HYDROLOGY STUDY

EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION

5600 Carroll Canyon Road
San Diego, CA 92121



December 2021

Prepared by:

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1.0 Project Overview

The proposed project will extend an existing cemetery road to the north over an existing creek bed. A bridge structure will be constructed to span the creek and the new road will extend approximately 450 feet to the north. A cul de sac will be constructed at the north end of the road. The project location is depicted in Figure 1 below.

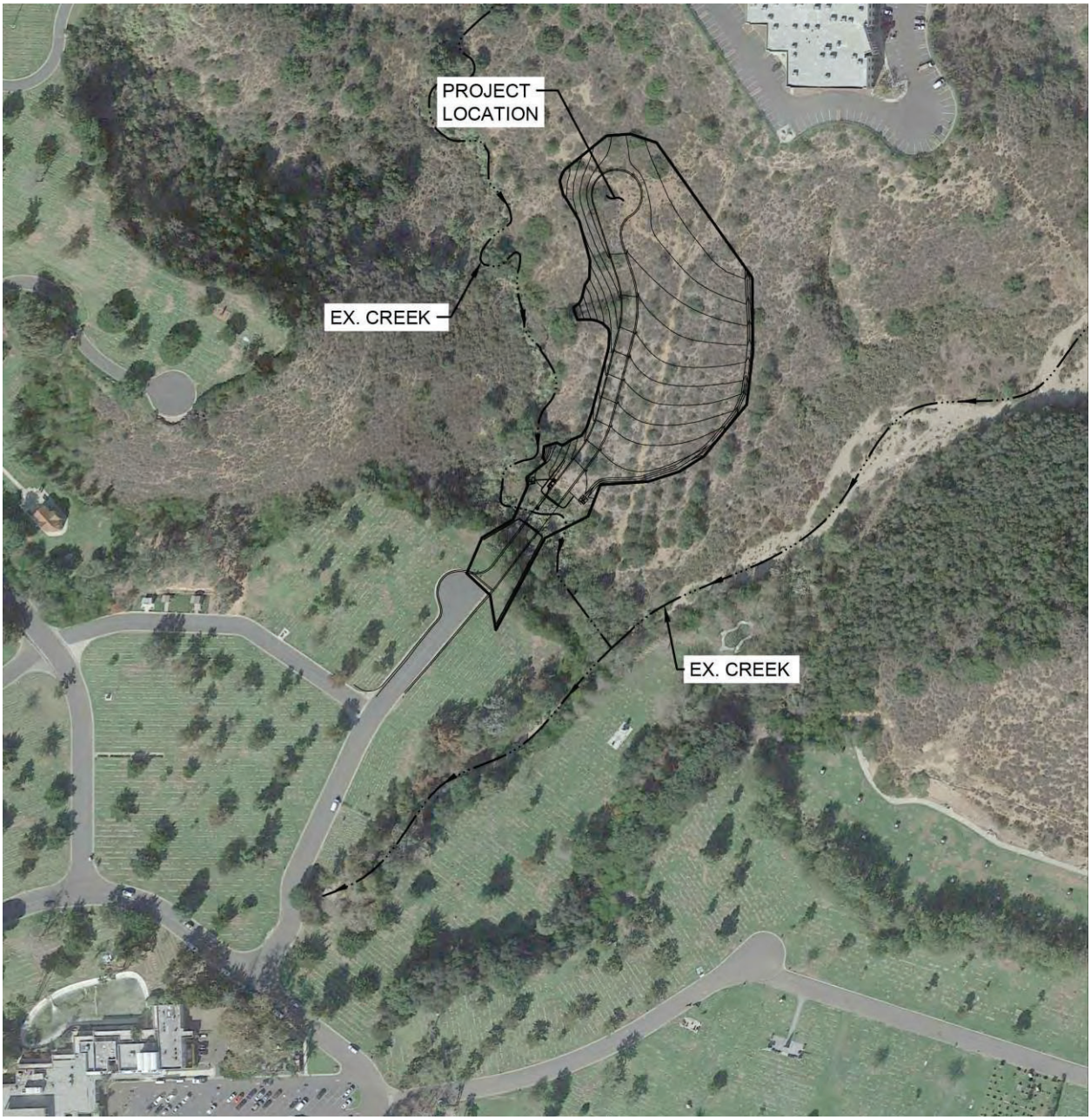


FIGURE 1 – PROJECT LOCATION

2.0 Existing Drainage Condition

The existing site is an undeveloped hillside with slopes varying from 1.5:1 and flatter. Storm runoff currently sheet flows in the southwest and southeast directions to the existing creek beds on the west, south and east sides of the proposed project area.

