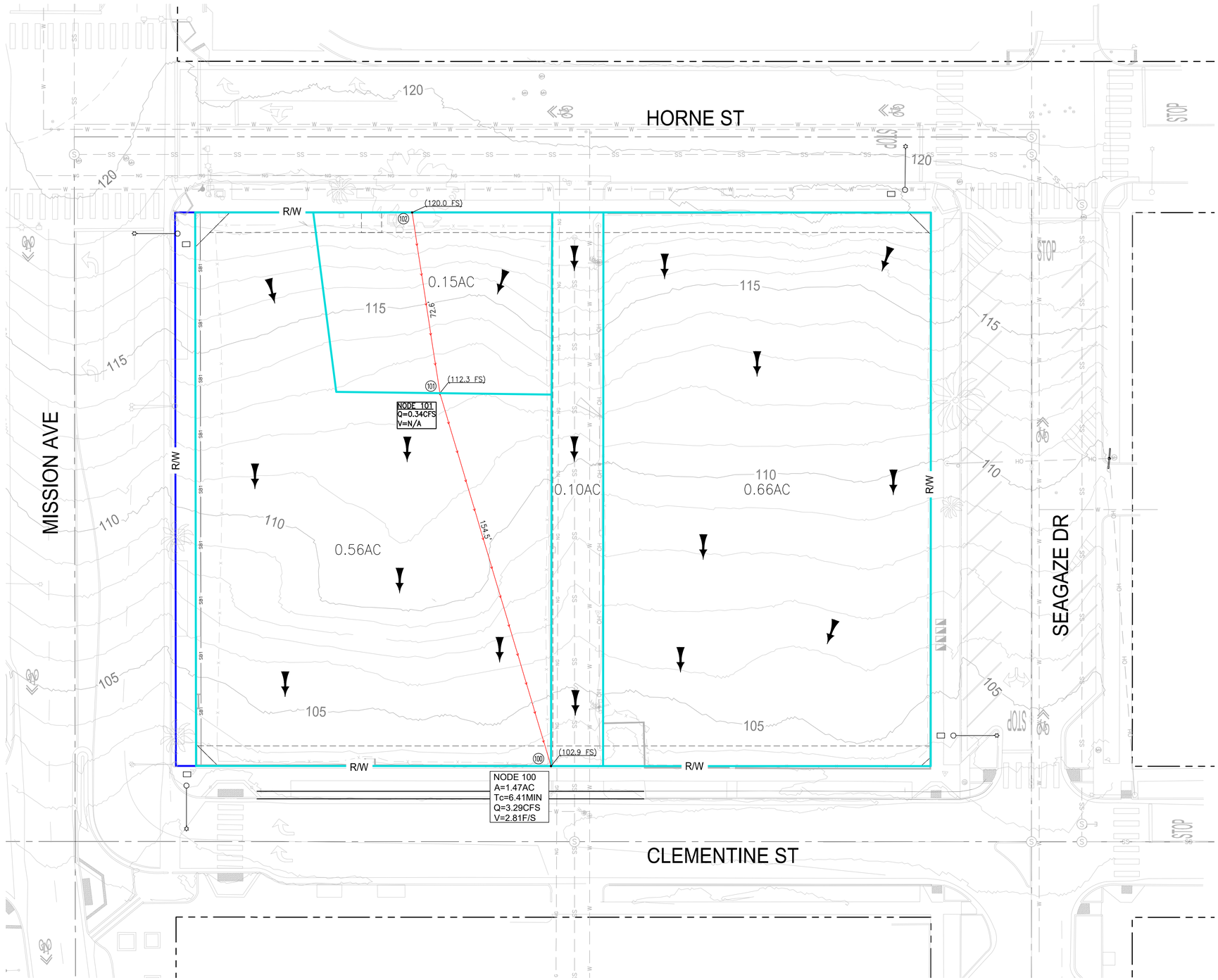
No public storm drains are proposed.

4. CONCLUSION

The project will match existing drainage patterns to the maximum extent feasible and will utilize the existing discharge point to the Pacific Ocean. The project will not increase the 100-year peak flow rates after mitigating the 100-year runoff compared to existing conditions. The existing public storm drains downstream of the project site do not have capacity to convey the 100-year storm event runoff generated from their tributary area as stated in "The City of Oceanside Master Plan of Drainage, Update 2013," prepared by Torrey Walker Engineering, Inc. The city proposes to upgrade the deficient storm drains as part of the Cleveland St Storm Drain Project, but they are not yet constructed. Because the proposed development does not increase 100-year peak flows compared to existing conditions, the project is not anticipated to cause any drainage impacts to the existing public drainage facilities or adjacent properties.

APPENDIX 1

EXISTING HYDROLOGY MAP



LEGEND

HYDROLOGY NODE NUMBER	(117)
FLOW PATH	
SURFACE FLOW DIRECTION	
BASIN LIMIT	
EXISTING CONTOUR	101

20' 0' 10' 20' 40'

SCALE: 1" = 20'

901 MISSION AVENUE

EXISTING HYDROLOGY

FUSCOE ENGINEERING
6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
858.554.1500
fuscoe.com

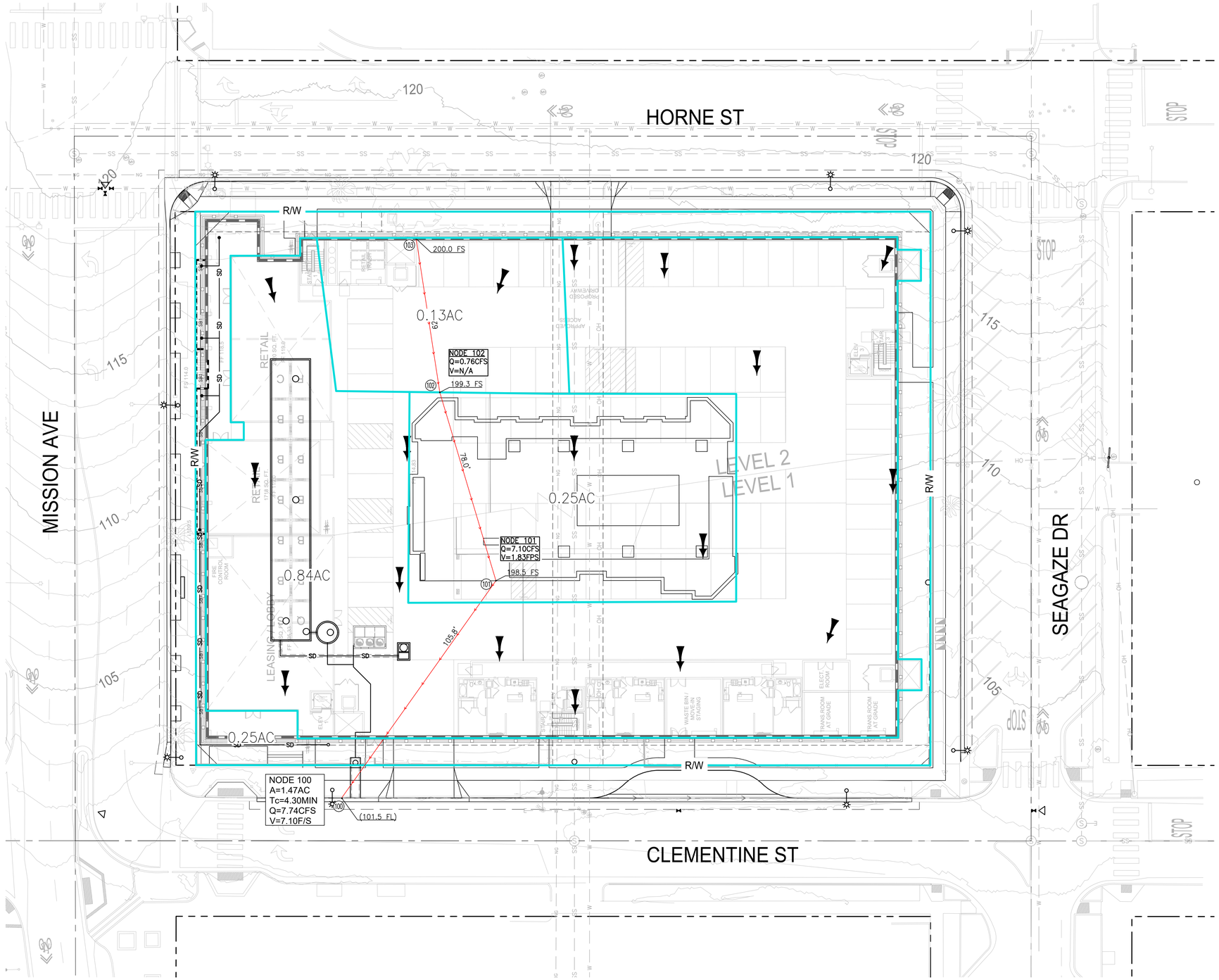
JOB NO. 557-017

DRAWN BY: JGB

SHEET 1 of 1

APPENDIX 2

PROPOSED HYDROLOGY MAP



LEGEND

HYDROLOGY NODE NUMBER	(117)
FLOW PATH	
SURFACE FLOW DIRECTION	
BASIN LIMIT	
EXISTING CONTOUR	101

N

20' 0' 10' 20' 40'

SCALE: 1" = 20'

901 MISSION AVENUE

PROPOSED HYDROLOGY

FUSCOE ENGINEERING
6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
858.554.1500
fuscoe.com

