PRELIMINARY HYDROLOGY REPORT

Orange County Youth Transition Center

Orange County, California

PREPARED BY:

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Irvine, CA 92618

(949) 474-1960

Project Number:

XXX-XXX-XX

Date Prepared:

November 2024

Table of Contents

1.0 INTRODUCTION

1.1 Geographic Setting

The County of Orange (County) proposes to demolish and replace ten buildings and associated infrastructure within the existing Orange County Juvenile Hall Campus (campus) located in the City of Orange (City), California, which occupies an approximately 17-acre property located at 331 The City Drive South (project site). The study area is bounded by Justice Way to the south, Hospital Frontage Road to the west, Interstate 5 freeway and Santa Ana River to the east and Service Way to the north. A Vicinity Map is shown below.

VICINITY MAP

The proposed site improvements will be divided into three phases. The architect's Overall Site Plan is included in this report as Appendix 1. This portion of the site will focus on Phases 2A and 2B of the development. Phase 2A comprises of Long Term Housing and Classroom and Library

Building, located adjacent to the south of Phase 1. Phase 2B comprises of Independent Living, located near the southeast edged of the property.

1.2 Purpose of this Report

The purpose of this analysis is to identify and analyze the pre- and post-project drainage conditions in order to provide adequate drainage facilities for the proposed development located in the County of Orange, California.

This Drainage Study will analyze and compare the 2-, 10-, 25- and 100-year storm events for the existing and proposed conditions. Outcomes of the analysis will facilitate the conceptual layout of a drainage system to adequately convey storm runoff through the site without adversely impacting surrounding areas. The project is HCOC exempt and therefore Hydromodification requirements are not applicable.

The project is within Soil Type "A", based on the County of Orange Hydrology Manual.

All hydrology and hydrologic calculations would be performed and verified for protection in a 100-year storm event according to the Orange County Hydrology Manual (1986) and its Addendum (1996) during final design. All calculations will be based on AES Rational Method and will follow requirements per Orange County Hydrology Manual. Impervious rates will be calculated per existing and proposed plans. AES does now offer specific impervious rates but rather it utilizes pre-determined rates based on estimated land use. For these calculations, similar pre-determined rates were selected that conservatively follows the hand calculations.

1.3 References

The following references were used to evaluate hydrologic conditions and water quality requirements:

- Orange County Hydrology Manual (October 1986)
- Orange County Hydrology Manual Addendum No. 1 (1996)
- Orange County Local Drainage Manual (January 1996)
- AES (Advanced Engineering Software), Rational Method (July 2016)

2.0 HYDROLOGY

2.1 Existing Condition

The approximate overall 17-acre study area is a developed site that contains the Orange County Juvenile Hall Campus. The existing site generally slopes in a southerly direction to southerly area of the property.

An existing 33-inch RCP storm drain drains from the north to the south and bisects the project site, allowing for a collection point for on-site stormwater. This storm drain connects to an existing 42-inch RCP that is located offsite and adjacent to the south which runs south along The City Drive and discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

Phases 2A and 2B will be analyzed for existing hydrological conditions using AES Rational Method to generate storm runoff rates using calculated existing impervious rates. Hydrology Calculations are located in Existing Hydrology (Appendix C).

2.2 Proposed Condition

The proposed project improvements will maintain the existing drainage patterns.

Phases 2A and 2B will be analyzed for proposed hydrological conditions using AES Rational Method to generate storm runoff rates using calculated proposed impervious rates based on the Overall Site Plan. Hydrology Calculations are located in Proposed Hydrology (Appendix D).

The overall drainage strategy is to convey onsite stormwater runoff into an onsite storm drain system that mitigates the proposed runoff's water quality, hydraulic and volumetric parameters per the regulating agencies (County of Orange) drainage codes. There will be several drainage management areas defined in the water quality analysis. The proposed project would provide a series of proposed bioretention with underdrain planter systems to capture and treat stormwater runoff.

As discussed in the existing condition, the drainage conveyance will similarly connect to the existing 33-inch RCP storm drain drains from the north to the south, ultimately connecting to an

existing 42-inch RCP location off-site to the south, that discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

3.0 FEMA

The project site is located at FEMA flood zone 'X' per FEMA Flood Insurance Rate Map (FIRM) No. 06059C0142J, map revised December 3, 2021. The site is entirely within Zone X, which depicts area of reduced flood risk due to levee. A CLOMR or LOMR will not be required. A FEMA Map (Firmette) is included in this report as Appendix E.