3.0 Proposed Drainage Improvements

The new asphalt roadway will drain to two proposed catch basins. These basins will both connect to a roadside storm water quality biofiltration basin which will treat the first flush flows from the new roadway's impervious surface to remove sediment and potential pollutants. This treated runoff will outfall to the existing creek via an 18 inch pipe. A rip rap energy dissipater will be constructed at the downstream outfall location to slow down flows and prevent erosion before the outflows reach the existing creek bed. Storm flows on the east side of the proposed roadway will be intercepted by a graded eastern swale on the east edge of the project grading limits and which will be conveyed south to a release point at the southerly project grading limits just east of the bridge structure. A rip rap energy dissipater will be constructed at this outfall location to slow down flows and prevent erosion before the outflows reach the existing creek bed. The area to the west of the roadway will continue to flow overland to the existing creek bed.

These improvements are depicted on the project plans contained in Appendix A of this report.

4.0 Hydrology Results

The Existing Condition Hydrology Map and calculations for the project are contained in Appendix B of this report. The Proposed Condition Hydrology Map and Calculations are contained in Appendix C herein.

The downstream creek outfall at the southeast corner of the project area has a peak discharge of 7.07 cfs in a 10 year storm event and 9.10 cfs in a 50 year storm event for the existing condition.

With the proposed improvements, this downstream outfall will see increased outfalls of 7.48 cfs and 9.57 cfs in the 10 and 50 year storm events, respectively. This represents a modest increase in outflow of approximately 6% from the pre-project to post-project conditions.

5.0 Water Quality

All first flush runoff from the proposed roadway will be collected and treated with a Modular Wetlands biofiltration system prior to being released to the creek bed below. This proposed system is depicted in the project plans contained in Appendix A.

6.0 Conclusions

The construction of the new roadway and associated grading will increase overall flows to the existing creek bed by 0.41 cfs and 0.47 cfs in 10 year and 50 year storm events, respectively. This nominal increase in flow amounts to approximately 6%. In our professional opinion, this increase is negligible and does not warrant provision of on-site detention. All first flush runoff from the paved street surface will be treated with a biofiltration system before being released to the existing creek which flows westerly through the cemetery property where it ultimately discharges into two reservoirs/lakes where the water is stored and reused.

APPENDIX A
PROJECT PLANS

GENERAL NOTES

1. APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT AUTHORIZE ANY WORK TO BE PERFORMED UNTIL A PERMIT HAS BEEN ISSUED.

2. UPON ISSUANCE OF A PERMIT, NO WORK WILL BE PERMITTED ON WEEKENDS OR HOLIDAYS UNLESS APPROVED BY TRAFFIC CONTROL PERMIT FROM THE DEVELOPMENT SERVICES DEPARTMENT.

3. THE APPROVAL OF THIS PLAN OR ISSUANCE OF A PERMIT BY THE CITY OF SAN DIEGO DOES NOT AUTHORIZE THE PERMIT HOLDER OR OWNER TO VIOLATE ANY FEDERAL, STATE OR CITY LAWS, ORDINANCES, REGULATIONS, OR POLICIES.

4. IMPORTANT NOTICE: SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER, CALL UNDERGROUND SERVICE ALERT, TOLL FREE (800) 422-4133, TWO DAYS BEFORE YOU DIG.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING AND LOCATING ALL EXISTING UTILITIES THAT CROSS THE PROPOSED TRENCH LINE WHILE MAINTAINING A 1 FOOT VERTICAL CLEARANCE.

6. "PUBLIC IMPROVEMENT SUBJECT TO DESUETUDE OR DAMAGE." IF REPAIR OR REPLACEMENT OF SUCH PUBLIC IMPROVEMENTS IS REQUIRED, CONTRACTOR SHALL OBTAIN THE REQUIRED PERMITS FOR WORK IN THE PUBLIC RIGHT-OF-WAY, SATISFACTORY TO THE PERMIT ISSUING AUTHORITY.