JOB NO. 557-017

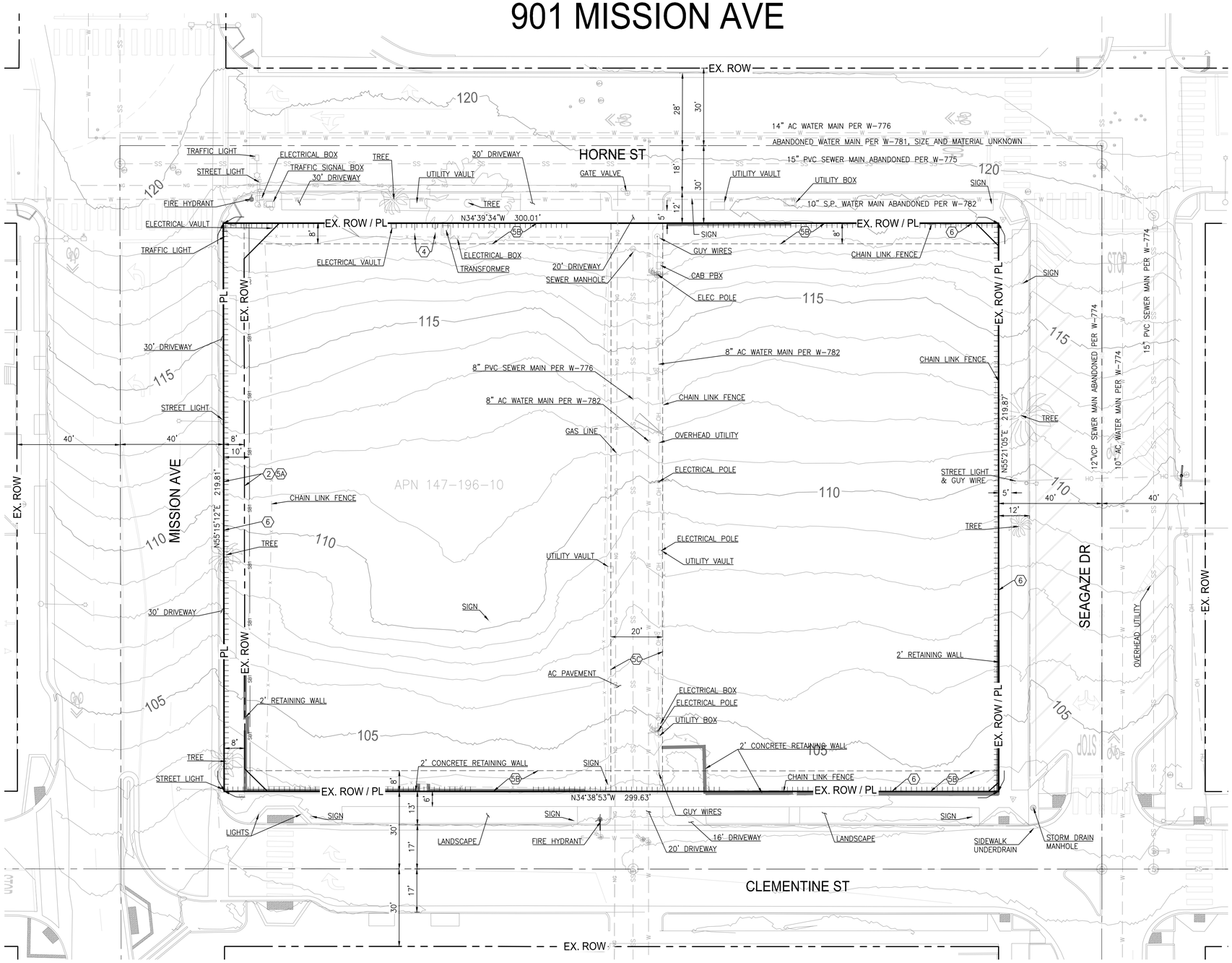
DRAWN BY: JGB

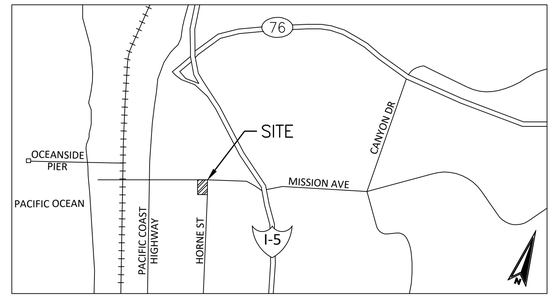
SHEET 1 of 1

APPENDIX 3

CONCEPTUAL GRADING & UTILITY PLANS

CONCEPTUAL GRADING AND UTILITY PLANS
FOR
901 MISSION AVE





VICINITY MAP
NTS

OWNER/ APPLICANT

AMIDI REAL ESTATE, LLC AND A & J, LLC
RAHIM AMIDHOZOUR
(650) 474-5785
370 CONVENTION WAY, REDWOOD CITY, CALIFORNIA 94063

SURVEY SOURCE

THE TOPOGRAPHIC MAPPING USED FOR THIS SURVEY IS BASED ON A FIELD SURVEY PERFORMED BY PLSA ENGINEERING PER FLIGHT OF 04/10/2024.
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, NAD 83 (CCS83) EPOCH 2011, ZONE 6, AS DETERMINED LOCALLY BY A LINE BETWEEN CONTROL STATIONS 1004 AND 1003 BEING A GRID BEARING OF N78°44'08"W AS DERIVED FROM GEODETIC VALUES SHOWN ON ROS NO. 21787, CITY OF OCEANSIDE SURVEY CONTROL, FILED ON JULY 23, 2007 AS FILE NO. 2007-15581 IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.
4.ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND 3.5" BRASS DISC IN WELL MONUMENT STAMPED "LS 7959" AS SHOWN ON ROS 21787 AS POINT NO. 1004
ELEVATION:120.59' (NAVD 88)

ZONING

EXISTING ZONE: D-2

PARCEL AREA

EXISTING: 1.51 AC
PROPOSED: 1.51 AC

ASSESSORS PARCEL NUMBER

147-196-10

EXISTING LEGAL DESCRIPTION

LOT 1 OF THE BELVEDERE MIXED-USE PROJECT, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 15581, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JULY 23,2007.

EASEMENTS NOTES PER PRELIMINARY TITLE REPORT PROVIDED BY CHICAGO TITLE COMPANY ORDER NO. 00203181, DATED FEBRUARY 28, 2024

1 ITEM 1 IS NON MAPPING AND NOT SHOWN HEREON

(2) EASEMENT FOR PUBLIC HIGHWAY IN FAVOR OF THE CITY OF OCEANSIDE BY DOCUMENT RECORDED JUNE 16, 1969 AS FILE/PAGE NO. 106989, 106990, AND 106991 O.R.

3 ITEM 3 IS NON MAPPING AND NOT SHOWN HEREON

(4) AN EASEMENT FOR ELECTRIC POLE LINES AND UNDERGROUND CONDUITS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY BY DOCUMENT RECORDED MAY 23, 1978 AS FILE/PAGE NO. 78-209943 OF OFFICIAL RECORDS.

(5A) PUBLIC RIGHT-OF-WAY DEDICATED TO THE CITY OF OCEANSIDE PER MAP 15581

(5B) AN EASEMENT FOR 8' PUBLIC ACCESS AND GENERAL UTILITIES AS SHOWN ON MAP NO. 15581.

(5C) 20' PUBLIC UTILITY EASEMENT OVER THE VACATED ALLEY PER MAP 15581 TO BE VACATED PER SEPERATE INSTRUMENT.

(6) THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF VEHICULAR ACCESS TO HORNE STREET, SEAGAZE DRIVE, CLEMENTINE STREET AND MISSION AVENUE, EXCEPT THE DRIVEWAY OPENINGS FOR LOT 1 OF MAP NO. 15581.(LIMITS ACCESS TO ABUTTING RIGHT-OF-WAY - PLOTTED AS) ACCESS RIGHTS TO BE REMANDED AT PROPOSED ACCESS DRIVEWAYS

SHEET INDEX

ENGINEER IN CHARGE — 36083 RCE — DATE

LICENSED LAND SURVEYOR — 8070 PLS — DATE

LEGAL OWNER — DATE

LEGEND

PROPOSED:
SETBACK — SB1
STREET CENTERLINE
RIGHT OF WAY — R/W
EASEMENT
PROPOSED SEWER — SS
SEWER MANHOLE
SEWER CLEANOUT
FIRE WATER — FW
DOMESTIC WATER — W
FIRE HYDRANT
STORM DRAIN — SD
CONCRETE
ASPHALT CONCRETE
ELECTRICAL — E
GAS
SIDEWALK
CURB AND GUTTER
MODULAR WETLAND SYSTEM (MWS)
DEMOLITION OF UTILITY LINE
STREET LIGHT
AREA DRAIN
SIDEWALK UNDERDRAIN
SHORING WALL
BASEMENT RETAINING WALL
MASONRY RETAINING WALL
UNDERGROUND DETENTION VAULT

EXISTING:
STREET LIGHT
SEWER — SS
SEWER MANHOLE
UTILITY VALVE
FIRE WATER — FW
DOMESTIC WATER — W
STORM DRAIN — SD
FIRE HYDRANT
ELECTRICAL — E
GAS — NG
FENCE — X
RIGHT OF WAY — R/W

GRADING QUANTITIES

TOTAL DISTURBED AREA:	1.51 AC
PROJECT MAX DEPTH OF CUT:	35.1 FT
PROJECT MAX DEPTH OF FILL:	0 FT
MAX CUT SLOPE RATIO:	2:1
MAX FILL SLOPE RATIO:	2:1

ON-SITE GRADING:

DISTURBED AREA:	1.51 AC
AMOUNT OF CUT:	58,400 CY
AMOUNT OF FILL:	0 CY
AMOUNT OF EXPORT:	58,400 CY

GRADING QUANTITIES ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN. QUANTITIES SHALL NOT BE USED FOR BIDDING PURPOSES.