4.0 RESULTS AND CONCLUSIONS

The results of the hydrologic analyses are shown on the following table.

Tabe A - Phase 2 Drainage Conditions

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

Tabe B - Phase 2 Drainage Calculations

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

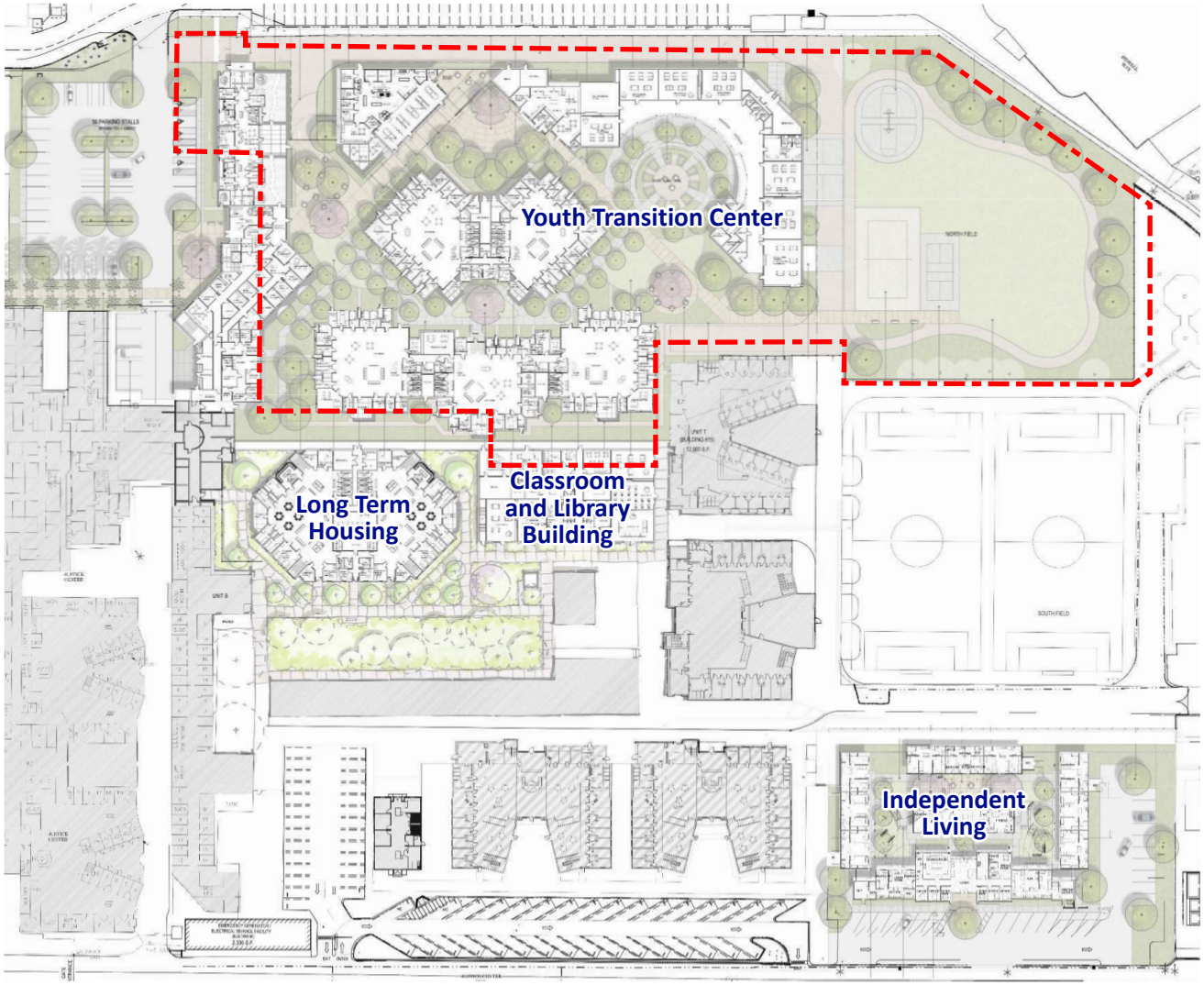
When comparing the Q allowable to the proposed condition, the proposed condition discharges less than expected. This is mostly due to the increase in pervious areas when comparing pre vs. post-development. Based on the hydrologic analyses included in this report, the proposed project will not adversely impact the drainage systems.