7. DEVIATIONS FROM THESE SIGNED PLANS WILL NOT BE ALLOWED UNLESS A CONSTRUCTION CHANGE IS APPROVED BY THE CITY ENGINEER OR THE CHANGE IS REQUIRED BY THE RESIDENT ENGINEER.

8. CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNAL LOOPS, CONDUITS, AND LANE STRIPING DAMAGED DURING CONSTRUCTION.

9. PRIOR TO SITE DISTURBANCE, CONTRACTOR SHALL MAKE ARRANGEMENTS FOR A PRECONSTRUCTION MEETING WITH THE CITY OF SAN DIEGO, CONSTRUCTION MANAGEMENT AND FIELD ENGINEERING DIVISION (858) 627-3200.

10. CONTRACTOR SHALL ONLY PERFORM SITE SURVEY AND UTILITY MARK OUT SERVICES PRIOR TO THE PRECONSTRUCTION MEETING.

11. CONTRACTOR SHALL IMPLEMENT AN EROSION CONTROL PROGRAM DURING THE PROJECT CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD.

12. CONTRACTOR SHALL HAVE EMERGENCY MATERIAL AND EQUIPMENT ON HAND FOR UNFORESEEN SITUATIONS, SUCH AS DAMAGE TO UNDERGROUND WATER, SEWER, AND STORM DRAIN FACILITIES WHERE FLOW MAY GENERATE EROSION AND SEDIMENT POLLUTION.

13. AN AS-GRADED GEOTECHNICAL REPORT AND SET OF THE REDLINE "AS-BUILT" GRADING PLANS SHALL BE SUBMITTED TO AREA 3 ON THE THIRD FLOOR OF DEVELOPMENT SERVICES WITHIN 30 CALENDAR DAYS OF THE COMPLETION OF GRADING. AN ADDITIONAL SET SHALL BE PROVIDED TO THE RESIDENT ENGINEER OF THE CONSTRUCTION MANAGEMENT & FIELD SERVICES DIVISION AT 9573 CHESAPEAKE DRIVE, SAN DIEGO, CA 92123.

14. "AS-BUILT" DRAWINGS MUST BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO ACCEPTANCE OF THIS PROJECT BY THE CITY OF SAN DIEGO.

15. MANHOLES AND PULL BOX COVER SHALL BE LABELED WITH NAME OF COMPANY.

16. CONTRACTOR SHALL PROVIDE RED-LINES DRAWINGS IN ACCORDANCE WITH 2-5.4, "RED-LINES AND RECORD DOCUMENTS."

17. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 1 FOOT VERTICAL SEPARATION TO ALL UTILITIES UNLESS OTHERWISE SPECIFIED ON THE PLANS.

18. CONTRACTOR SHALL REMOVE AND REPLACE ALL UTILITY BOXES SERVING AS HANDHOLES THAT ARE NOT IN "AS-NEW" CONDITION IN PROPOSED SIDEWALK, DAMAGED BOXES, OR THOSE THAT ARE NOT IN COMPLIANCE WITH CURRENT CODE SHALL BE REMOVED AND REPLACED WITH NEW BOXES, INCLUDING WATER, SEWER, TRAFFIC SIGNALS, STREET LIGHTS, DRY UTILITIES-SDG&E, COX, ETC. ALL NEW METAL LIDS SHALL BE SLIP RESISTANT AND INSTALLED FLUSH WITH PROPOSED SIDEWALK GRADE. IF A SLIP RESISTANT METAL LID IS NOT COMMERCIALLY AVAILABLE FOR THAT USE, NEW BOXES AND LIDS SHALL BE INSTALLED.

19. THE AREA WHICH IS DEFINED AS A NON GRADING AREA AND WHICH IS NOT TO BE DISTURBED SHALL BE STAKED PRIOR TO START OF THE WORK. THE PERMIT APPLICANT AND ALL OF THEIR REPRESENTATIVES OR CONTRACTORS SHALL COMPLY WITH THE REQUIREMENTS FOR PROTECTION OF THIS AREA AS REQUIRED BY ANY APPLICABLE AGENCY. ISSUANCE OF THE CITY'S GRADING PERMIT SHALL NOT RELIEVE THE APPLICANT OR ANY OF THEIR REPRESENTATIVES OR CONTRACTORS FROM COMPLYING WITH ANY STATE OR FEDERAL REQUIREMENTS BY AGENCIES INCLUDING BUT NOT LIMITED TO CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CALIFORNIA DEPARTMENT OF FISH AND GAME. COMPLIANCE MAY INCLUDE OBTAINING PERMITS, OTHER AUTHORIZATIONS, OR COMPLIANCE WITH MANDATES BY ANY APPLICABLE STATE OR FEDERAL AGENCY.