UTILITIES

ELECTRIC – SDG&E
GAS – SDG&E
TELEPHONE – COX OR AT&T
STORM DRAIN – OCEANSIDE WATER UTILITIES DEPARTMENT
WATER – OCEANSIDE WATER UTILITIES DEPARTMENT
SEWER – OCEANSIDE WATER UTILITIES DEPARTMENT

JPI

901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

F:\PROJECTS\557\017\PLANS\ENTITLEMENTS\0557-17-C1-TS.DWG (10-31-2024 10:04:41AM) Plotted by: JBlackwelder

ENTITLEMENT NUMBER
RD24-00002

REGISTERED PROFESSIONAL ENGINEER ERIC K. ARMSTRONG RCE 36083 Civil STATE OF CALIFORNIA
PRELIMINARY

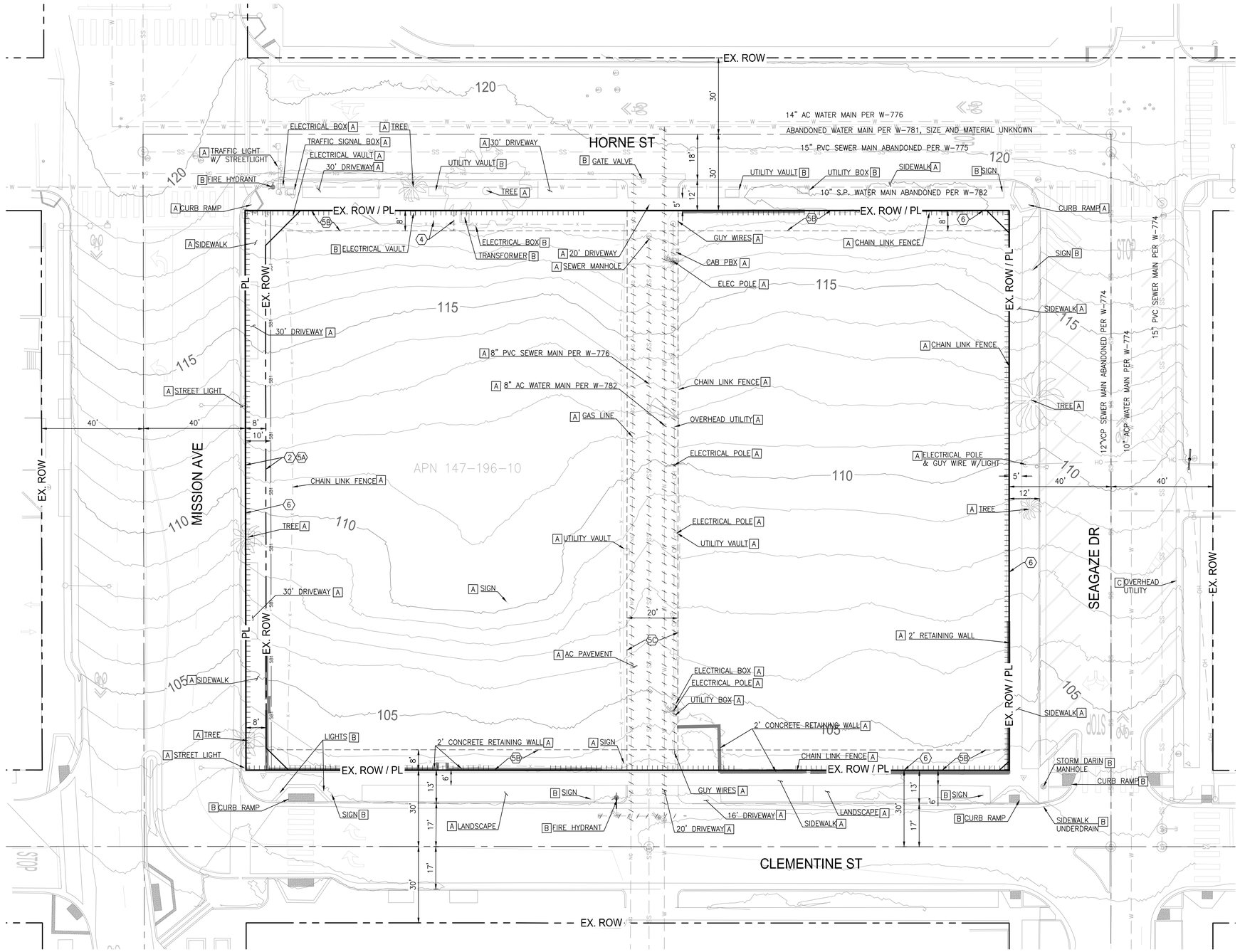
TITLE SHEET & EXISTING CONDITIONS PLAN

NORTH
1"=20'
0 20' 40' 60' 80'

FUSCOE ENGINEERING
6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
858.554.1500 fuscoe.com

C1.0

JOB NO. 0557-017
DATE 08-09-2024



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DEMOLITION NOTES

A	EXISTING TO BE REMOVED
B	EXISTING TO REMAIN – PROTECT IN PLACE
C	EXISTING TO BE REMOVED AND UNDERGROUNDED

NOTICE TO CONTRACTOR

1. ADJUST ALL SURFACE UTILITES WITHIN LIMITS OF WORK TO PROPOSED GRADES
2. THE UPPER 24 INCHES OF SITE SOILS SHOULD BE REMOVED & RE-COMPACTED IN AREAS OF SIDEWALKS & SURFACE PARKING. IF LOOSE, DISTURBED, OR OTHERWISE UNSUITABLE MATERIALS ARE ENCOUNTERED AT THE BOTTOM OF EXCAVATION, DEEPER REMVOAL WILL BE REQUIRED UNTIL FIRM NATIVE SOILS ARE ENCOUNTERED. SEE GEOTECHNICAL REPORT SECTION 7.2 FOR OVER-EXCAVATION INFORMATION.

901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

F:\PROJECTS\557\017\PLANS\ENTITLEMENTS\0557-17-C2-DM.DWG (10-31-2024 10:04:49AM) Plotted by: JBlackwelder

ENTITLEMENT NUMBER
RD24-00002

REGISTERED PROFESSIONAL ENGINEER RICK K. ARMSTRONG RCE 36083 Civil STATE OF CALIFORNIA
PRELIMINARY

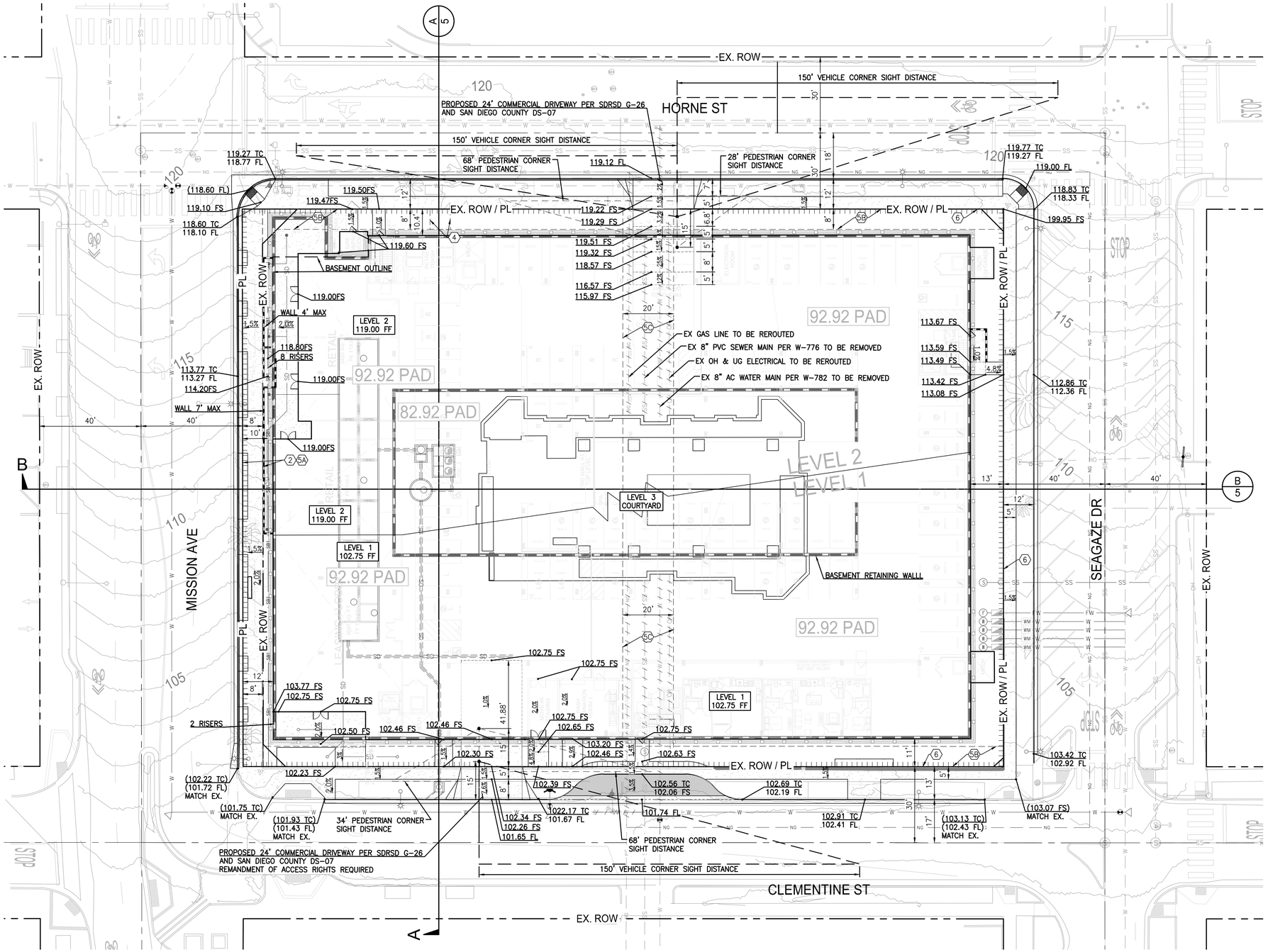
DEMOLITION PLAN

1"=20'
0 20' 40' 60' 80'

FUSCOE ENGINEERING
6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
858.554.1500
fuscoe.com

C2.0

JOB NO. 0557-017
DATE 08-09-2024



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901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

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ENTITLEMENT NUMBER
RD24-00002

REGISTERED PROFESSIONAL ENGINEER ERIC K. ARMSTRONG RCE 36083 Civil STATE OF CALIFORNIA
PRELIMINARY

CONCEPTUAL GRADING PLAN

1"=20'
0 20' 40' 60' 80'

FUSCOE ENGINEERING
6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
858.554.1500
fuscoe.com

C3.0

JOB NO. 0557-017
DATE 08-09-2024

CONSTRUCTION NOTES

(1) PROPOSED STREET LIGHT PER OTHERS. STREET LIGHTS TO BE DECORATIVE BLUE POLES AS REQUIRED PER SPECIAL STANDARDS FOR DOWNTOWN AREA SPECIFIED IN THE CITY'S STREET LIGHT DESIGN MANUAL.