5.0 APPENDICESS

Appendix 1 Architect's Site Plan
Appendix 2 Existing Storm Drain Information
Appendix 3 Existing Hydrology
Appendix 4 Proposed Hydrology
Appendix 5 FEMA Map

APPENDIX A

Architect's Site Plan



LSA

LEGEND

Youth Transition Boundary

FIGURE 2-6

N

NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

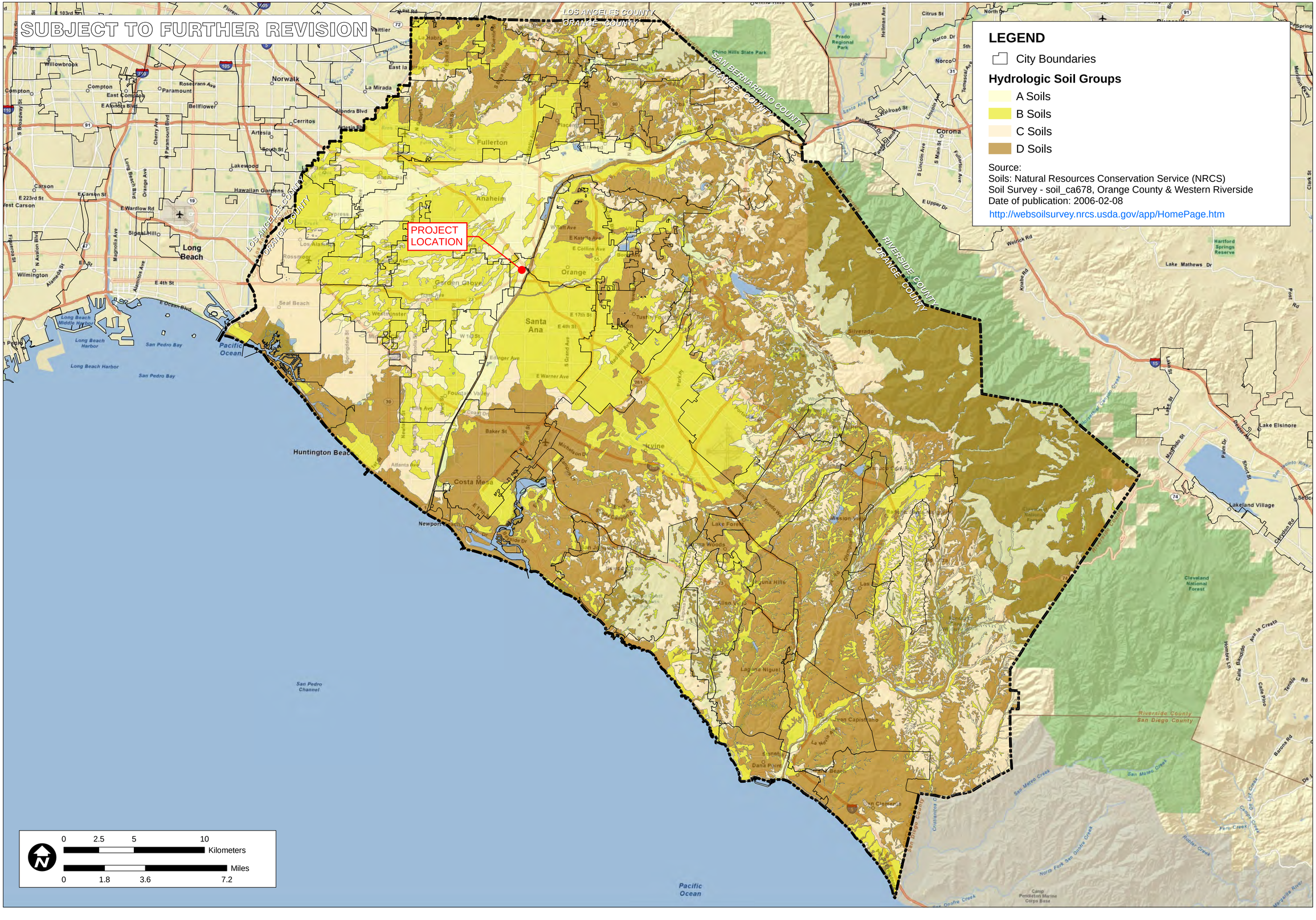
I:\O\OCY2001.48\G\Overall_Site_Plan.ai (10/17/2024)