20. PRIOR TO CONSTRUCTION, SURVEY MONUMENTS (HORIZONTAL AND VERTICAL) THAT ARE LOCATED IN THE CONSTRUCTION AREA SHALL BE TIED-OUT AND REFERENCED BY A LAND SURVEYOR.

21. UPON COMPLETION OF CONSTRUCTION, ALL DESTROYED SURVEY MONUMENTS ARE REQUIRED TO BE REPLACED, AND A CORNER RECORD OR RECORD OF SURVEY SHALL BE PREPARED AND FILED WITH THE COUNTY SURVEYOR AS REQUIRED BY THE PROFESSIONAL LAND SURVEYOR ACT, SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA.

MONUMENT PRESERVATION CERTIFICATION

THE PERMITTEE SHALL BE RESPONSIBLE FOR THE COST OF REPLACING ALL SURVEY MONUMENTS DESTROYED BY CONSTRUCTION. IF A VERTICAL CONTROL MONUMENT IS TO BE DISTURBED OR DESTROYED, THE CITY OF SAN DIEGO FIELD SURVEY SECTION SHALL BE NOTIFIED IN WRITING AT LEAST 7 DAYS PRIOR TO CONSTRUCTION.

☐ THE TYPE OF CONSTRUCTION WILL NOT AFFECT ANY SURVEY MONUMENTS

NAME _____ P.L.S. / R.C.E. / ARCHITECT NO. XXXXX EXP. XX-XX-XX _____ DATE

PRIOR TO PERMIT ISSUANCE, THE PERMITTEE SHALL RETAIN THE SERVICE OF A PROFESSIONAL LAND SURVEYOR OR CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING WHO WILL BE RESPONSIBLE FOR MONUMENT PRESERVATION AND SHALL PROVIDE A CORNER RECORD OR RECORD OF SURVEY TO THE COUNTY SURVEYOR AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT, SECTION 8771 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA, IF APPLICABLE.

I HAVE INSPECTED THE SITE AND DETERMINED THAT:

☐ NO SURVEY MONUMENTS WERE FOUND WITHIN THE LIMITS OF WORK
☐ SURVEY MONUMENTS HAVE BEEN TIED OUT AND A FINAL OR PARCEL MAP WILL BE FILED
☐ A PRE-CONSTRUCTION CORNER RECORD FOR SURVEY MONUMENTS FOUND WITHIN THE LIMITS OF WORK HAS BEEN FILED.
CORNER RECORD #_____ OR RECORD OF SURVEY #_____

NAME _____ P.L.S. / R.C.E. NO. XXXXX EXP. XX-XX-XX _____ DATE

POST CONSTRUCTION CORNER RECORD

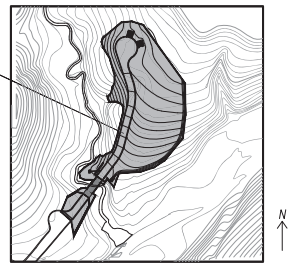
☐ POST CONSTRUCTION CORNER RECORD FOR SURVEY MONUMENTS DESTROYED DURING CONSTRUCTION AND REPLACED AFTER CONSTRUCTION.
CORNER RECORD #_____ OR RECORD OF SURVEY #_____

NAME _____ P.L.S. / R.C.E. NO. XXXXX EXP. XX-XX-XX _____ DATE

FOR STORMWATER BMP TABLES, SEE SHEET 2

GRADING PLANS FOR:

EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION



KEY MAP

SCALE: 1"=200'

GRADING + GEOTECHNICAL SPECIFICATIONS

1. ALL GRADING SHALL BE CONDUCTED UNDER THE OBSERVATION AND TESTING BY A QUALIFIED PROFESSIONAL ENGINEER AND, IF REQUIRED, A QUALIFIED PROFESSIONAL GEOLOGIST. ALL GRADING MUST BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY ORDINANCE AND THE RECOMMENDATIONS AND SPECIFICATIONS SET FORTH IN THE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT(S) ENTITLED:

REPORT TITLE, PROJECT NAME, PROJECT LOCATION, PREPARED BY (COMPANY NAME), DATED (THEIR COMPANY PROJECT NO.)