EASEMENTS NOTES PER PRELIMINARY TITLE REPORT PROVIDED BY CHICAGO TITLE COMPANY ORDER NO. 00203181

1 ITEM 1 IS NON MAPPING AND NOT SHOWN HEREON

(2) EASEMENT FOR PUBLIC HIGHWAY IN FAVOR OF THE CITY OF OCEANSIDE BY DOCUMENT RECORDED JUNE 16, 1969 AS FILE/PAGE NO. 106989, 106990, AND 106991 O.R.

3 ITEM 3 IS NON MAPPING AND NOT SHOWN HEREON

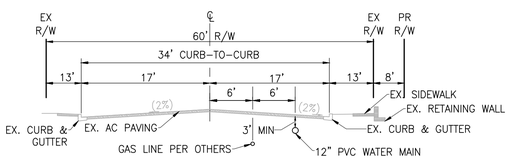
(4) AN EASEMENT FOR ELECTRIC POLE LINES AND UNDERGROUND CONDUITS IN FAVOR OF SAN DIEGO GAS & ELECTRIC COMPANY BY DOCUMENT RECORDED MAY 23, 1978 AS FILE/PAGE NO. 78-209943 OF OFFICIAL RECORDS.

(5A) PUBLIC RIGHT-OF-WAY DEDICATED TO THE CITY OF OCEANSIDE PER MAP 15581

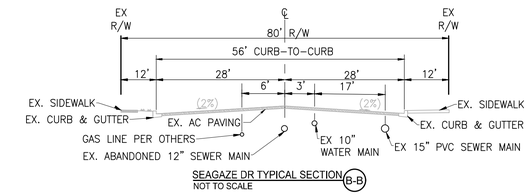
(5B) AN EASEMENT FOR 8' PUBLIC ACCESS AND GENERAL UTILITIES AS SHOWN ON MAP NO. 15581.

(5C) 20' PUBLIC UTILITY EASEMENT OVER THE VACATED ALLEY PER MAP 15581 TO BE VACATED PER SEPERATE INSTRUMENT.

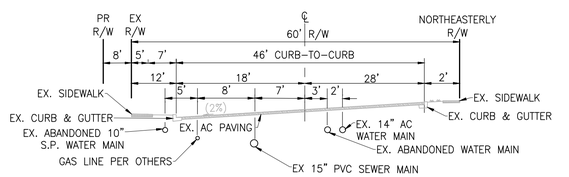
(6) THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF VEHICULAR ACCESS TO HORNE STREET, SEAGAZE DRIVE, CLEMENTINE STREET AND MISSION AVENUE, EXCEPT THE DRIVEWAY OPENINGS FOR LOT 1 OF MAP NO. 15581.(LIMITS ACCESS TO ABUTTING RIGHT-OF-WAY – PLOTTED AS |||||||||) ACCESS RIGHTS TO BE REMANDED AT PROPOSED ACCESS DRIVEWAYS



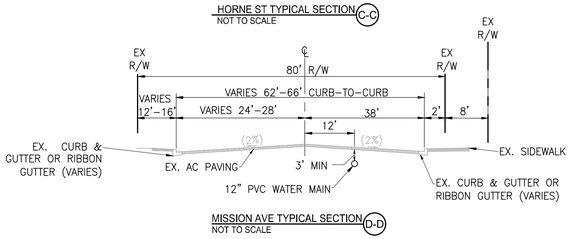
CLEMENTINE ST TYPICAL SECTION (A-A)
NOT TO SCALE



SEAGAZE DR TYPICAL SECTION (B-B)
NOT TO SCALE



HORNE ST TYPICAL SECTION (C-C)
NOT TO SCALE



MISSION AVE TYPICAL SECTION (D-D)
NOT TO SCALE

901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

F:\PROJECTS\557\017\PLANS\ENTITLEMENTS\0557-17-C4-IP.DWG (10-31-2024 10:05:13AM) Plotted by: JBlackwelder

ENTITLEMENT NUMBER
RD24-00002

PRELIMINARY

CONCEPTUAL PUBLIC IMPROVEMENT & UTILITY PLAN

1"=20'

0 20' 40' 60' 80'

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6390 Greenwich Dr, Suite 170
San Diego, Ca 92122
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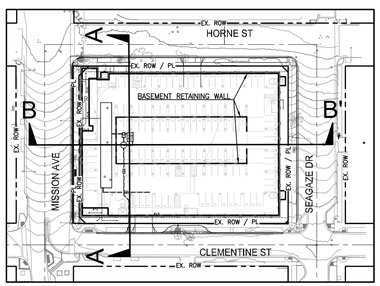
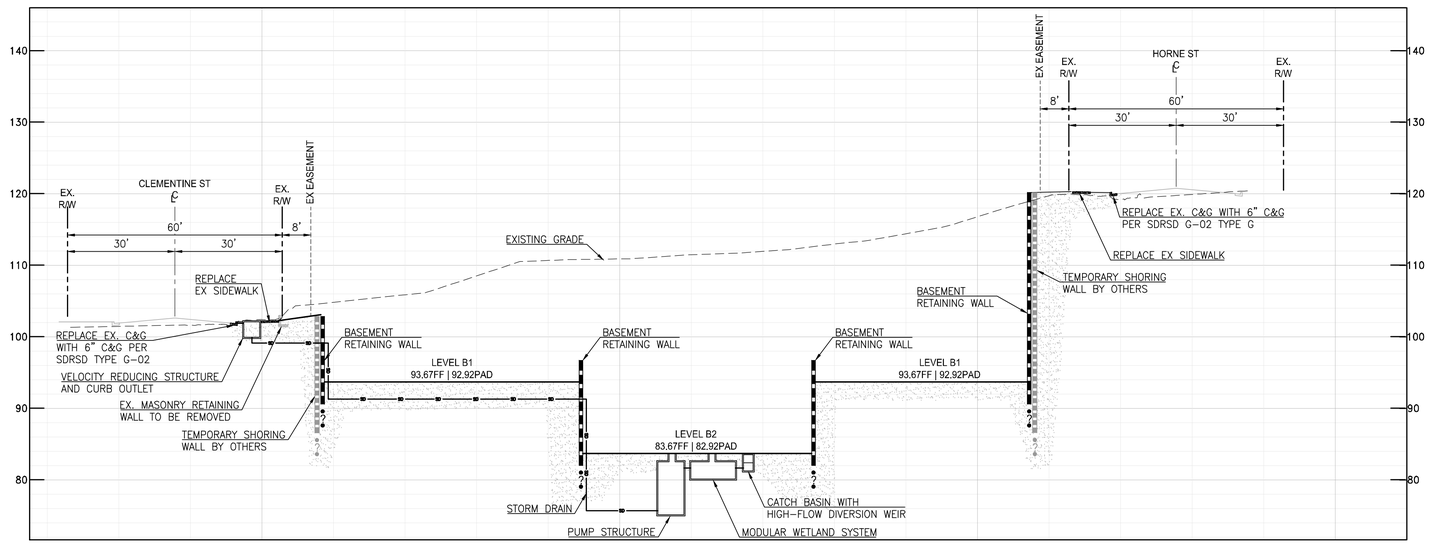
C4.0

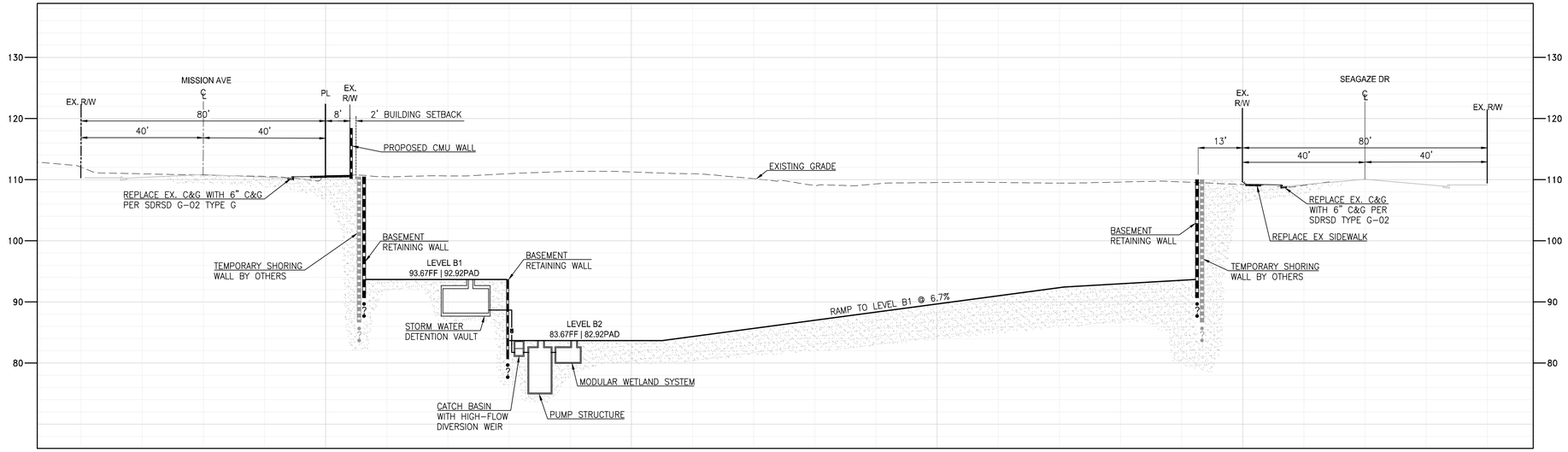
JOB NO. 0557-017
DATE 08-09-2024



KEY MAP
SCALE: 1"=100'