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Overall Site Plan

APPENDIX B

Existing Storm Drain Information

SUBJECT TO FURTHER REVISION



LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

P:\95226E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\95226E_FigureXVI-2a_HydroSoils_20110215.mxd

TITLE

NRCS HYDROLOGIC SOILS GROUPS

JOB

ORANGE COUNTY INFILTRATION STUDY

ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	95226-E

PACE
Advanced Water Engineering

FIGURE

XVI-2a

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

Earth (Unstable)
Earth (Stabilized)
Stabilized

Tidel Influence

<= Mean High Water Line (4.28')

Water Body

Basin
Dam
Lake
Reservoir

Forest Areas

Cleveland National Forest

Federal Lands

Amarus Salt Marsh

PROJECT LOCATION

Stabilized by Grade Control Structure

San Gabriel-Coyote Creek Watershed

San Bernardino County

Riverside County

South Orange County

Newport Bay Watershed

AnaheimBay-HuntingtonHarbor Watershed

Carbon Canyon

Yorba Linda Reservoir

Miller Retarding Basin

Anaheim Lake

Warner Basin

Kraemer Basin

Olive Hills

Fletcher Retarding Basin

Walnut Canyon Reservoir

Villa Park Dam

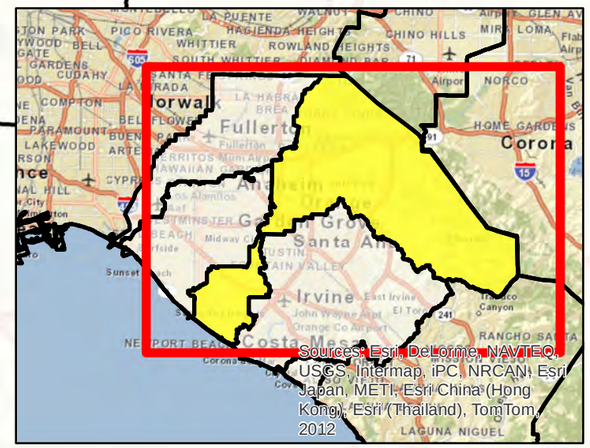
Peters Canyon Reservoir

Irvine Lake

Cleveland National Forest

SOUTHPARK PUMP STATION

Bartlett Retarding Basin



0 12,000 24,000 Feet

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

TITLE: SUSCEPTIBILITY ANALYIS SANTA ANA RIVER

JOB: ORANGE COUNTY WATERSHED MASTER PLANNING ORANGE CO. CA

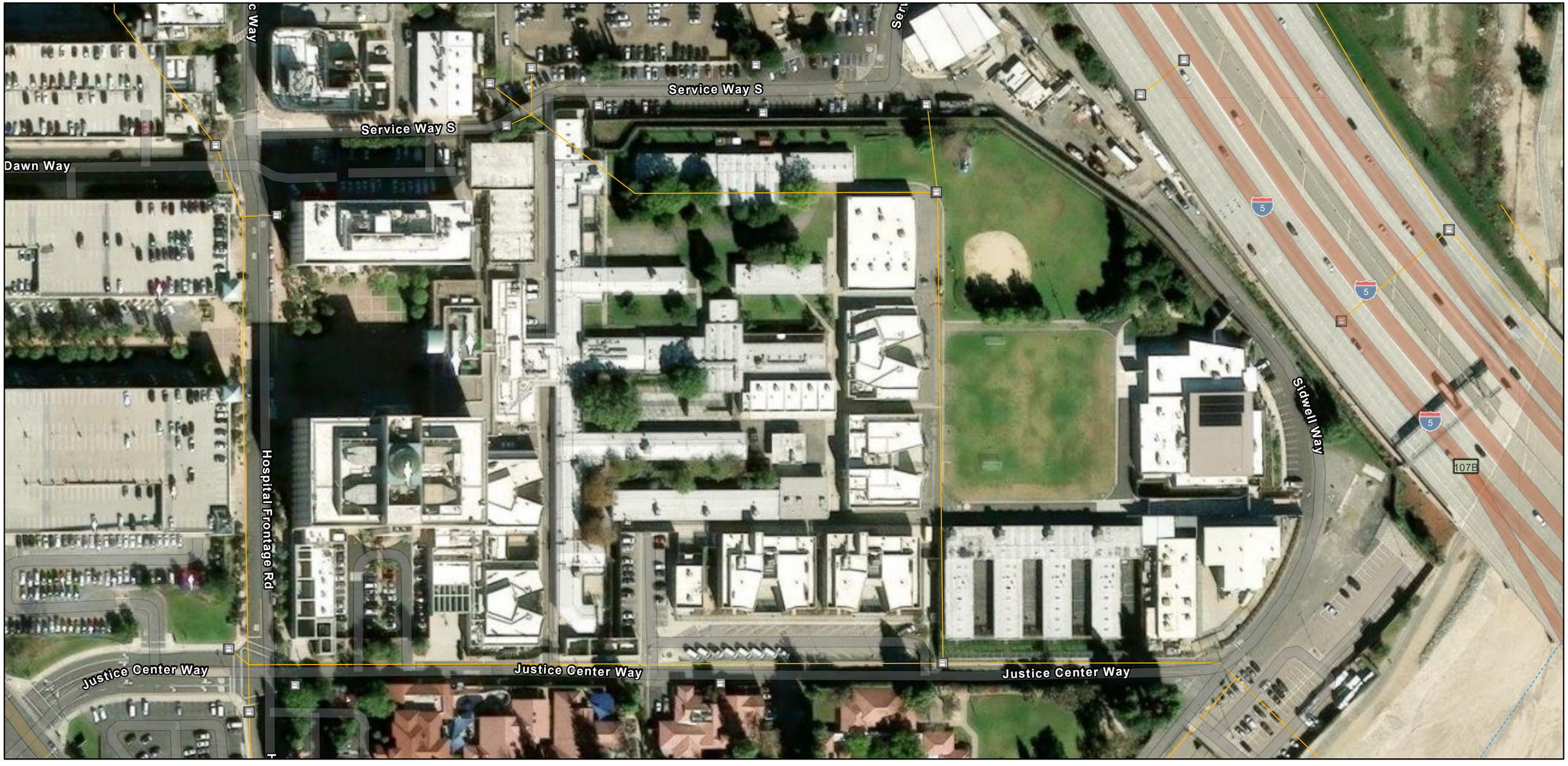
SCALE	1" = 12000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE 3

P:\9526E\16-GIS\Mxds\SuceptiabilityMaps_20100505\9526E_SantaAnaRiverSusceptibility_20100430.mxd

OC - YTC Storm Drain Layout



11/4/2024

Inlets

Local Drainage

Closed Conveyance

Regional Channels

Open Conveyance

1:1,869

0 0.02 0.04 0.07 mi

0 0.03 0.06 0.11 km

APPENDIX C

Existing Hydrology

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

PREPARED FOR:

CLIENT
ADDRESS LINE 1
ADDRESS LINE 2
PHONE: (XXX) XXX-XXXX

PREPARED BY:

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949.474.1960 fuscoe.com

County of Orange
OC Public Works

EXISTING DRAINAGE PLAN
ORANGE COUNTY YOUTH TRANSITION CENTER
ORANGE COUNTY, CA
11/14/2024

Phase 2A

Existing Conditions

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2A.DAT
  TIME/DATE OF STUDY: 17:45 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.583
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    17    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.30
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.30

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   1.58
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.30

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.778
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    17    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.66

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   1.78
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.66

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        1.30    9.32    1.583  0.40( 0.10) 0.25       1.0       1.00
    2        0.66    7.61    1.778  0.40( 0.10) 0.25       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.88    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.88

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A10.DAT
  TIME/DATE OF STUDY: 17:47 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

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  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.841
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.39
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   2.84
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.39

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.190
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.22
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.22

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.19
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.22

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.39    9.32    2.841  0.40( 0.10) 0.25       1.0       1.00
    2        1.22    7.61    3.190  0.40( 0.10) 0.25       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.48    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.48

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A25.DAT
  TIME/DATE OF STUDY: 17:48 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.391
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.87
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.87

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   3.39
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.87

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.802
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.47
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.47

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.80
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.47

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.87    9.32    3.391  0.40( 0.10) 0.25       1.0       1.00
    2        1.47    7.61    3.802  0.40( 0.10) 0.25       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.18    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.18

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2A100.DAT
  TIME/DATE OF STUDY: 17:50 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.331
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    52    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.69
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.69

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   4.33
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.69

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.862
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK            A        0.44      0.40     0.250    52    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.89
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.89

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   4.86
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.89

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.69    9.32    4.331  0.40( 0.10) 0.25       1.0       1.00
    2        1.89    7.61    4.862  0.40( 0.10) 0.25       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.37    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       5.37