THESE DOCUMENTS WILL BE FILED IN THE RECORDS SECTION OF DEVELOPMENT SERVICES UNDER THE PROJECT NUMBER INDICATED IN THE TITLE BLOCK OF THESE PLANS.

2. ALL FILL SOIL SHALL BE COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MOST RECENT VERSION OF A.S.T.M. D-1557 OR AN APPROVED ALTERNATIVE STANDARD.

3. AT THE COMPLETION OF THE GRADING OPERATIONS FOR THE EARTHWORK SHOWN ON THIS PLAN, AN AS-GRADED GEOTECHNICAL REPORT SHALL BE PREPARED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE CITY OF SAN DIEGO GUIDELINES FOR GEOTECHNICAL REPORTS. THE FINAL "AS-GRADED" GEOTECHNICAL REPORT SHALL BE SUBMITTED IN ACCORDANCE WITH THE GENERAL NOTES ON THESE PLANS WITHIN 30 DAYS OF THE COMPLETION OF GRADING. WHERE GEOLOGIC INSPECTION IS INDICATED IN THE PERMIT, PLANS, SPECIFICATIONS, OR GEOTECHNICAL REPORT(S), THE FINAL "AS-GRADED" GEOTECHNICAL REPORT MUST ALSO BE REVIEWED AND SIGNED BY A QUALIFIED PROFESSIONAL GEOLOGIST.

4. THE COMPANY OR COMPANIES REPRESENTED BY THE INDIVIDUALS SIGNING ITEM NO. 5 OF THIS CERTIFICATE IS/ARE THE GEOTECHNICAL CONSULTANT(S) OF RECORD. IF THE GEOTECHNICAL CONSULTANT OF RECORD IS CHANGED FOR THE PROJECT, THE WORK SHALL BE STOPPED UNTIL THE REPLACEMENT HAS SUBMITTED AN ACCEPTABLE TRANSFER OF GEOTECHNICAL CONSULTANT OF RECORD DECLARATION PREPARED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE CITY OF SAN DIEGO GUIDELINES FOR GEOTECHNICAL REPORTS. IT SHALL BE THE DUTY OF THE PERMITTEE TO NOTIFY THE RESIDENT ENGINEER AND THE GEOLOGY SECTION OF DEVELOPMENT SERVICES IN WRITING OF SUCH CHANGE PRIOR TO THE RECOMMENCEMENT OF GRADING.

5. THESE GRADING PLANS HAVE BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS CONTAINED IN THE REFERENCED GEOTECHNICAL REPORT(S) PREPARED FOR THIS PROJECT.

(SIGNATURE) _____ _____ _____
ENGINEER'S NAME P.E. OR G.E. DATE

(SIGNATURE) _____ _____ _____
GEOLOGIST'S NAME P.G. OR C.E.G. DATE

COMPANY NAME*
ADDRESS
TELEPHONE NUMBER

*IF THE PROFESSIONAL ENGINEER (P.E. OR G.E.) AND PROFESSIONAL GEOLOGIST (P.G. OR C.E.G.) SIGNING THIS STATEMENT ARE NOT FROM THE SAME COMPANY, BOTH COMPANY NAMES AND PHONE NUMBERS MUST BE PROVIDED.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

KREUZER CONSULTING GROUP
320 MAIN STREET, UNIT D
SEAL BEACH, CA 90740
(714) 656-0160
RICK@KREUZERCONSULTING.COM

RICK KREUZER, P.E. R.C.E. NO. 42407 EXP. 3-31-22 _____ DATE

OWNER/APPLICANT

BOB DOWSON
5600 CARROLL CANYON ROAD
SAN DIEGO, CA 92121
(858) 453-2121

SITE ADDRESS

EL CAMINO MEMORIAL PARK
5600 CARROLL CANYON ROAD
SAN DIEGO, CA 92121

TOPOGRAPHY SOURCE

BOYLE ENGINEERING CORPORATION
ALTA/ACSM LAND TITLE SURVEY
TOPO SOURCE DATE (MUST BE < 3 YEARS AGO)

BENCHMARK

COUNTY OF SAN DIEGO RUIS MONUMENT BENCHMARK 18752,
LEAD & DISC STAMPED LS 4871 IN THE SIDEWALK ON THE
NORTH SIDE OF CARROLL CANYON ROAD 200 FT EAST OF
PACIFIC HEIGHTS BLVD.
NAVD88: GPS 2-11. ELEVATION: 167.110

ASSESSORS PARCEL NUMBER

APN: 341-470-01-00

LEGAL DESCRIPTION

SEE SHEET 2 FOR FULL LEGAL DESCRIPTION.