SECTION A
SCALE: HORIZ 1"=20'
VERT 1"=10'



SECTION B
SCALE: HORIZ 1"=20'
VERT 1"=10'

901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA

F:\PROJECTS\557\017\PLANS\ENTITLEMENTS\0557-17-C6-SCT.DWG (10-31-2024 10:05:23AM) Plotted by: JBlackwelder

ENTITLEMENT NUMBER
RD24-00002

REGISTERED PROFESSIONAL ENGINEER ERIC K. ARMSTRONG RCE 36083 Civil STATE OF CALIFORNIA
PRELIMINARY

SECTIONS

1"=20'
0 20' 40' 60' 80'

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JOB NO. 0557-017
DATE 08-09-2024

APPENDIX 4

EXISTING HYDROLOGY CALCULATIONS

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ◦ fax 858.597.0335
www.fuscoe.com

Job Name: 901 Mission Ave
Job #: 557-017
Run Name: Existing Series 100
Date: 7/24/2024
Notes:

Node 1	Node 2	Code	Elev 1 (feet)	Elev 2 (feet)	Length (feet)	C Factor	Area (acres)	Comments	BANK 1	BANK 2	BANK 3
102	101	2	120.0	112.3	72.6	0.35	0.15	Soil Type D			
101	100	5	112.3	102.9	154.5	0.35	0.56				
100	100	8				0.85	0.10				
100	100	8				0.35	0.66				
						Total =	1.47				
		Area Weighted Runoff Coefficient =					0.38				

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1355

                              Analysis prepared by:

                             Fuscoe Engineering, Inc.
                                6390 Greenwich Dr.
                                    Suite #170
                               San Diego, CA 92122

 ************************* DESCRIPTION OF STUDY *************************
* 901 MISSION AVE PRE-DEVELOPMENT REPORT                                 *
* EXISTING SERIES 100                                                    *
* OCEANSIDE, CALIFORNIA                                                  *
 **************************************************************************

  FILE NAME: EX100S1.DAT
  TIME/DATE OF STUDY: 14:58 08/06/2024
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) =   4.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.10
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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 0.0312 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    102.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    72.60
 UPSTREAM ELEVATION(FEET) =    120.00
 DOWNSTREAM ELEVATION(FEET) =    112.30
 ELEVATION DIFFERENCE(FEET) =      7.70
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.340
 WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    4 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.566
 SUBAREA RUNOFF(CFS) =      0.34
 TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.34

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    100.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    112.30  DOWNSTREAM(FEET) =    102.90
 CHANNEL LENGTH THRU SUBAREA(FEET) =   154.50   CHANNEL SLOPE =  0.0608
 CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   5.000
 MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =   5.00
    4 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.834
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.92
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.40
 AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   1.07
 Tc(MIN.) =    6.41
 SUBAREA AREA(ACRES) =     0.56       SUBAREA RUNOFF(CFS) =    1.14
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =        0.7         PEAK FLOW RATE(CFS) =       1.45

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.09   FLOW VELOCITY(FEET/SEC.) =   2.81
 LONGEST FLOWPATH FROM NODE    102.00 TO NODE    100.00 =     227.10 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.00 TO NODE    100.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    4 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.834
 *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4117
  SUBAREA AREA(ACRES) =    0.10   SUBAREA RUNOFF(CFS) =    0.50
  TOTAL AREA(ACRES) =        0.8   TOTAL RUNOFF(CFS) =       1.95
  TC(MIN.) =    6.41

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
     4 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.834
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3840
  SUBAREA AREA(ACRES) =    0.66   SUBAREA RUNOFF(CFS) =    1.35
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       3.29
  TC(MIN.) =    6.41
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.5  TC(MIN.) =      6.41
  PEAK FLOW RATE(CFS)   =       3.29
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX 5

PROPOSED HYDROLOGY CALCULATIONS

FUSCOE ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 ◦ fax 858.597.0335
www.fuscoe.com

Job Name: 901 Mission Ave
Job #: 557-017
Run Name: Proposed Series 100
Date: 7/24/2024
Notes:

Node 1	Node 2	Code	Elev 1 (feet)	Elev 2 (feet)	Length (feet)	C Factor	Area (acres)	Comments	BANK 1	BANK 2	BANK 3
103	102	2	200.0	199.3	62.0	0.85	0.13	Assumed roof elevations			
102	101	5	199.3	198.5	78.0	0.85	0.25	Assumed flat roof, S=1%			
101	101	8				0.85	0.84				
101	100	3	198.5	101.5	105.8						
100	100	8				0.37	0.25				
						Total =	1.47				
		Area Weighted Runoff Coefficient =					0.77				

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1355

                              Analysis prepared by:

                             Fuscoe Engineering, Inc.
                                6390 Greenwich Dr.
                                    Suite #170
                               San Diego, CA 92122

 ************************* DESCRIPTION OF STUDY *************************
* 901 MISSION AVE POST-DEVELOPMENT REPORT                                *
* PROPOSED SERIES 100                                                    *
* OCEANSIDE, CALIFORNIA                                                  *
 **************************************************************************

  FILE NAME: PR100S1.DAT
  TIME/DATE OF STUDY: 15:02 08/06/2024
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.10
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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 0.0312 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    103.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    62.00
  UPSTREAM ELEVATION(FEET) =    200.00
  DOWNSTREAM ELEVATION(FEET) =    199.30
  ELEVATION DIFFERENCE(FEET) =      0.70
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.383
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    61.29
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.850
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.76
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.76

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    101.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    199.30  DOWNSTREAM(FEET) =    198.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =    78.00   CHANNEL SLOPE =  0.0103
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.850
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.48
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.63
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   0.80
  Tc(MIN.) =    4.18
  SUBAREA AREA(ACRES) =     0.25       SUBAREA RUNOFF(CFS) =    1.46
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.850
  TOTAL AREA(ACRES) =        0.4         PEAK FLOW RATE(CFS) =       2.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   1.83
  LONGEST FLOWPATH FROM NODE    103.00 TO NODE    101.00 =     140.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    101.00 IS CODE =  81
```

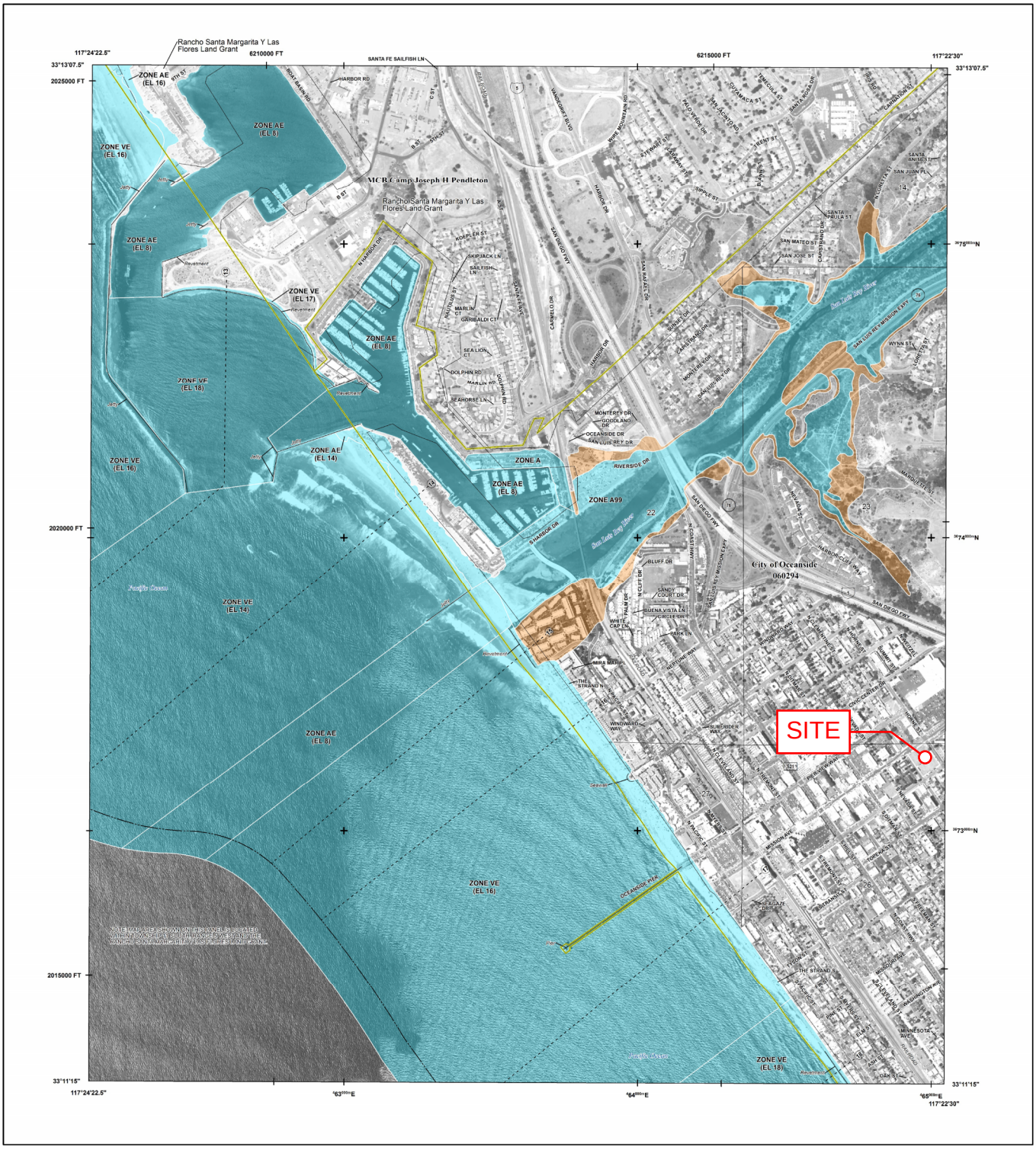
```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.850
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.8500
  SUBAREA AREA(ACRES) =    0.84   SUBAREA RUNOFF(CFS) =    4.89
  TOTAL AREA(ACRES) =        1.2   TOTAL RUNOFF(CFS) =       7.10
  TC(MIN.) =    4.18

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    100.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   198.50  DOWNSTREAM(FEET) =   101.50
  FLOW LENGTH(FEET) =   105.80   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.66
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.10
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    4.30
  LONGEST FLOWPATH FROM NODE    103.00 TO NODE    100.00 =     245.80 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.850
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7684
  SUBAREA AREA(ACRES) =    0.25   SUBAREA RUNOFF(CFS) =    0.63
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       7.74
  TC(MIN.) =    4.30
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.5  TC(MIN.) =      4.30
  PEAK FLOW RATE(CFS)   =       7.74
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX 6

FEMA FLOOD MAP



FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

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*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
OTHER FEATURES	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from digital orthophotography collected by the U.S. Department of Agriculture Farm Service Agency. Department of Agriculture imagery was flown in 2016 and was produced with a 1-meter ground sample distance.