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Existing Conditions

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2B.DAT
  TIME/DATE OF STUDY: 17:22 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.780
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    17    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       1.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B10.DAT
  TIME/DATE OF STUDY: 17:28 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.193
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.03
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.03
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.03
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.806
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.62
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.62
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.62
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2B100.DAT
  TIME/DATE OF STUDY: 17:42 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.867
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    52    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      4.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       4.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX D

Proposed Hydrology

HYDROLOGIC SOIL GROUP: "A"
LEGEND
MAJOR DRAINAGE BOUNDARY
SUB-DRAINAGE BOUNDARY
FLOWLINE
DRAINAGE FLOW DIRECTION
STORM DRAIN LINE
A1 0.12AC SUBAREA DESIGNATION
SUBAREA (ACRES)
10 NODE NUMBER
123.4FS PROPOSED FINISHED SURFACE ELEV.
123.4FG PROPOSED FINISHED GRADE ELEV.
123.4INV INVERT ELEV.
Q25 CALCULATED RUNOFF FOR 25 YR FREQ.
Tc TIME OF CONCENTRATION
SD STORM DRAIN
S SLOPE
L FLOW PATH LENGTH (SURFACE)
NAP NOT A PART
Youth Transition Center
Long Term Housing
Classroom and Library Building
Independent Living
2A-1 0.97AC
2A-2 0.44AC
2B 1.08AC
SERVICE WAY
SIDWELL WAY
HOSPITAL FRONTAGE RD.
JUSTICE CENTER WAY
JUSTICE CENTER
ORANGEWOOD CHILDREN'S HOME
SOCCER FIELD
NORTH FIELD
LAMOREAUX JUSTICE CENTER
M.R.C. BUILDING
LAUNDRY
KITCHEN

SCALE: 1" = 40'

ORANGEWOOD CHILDREN'S HOME

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

PREPARED FOR:

CLIENT
ADDRESS LINE 1
ADDRESS LINE 2
PHONE: (XXX) XXX-XXXX

PREPARED BY:

FUSCOE ENGINEERING
15535 Sand Canyon Ave, Suite 100
Irvine, California 92618
949.474.1960 fuscoe.com

County of Orange
OC Public Works

PROPOSED DRAINAGE PLAN
ORANGE COUNTY YOUTH TRANSITION CENTER
ORANGE COUNTY, CA
11/14/2024

Phase 2A

Proposed Conditions

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
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                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2AP.DAT
  TIME/DATE OF STUDY: 18:37 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.522
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    17    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.21
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.21

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   1.52
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.21

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.709
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    17    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   1.71
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.62

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        1.21    9.98    1.522  0.40( 0.14) 0.35       1.0       1.00
    2        0.62    8.16    1.709  0.40( 0.14) 0.35       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.75    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.75

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A10P.DAT
  TIME/DATE OF STUDY: 18:40 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.731
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.26
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.26

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   2.73
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.26

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.066
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.16
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.16

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.07
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.16

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.26    9.98    2.731  0.40( 0.14) 0.35       1.0       1.00
    2        1.16    8.16    3.066  0.40( 0.14) 0.35       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.29    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.29

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A25P.DAT
  TIME/DATE OF STUDY: 18:41 11/12/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.261
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.72
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.72

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   3.26
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.72

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.656
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.39
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.66
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.39

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.72    9.98    3.261  0.40( 0.14) 0.35       1.0       1.00
    2        1.39    8.16    3.656  0.40( 0.14) 0.35       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.96    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.96

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                 *
* PHASE 2A                                                              *
* PROPOSED 100-YEAR STORM                                               *
 ************************************************************************

  FILE NAME: YT2A100P.DAT
  TIME/DATE OF STUDY: 18:44 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.163
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    52    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      3.51
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.51

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   4.16
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.51

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.674
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    52    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.80
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.80

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 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.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   4.67
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.80

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.51    9.98    4.163  0.40( 0.14) 0.35       1.0       1.00
    2        1.80    8.16    4.674  0.40( 0.14) 0.35       0.4       1.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.10    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       5.10

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Proposed Conditions

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2BP.DAT
  TIME/DATE OF STUDY: 17:24 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.743
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    17    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.60
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.60
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B10P.DAT
  TIME/DATE OF STUDY: 17:30 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.128
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.94
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      2.94
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       2.94
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25P.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.728
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.53
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.53
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.53
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
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                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 100-YEAR STORM                                                *
 **************************************************************************