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GRADING QUANTITIES

GRADED AREA	2.72 [ACRES]	MAX. CUT DEPTH	5.5 [FT]
CUT QUANTITIES	7,340 CY	MAX CUT SLOPE RATIO (2:1MAX)	2:1 MAX CUT
FILL QUANTITIES	6,395 CY	MAX. FILL DEPTH	22 [FT]
SHRINKAGE (10%)	640 CY	MAX FILL SLOPE RATIO (2:1MAX)	2:1 MAX FILL
IMPORT/EXPORT	305 CY [EXPORT]		

THIS PROJECT PROPOSES TO EXPORT 305 CUBIC YARDS OF MATERIAL FROM THIS SITE. ALL EXPORT MATERIAL SHALL BE DISCHARGED TO A LEGAL DISPOSAL SITE. THE APPROVAL OF THIS PROJECT DOES NOT ALLOW PROCESSING AND SALE OF THE MATERIAL. ALL SUCH ACTIVITIES REQUIRE A SEPARATE CONDITIONAL USE PERMIT.

CONSTRUCTION STORM WATER PROTECTION NOTES

1. TOTAL SITE DISTURBANCE AREA (ACRES) _____

HYDROLOGIC UNIT / WATERSHED HYDROLOGIC: _____

HYDRAULIC SUB AREA NAME AND NUMBER: _____

2. THE PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF THE

☐ WPCP

THE PROJECT IS SUBJECT TO MUNICIPAL STORM WATER PERMIT NUMBER R9-2013-0001 AND SUBSEQUENT AMENDMENTS:.

☐ SWPPP

THE PROJECT IS SUBJECT TO MUNICIPAL STORM WATER PERMIT NUMBER R9-2013-0001 AND CONSTRUCTION GENERAL PERMIT ORDER NUMBER 2009-009-DWQ AS AMENDED BY ORDER 2010-0014 DWQ AND 2012-0006-DWQ

TRADITIONAL: RISK LEVEL ☐ 1 ☐ 2 ☐ 3
LUP RISK LEVEL ☐ 1 ☐ 2 ☐ 3

WDID NO: _____

3. CONSTRUCTION SITE PRIORITY

☐ ASBS ☐ HIGH ☐ MEDIUM ☐ LOW

WORK TO BE DONE

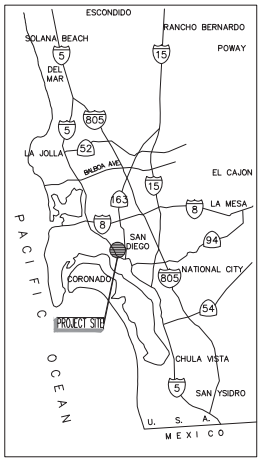
CONSTRUCTION OF NEW AC ROADWAY, CUL-DE-SAC AND BRIDGE STRUCTURE OVER EXISTING CREEK BED. THE PUBLIC IMPROVEMENTS SHOWN ON THESE PLANS SHALL BE CONSTRUCTED ACCORDING TO THE FOLLOWING STANDARD SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF SAN DIEGO.