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Coastal flood elevations are also provided in the Coastal Transect Parameters table in the FIS Report for this jurisdiction. Elevations shown in the Coastal Transect Parameters table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

SCALE

N

Map Projection:
Universal Transverse Mercator Zone 11N; North American Datum 1983;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR

*PANEL NOT PRINTED

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA and Incorporated Areas

PANEL 734 OF 2375

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
OCEANSIDE, CITY OF	060294	0734	J
SAN DIEGO COUNTY	060284	0734	J

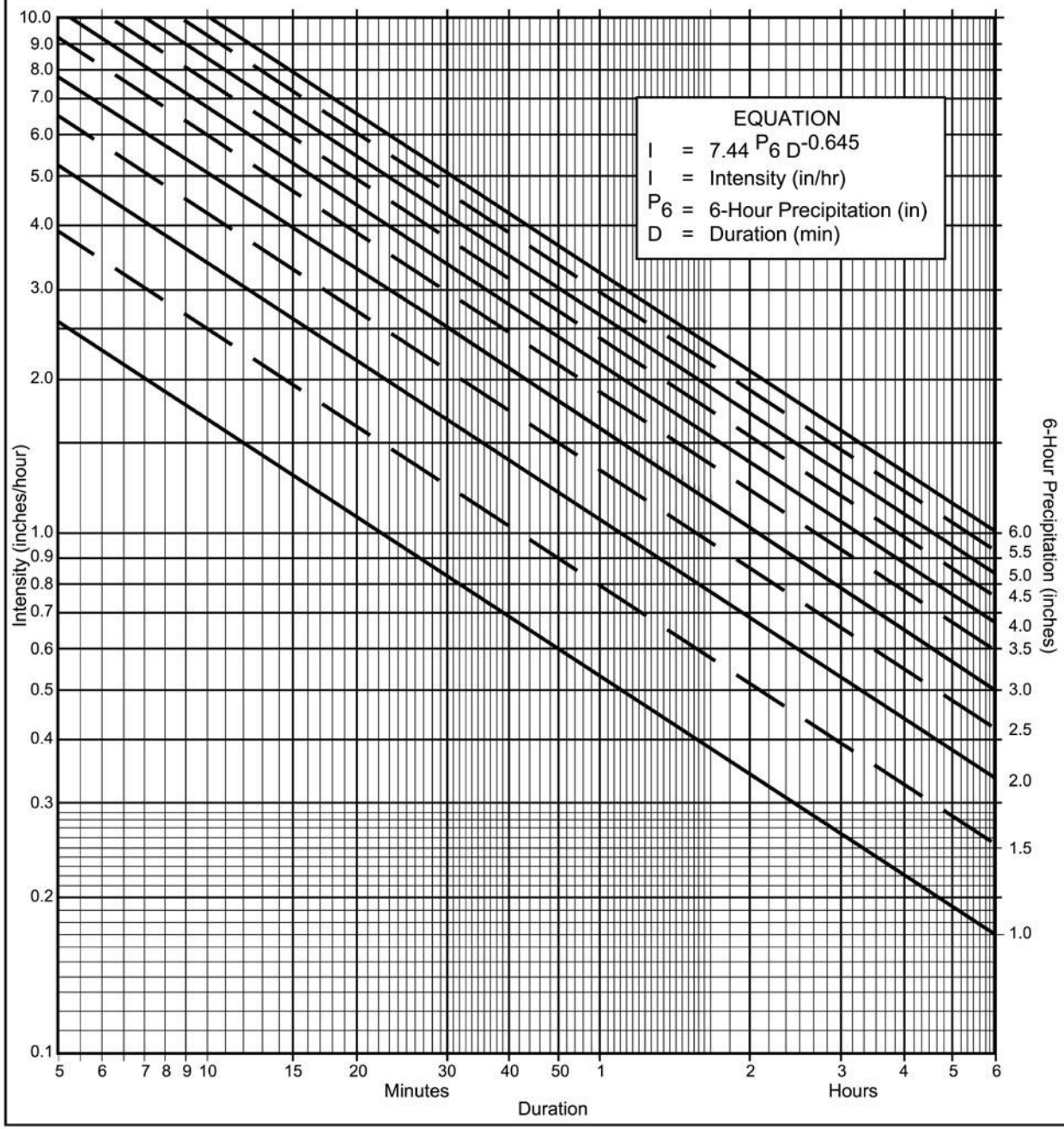
VERSION NUMBER
2.3.3.3

MAP NUMBER
06073C0734J

MAP REVISED
DECEMBER 20, 2019

APPENDIX 7

SAN DIEGO COUNTY
100-YEAR ISOPOLUVIAL MAPS



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 100 year

(b) P_6 = 2.6 in., P_{24} = 4.5, $\frac{P_6}{P_{24}}$ = 58 %(2)

(c) Adjusted P_6(2) = NA in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

33.11'49" N
117.22'35" W

2.6"

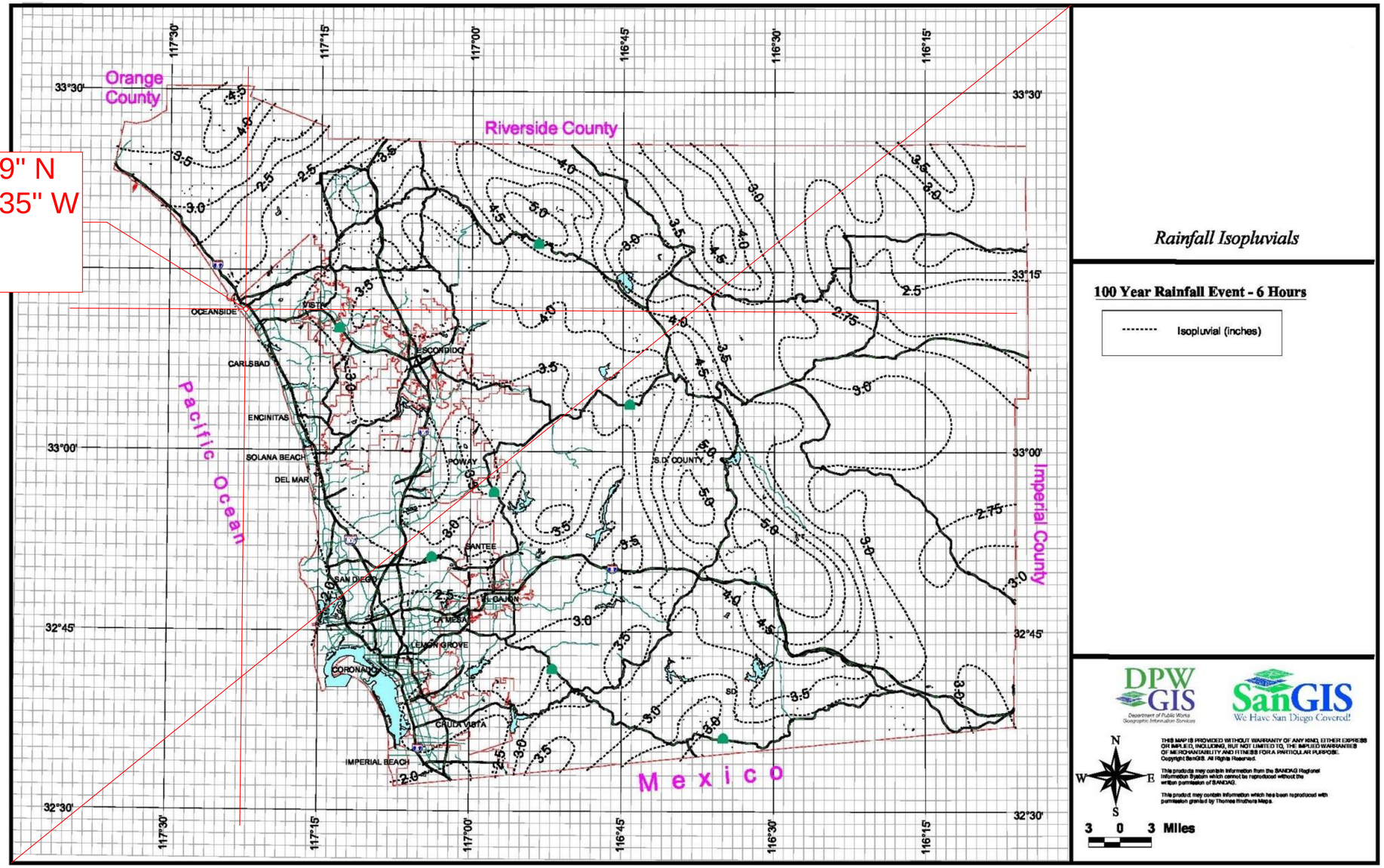


Figure B-2. 100-Year 6-Hour Isopluvials.