  FILE NAME: YT2B100P.DAT
  TIME/DATE OF STUDY: 17:44 11/11/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.767
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    52    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      4.54
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.54
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.54
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

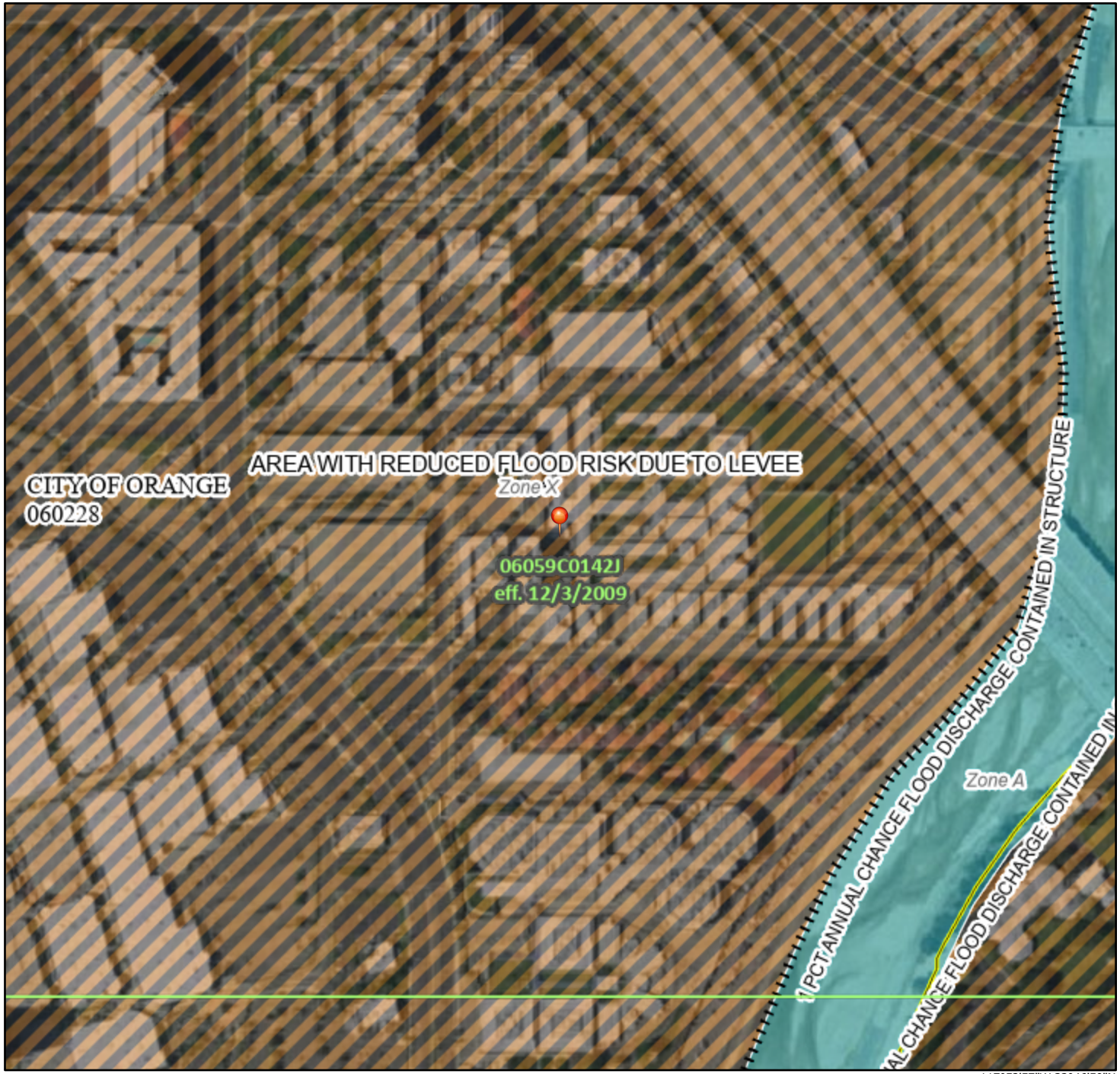
APPENDIX E

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°53'34"W 33°47'20"N



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

1:6,000

117°52'57"W 33°46'50"N

Basemap Imagery Source: USGS National Map 2023

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 11/14/2024 at 1:03 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.