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

33.11'49" N
117.22'35" W

4.5"

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

3 0 3 Miles

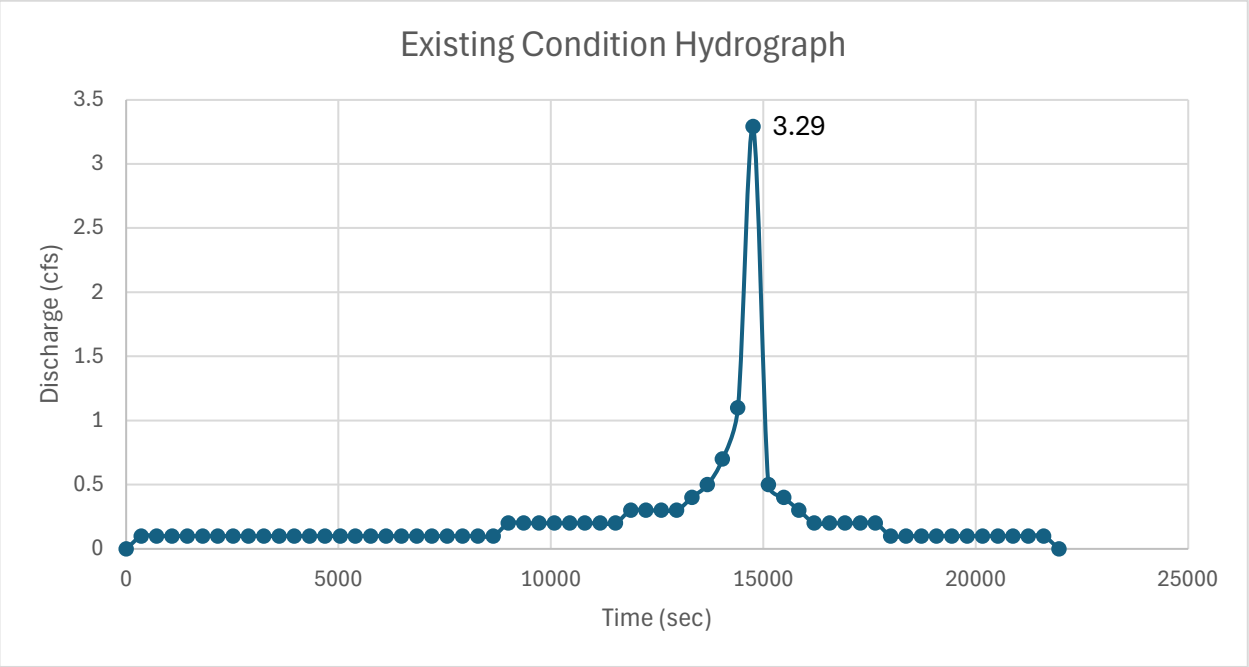
APPENDIX 8

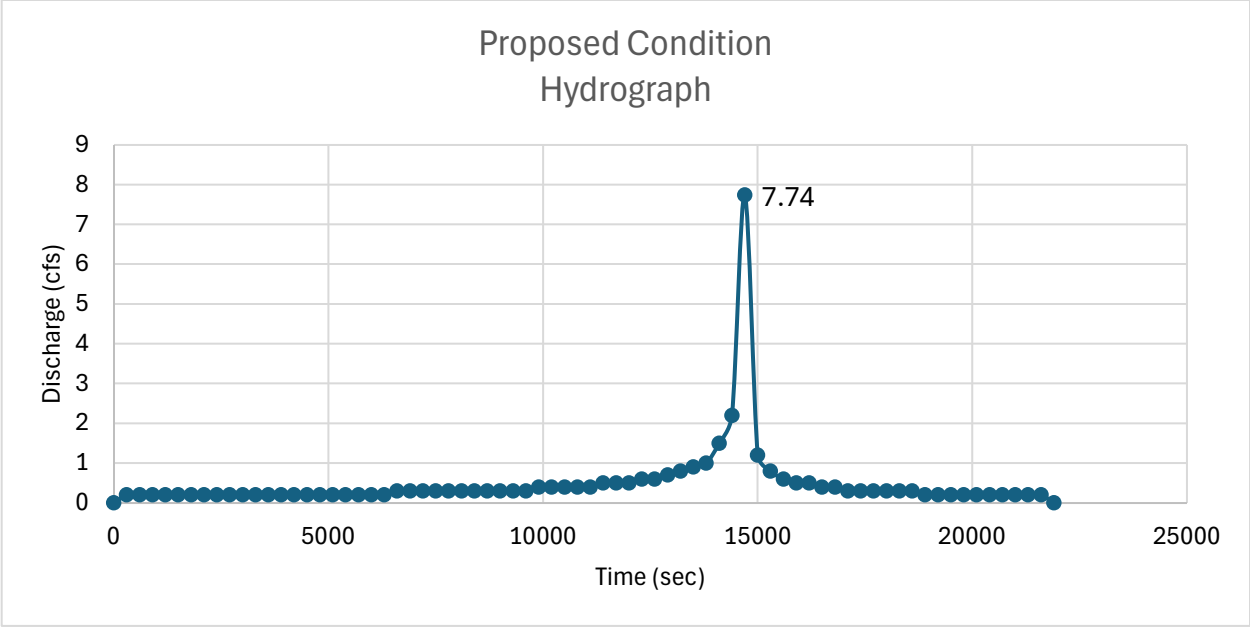
HYDROGRAPHS, STORAGE CURVES & INFLOW HYDROGRAPH INPUTS

Summary of Hydrograph Calculations

901 Mission Ave, Oceanside, California

Series Name	Tc (min)	Runoff Coefficient (C)	6-hr Rainfall (in)	Area (ac)	Peak Discharge (cfs)	Total Volume (cf)
Existing	6	0.38	2.6	1.47	3.29	5,216
Proposed	5	0.77	2.6	1.47	7.74	10,572
					Difference in Volume =	**5,356**





RATIONAL METHOD HYDROGRAPHS PROGRAM

EXISTING SERIES 100
RUN DATE 8/6/2024
TIME OF CONCENTRATION 6 MIN.
6 HOUR RAINFALL 2.6 INCHES
BASIN AREA 1.47 ACRES
RUNOFF COEFFICIENT 0.38
PEAK DISCHARGE 3.29 CFS

	Time (min)	Time (sec)	Discharge (cfs)	Total Volume (cf)
TIME (MIN) = 0 DISCHARGE (CFS) = 0	0	0	0	18
TIME (MIN) = 6 DISCHARGE (CFS) = 0.1	6	360	0.1	36
TIME (MIN) = 12 DISCHARGE (CFS) = 0.1	12	720	0.1	36
TIME (MIN) = 18 DISCHARGE (CFS) = 0.1	18	1080	0.1	36
TIME (MIN) = 24 DISCHARGE (CFS) = 0.1	24	1440	0.1	36
TIME (MIN) = 30 DISCHARGE (CFS) = 0.1	30	1800	0.1	36
TIME (MIN) = 36 DISCHARGE (CFS) = 0.1	36	2160	0.1	36
TIME (MIN) = 42 DISCHARGE (CFS) = 0.1	42	2520	0.1	36
TIME (MIN) = 48 DISCHARGE (CFS) = 0.1	48	2880	0.1	36
TIME (MIN) = 54 DISCHARGE (CFS) = 0.1	54	3240	0.1	36
TIME (MIN) = 60 DISCHARGE (CFS) = 0.1	60	3600	0.1	36
TIME (MIN) = 66 DISCHARGE (CFS) = 0.1	66	3960	0.1	36
TIME (MIN) = 72 DISCHARGE (CFS) = 0.1	72	4320	0.1	36
TIME (MIN) = 78 DISCHARGE (CFS) = 0.1	78	4680	0.1	36
TIME (MIN) = 84 DISCHARGE (CFS) = 0.1	84	5040	0.1	36
TIME (MIN) = 90 DISCHARGE (CFS) = 0.1	90	5400	0.1	36
TIME (MIN) = 96 DISCHARGE (CFS) = 0.1	96	5760	0.1	36
TIME (MIN) = 102 DISCHARGE (CFS) = 0.1	102	6120	0.1	36
TIME (MIN) = 108 DISCHARGE (CFS) = 0.1	108	6480	0.1	36
TIME (MIN) = 114 DISCHARGE (CFS) = 0.1	114	6840	0.1	36
TIME (MIN) = 120 DISCHARGE (CFS) = 0.1	120	7200	0.1	36
TIME (MIN) = 126 DISCHARGE (CFS) = 0.1	126	7560	0.1	36
TIME (MIN) = 132 DISCHARGE (CFS) = 0.1	132	7920	0.1	36
TIME (MIN) = 138 DISCHARGE (CFS) = 0.1	138	8280	0.1	36
TIME (MIN) = 144 DISCHARGE (CFS) = 0.1	144	8640	0.1	54
TIME (MIN) = 150 DISCHARGE (CFS) = 0.2	150	9000	0.2	72
TIME (MIN) = 156 DISCHARGE (CFS) = 0.2	156	9360	0.2	72
TIME (MIN) = 162 DISCHARGE (CFS) = 0.2	162	9720	0.2	72
TIME (MIN) = 168 DISCHARGE (CFS) = 0.2	168	10080	0.2	72
TIME (MIN) = 174 DISCHARGE (CFS) = 0.2	174	10440	0.2	72
TIME (MIN) = 180 DISCHARGE (CFS) = 0.2	180	10800	0.2	72
TIME (MIN) = 186 DISCHARGE (CFS) = 0.2	186	11160	0.2	72
TIME (MIN) = 192 DISCHARGE (CFS) = 0.2	192	11520	0.2	90
TIME (MIN) = 198 DISCHARGE (CFS) = 0.3	198	11880	0.3	108
TIME (MIN) = 204 DISCHARGE (CFS) = 0.3	204	12240	0.3	108
TIME (MIN) = 210 DISCHARGE (CFS) = 0.3	210	12600	0.3	108
TIME (MIN) = 216 DISCHARGE (CFS) = 0.3	216	12960	0.3	126
TIME (MIN) = 222 DISCHARGE (CFS) = 0.4	222	13320	0.4	162
TIME (MIN) = 228 DISCHARGE (CFS) = 0.5	228	13680	0.5	216
TIME (MIN) = 234 DISCHARGE (CFS) = 0.7	234	14040	0.7	324
TIME (MIN) = 240 DISCHARGE (CFS) = 1.1	240	14400	1.1	790.2
TIME (MIN) = 246 DISCHARGE (CFS) = 3.29	246	14760	3.29	682.2
TIME (MIN) = 252 DISCHARGE (CFS) = 0.5	252	15120	0.5	162
TIME (MIN) = 258 DISCHARGE (CFS) = 0.4	258	15480	0.4	126
TIME (MIN) = 264 DISCHARGE (CFS) = 0.3	264	15840	0.3	90
TIME (MIN) = 270 DISCHARGE (CFS) = 0.2	270	16200	0.2	72
TIME (MIN) = 276 DISCHARGE (CFS) = 0.2	276	16560	0.2	72
TIME (MIN) = 282 DISCHARGE (CFS) = 0.2	282	16920	0.2	72
TIME (MIN) = 288 DISCHARGE (CFS) = 0.2	288	17280	0.2	72
TIME (MIN) = 294 DISCHARGE (CFS) = 0.2	294	17640	0.2	54
TIME (MIN) = 300 DISCHARGE (CFS) = 0.1	300	18000	0.1	36
TIME (MIN) = 306 DISCHARGE (CFS) = 0.1	306	18360	0.1	36
TIME (MIN) = 312 DISCHARGE (CFS) = 0.1	312	18720	0.1	36
TIME (MIN) = 318 DISCHARGE (CFS) = 0.1	318	19080	0.1	36
TIME (MIN) = 324 DISCHARGE (CFS) = 0.1	324	19440	0.1	36
TIME (MIN) = 330 DISCHARGE (CFS) = 0.1	330	19800	0.1	36
TIME (MIN) = 336 DISCHARGE (CFS) = 0.1	336	20160	0.1	36
TIME (MIN) = 342 DISCHARGE (CFS) = 0.1	342	20520	0.1	36
TIME (MIN) = 348 DISCHARGE (CFS) = 0.1	348	20880	0.1	36
TIME (MIN) = 354 DISCHARGE (CFS) = 0.1	354	21240	0.1	36
TIME (MIN) = 360 DISCHARGE (CFS) = 0.1	360	21600	0.1	18
TIME (MIN) = 366 DISCHARGE (CFS) = 0	366	21960	0	0
			Volume (cf) =	5,216

RATIONAL METHOD HYDROGRAPHS PROGRAM

PROPOSED SERIES 100
RUN DATE 8/6/2024
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 2.6 INCHES
BASIN AREA 1.47 ACRES
RUNOFF COEFFICIENT 0.77
PEAK DISCHARGE 7.74 CFS

	Time (min)	Time (sec)	Discharge (cfs)	Total Volume (cf)
TIME (MIN) = 0 DISCHARGE (CFS) = 0	0	0	0	30
TIME (MIN) = 5 DISCHARGE (CFS) = 0.2	5	300	0.2	60
TIME (MIN) = 10 DISCHARGE (CFS) = 0.2	10	600	0.2	60
TIME (MIN) = 15 DISCHARGE (CFS) = 0.2	15	900	0.2	60
TIME (MIN) = 20 DISCHARGE (CFS) = 0.2	20	1200	0.2	60
TIME (MIN) = 25 DISCHARGE (CFS) = 0.2	25	1500	0.2	60
TIME (MIN) = 30 DISCHARGE (CFS) = 0.2	30	1800	0.2	60
TIME (MIN) = 35 DISCHARGE (CFS) = 0.2	35	2100	0.2	60
TIME (MIN) = 40 DISCHARGE (CFS) = 0.2	40	2400	0.2	60
TIME (MIN) = 45 DISCHARGE (CFS) = 0.2	45	2700	0.2	60
TIME (MIN) = 50 DISCHARGE (CFS) = 0.2	50	3000	0.2	60
TIME (MIN) = 55 DISCHARGE (CFS) = 0.2	55	3300	0.2	60
TIME (MIN) = 60 DISCHARGE (CFS) = 0.2	60	3600	0.2	60
TIME (MIN) = 65 DISCHARGE (CFS) = 0.2	65	3900	0.2	60
TIME (MIN) = 70 DISCHARGE (CFS) = 0.2	70	4200	0.2	60
TIME (MIN) = 75 DISCHARGE (CFS) = 0.2	75	4500	0.2	60
TIME (MIN) = 80 DISCHARGE (CFS) = 0.2	80	4800	0.2	60
TIME (MIN) = 85 DISCHARGE (CFS) = 0.2	85	5100	0.2	60
TIME (MIN) = 90 DISCHARGE (CFS) = 0.2	90	5400	0.2	60
TIME (MIN) = 95 DISCHARGE (CFS) = 0.2	95	5700	0.2	60
TIME (MIN) = 100 DISCHARGE (CFS) = 0.2	100	6000	0.2	60
TIME (MIN) = 105 DISCHARGE (CFS) = 0.2	105	6300	0.2	75
TIME (MIN) = 110 DISCHARGE (CFS) = 0.3	110	6600	0.3	90
TIME (MIN) = 115 DISCHARGE (CFS) = 0.3	115	6900	0.3	90
TIME (MIN) = 120 DISCHARGE (CFS) = 0.3	120	7200	0.3	90
TIME (MIN) = 125 DISCHARGE (CFS) = 0.3	125	7500	0.3	90
TIME (MIN) = 130 DISCHARGE (CFS) = 0.3	130	7800	0.3	90
TIME (MIN) = 135 DISCHARGE (CFS) = 0.3	135	8100	0.3	90
TIME (MIN) = 140 DISCHARGE (CFS) = 0.3	140	8400	0.3	90
TIME (MIN) = 145 DISCHARGE (CFS) = 0.3	145	8700	0.3	90
TIME (MIN) = 150 DISCHARGE (CFS) = 0.3	150	9000	0.3	90
TIME (MIN) = 155 DISCHARGE (CFS) = 0.3	155	9300	0.3	90
TIME (MIN) = 160 DISCHARGE (CFS) = 0.3	160	9600	0.3	105
TIME (MIN) = 165 DISCHARGE (CFS) = 0.4	165	9900	0.4	120
TIME (MIN) = 170 DISCHARGE (CFS) = 0.4	170	10200	0.4	120
TIME (MIN) = 175 DISCHARGE (CFS) = 0.4	175	10500	0.4	120
TIME (MIN) = 180 DISCHARGE (CFS) = 0.4	180	10800	0.4	120
TIME (MIN) = 185 DISCHARGE (CFS) = 0.4	185	11100	0.4	135
TIME (MIN) = 190 DISCHARGE (CFS) = 0.5	190	11400	0.5	150
TIME (MIN) = 195 DISCHARGE (CFS) = 0.5	195	11700	0.5	150
TIME (MIN) = 200 DISCHARGE (CFS) = 0.5	200	12000	0.5	165
TIME (MIN) = 205 DISCHARGE (CFS) = 0.6	205	12300	0.6	180
TIME (MIN) = 210 DISCHARGE (CFS) = 0.6	210	12600	0.6	195
TIME (MIN) = 215 DISCHARGE (CFS) = 0.7	215	12900	0.7	225
TIME (MIN) = 220 DISCHARGE (CFS) = 0.8	220	13200	0.8	255
TIME (MIN) = 225 DISCHARGE (CFS) = 0.9	225	13500	0.9	285
TIME (MIN) = 230 DISCHARGE (CFS) = 1	230	13800	1	375
TIME (MIN) = 235 DISCHARGE (CFS) = 1.5	235	14100	1.5	555
TIME (MIN) = 240 DISCHARGE (CFS) = 2.2	240	14400	2.2	1491
TIME (MIN) = 245 DISCHARGE (CFS) = 7.74	245	14700	7.74	1341
TIME (MIN) = 250 DISCHARGE (CFS) = 1.2	250	15000	1.2	300
TIME (MIN) = 255 DISCHARGE (CFS) = 0.8	255	15300	0.8	210
TIME (MIN) = 260 DISCHARGE (CFS) = 0.6	260	15600	0.6	165
TIME (MIN) = 265 DISCHARGE (CFS) = 0.5	265	15900	0.5	150
TIME (MIN) = 270 DISCHARGE (CFS) = 0.5	270	16200	0.5	135
TIME (MIN) = 275 DISCHARGE (CFS) = 0.4	275	16500	0.4	120
TIME (MIN) = 280 DISCHARGE (CFS) = 0.4	280	16800	0.4	105
TIME (MIN) = 285 DISCHARGE (CFS) = 0.3	285	17100	0.3	90
TIME (MIN) = 290 DISCHARGE (CFS) = 0.3	290	17400	0.3	90
TIME (MIN) = 295 DISCHARGE (CFS) = 0.3	295	17700	0.3	90
TIME (MIN) = 300 DISCHARGE (CFS) = 0.3	300	18000	0.3	90
TIME (MIN) = 305 DISCHARGE (CFS) = 0.3	305	18300	0.3	90
TIME (MIN) = 310 DISCHARGE (CFS) = 0.3	310	18600	0.3	75
TIME (MIN) = 315 DISCHARGE (CFS) = 0.2	315	18900	0.2	60
TIME (MIN) = 320 DISCHARGE (CFS) = 0.2	320	19200	0.2	60
TIME (MIN) = 325 DISCHARGE (CFS) = 0.2	325	19500	0.2	60
TIME (MIN) = 330 DISCHARGE (CFS) = 0.2	330	19800	0.2	60
TIME (MIN) = 335 DISCHARGE (CFS) = 0.2	335	20100	0.2	60
TIME (MIN) = 340 DISCHARGE (CFS) = 0.2	340	20400	0.2	60
TIME (MIN) = 345 DISCHARGE (CFS) = 0.2	345	20700	0.2	60
TIME (MIN) = 350 DISCHARGE (CFS) = 0.2	350	21000	0.2	60
TIME (MIN) = 355 DISCHARGE (CFS) = 0.2	355	21300	0.2	60
TIME (MIN) = 360 DISCHARGE (CFS) = 0.2	360	21600	0.2	30
TIME (MIN) = 365 DISCHARGE (CFS) = 0	365	21900	0	
			Volume (cf) =	10,572