STANDARD DRAWINGS:

DOCUMENT	DWG. NO.	DESCRIPTION
CITY OF SAN DIEGO	SDD-104	RIP RAP ENERGY DISSIPATER
CITY OF SAN DIEGO	SDD-110	PIPE BEDDING & TRENCH BACKFILL
CITY OF SAN DIEGO	SDD-120	CATCH BASIN
CITY OF SAN DIEGO	D-30	STRAIGHT HEADWALL
CITY OF SAN DIEGO	SDG-151	CURB & GUTTER

LEGEND

245 — EXISTING CONTOUR
265 — PROPOSED MAJOR CONTOUR (5')
— PROPOSED GRADING LIMITS
— PROPOSED ANCHOR BLOCK RETAINING WALL
— PROPOSED BRIDGE
— RIP RAP
— EXISTING CREEK BED (PROTECT IN PLACE)



VICINITY MAP

NO SCALE

ENGINEERING PERMIT NO:_____

DISCRETIONARY PERMIT NO:_____ RETAINING WALL PROJECT NO:_____

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

TITLE SHEET FOR:
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 1 OF 14 SHEETS

PROJECT NO._____

FOR CITY ENGINEER _____ DATE _____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

V.T.M._____

CONTRACTOR _____ DATE STARTED_____
INSPECTOR _____ DATE COMPLETED_____

XXXXX-1-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

CONSTRUCTION CHANGE TABLE

CHANGE	DATE	EFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.	PROJECT NO.

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

The City of SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT

STREET DATA TABLE

STREET NAME	CLASSIFICATION	SPEED (MPH)	ADT (VEHICLES)	R/W (FT)

(REV 3/01/2018)

CONSTRUCTION BMP GENERAL NOTES

PRIOR TO ANY SOIL DISTURBANCE, TEMPORARY EROSION AND SEDIMENT CONTROLSHALL BE INSTALLED BY THE CONTRACTOR OR QUALIFIED PERSON(S) AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY OF SAN DIEGO 'LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND/OR WATER POLLUTION CONTROL PLAN (WPCP) FOR CONSTRUCTION LEVEL BMP'S AND, IF APPLICABLE, THE STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) FOR POST CONSTRUCTION TREATMENT CONTROL BMP'S.

2. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL STORM DRAIN INLETS. INLET PROTECTION IN THE PUBLIC RIGHT OF WAY MAY BE TEMPORARILY REMOVED WHERE IT IS PRONE TO FLOODING PRIOR TO A RAIN EVENT AND REINSTALLED AFTER RAIN IS OVER.

3. ALL CONSTRUCTION BMPS SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.

4. THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING, AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION AND SEDIMENT CONTROL MEASURES.

5. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUB-CONTRACTORS AND SUPPLIERS ARE AWARE OF ALL STORM WATER QUALITY MEASURES AND IMPLEMENT SUCH MEASURES. FAILURE TO COMPLY WITH THE APPROVED SWPPP/WPCP WILL RESULT IN THE ISSUANCE OF CORRECTION NOTICES, CITATIONS, CIVIL PENALTIES AND/OR STOP WORK NOTICES.

6. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF ALL SILT, DEBRIS AND MUD ON AFFECTED AND ADJACENT STREET(S) AND WITHIN STORM DRAIN SYSTEM DUE TO CONSTRUCTION VEHICLES/EQUIPMENT AND CONSTRUCTION ACTIVITY AT THE END OF EACH WORK DAY.

7. THE CONTRACTOR SHALL PROTECT NEW AND EXISTING STORM WATER CONVEYANCE SYSTEMS FROM SEDIMENTATION, CONCRETE RINSE, OR OTHER CONSTRUCTION RELATED DEBRIS AND DISCHARGES WITH THE APPROPRIATE BMPS THAT ARE ACCEPTABLE TO THE ENGINEER AND AS INDICATED IN THE SWPPP/WPCP

8. THE CONTRACTOR OR QUALIFIED PERSON SHALL CLEAR DEBRIS, SILT AND MUD FROM ALL DITCHES AND SWALES PRIOR TO AND AFTER EACH RAIN EVENT.

9. IF A NON-STORM WATER DISCHARGE LEAVES THE SITE, THE CONTRACTOR SHALL IMMEDIATELY STOP THE ACTIVITY AND REPAIR THE DAMAGES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF THE DISCHARGE AS SOON AS PRACTICAL, ANY AND ALL WASTE MATERIAL, SEDIMENT AND DEBRIS FROM EACH NON STORM WATER DISCHARGE SHALL BE REMOVED FROM THE STORM DRAIN CONVEYANCE SYSTEM AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

10. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID DEPLOYMENT OF CONSTRUCTION BMPS WHEN RAIN IS IMMINENT.

11. THE CONTRACTOR SHALL RESTORE AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO WORKING ORDER YEAR ROUND.

12. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DUE TO GRADING INACTIVITY OR UNFORESEEN CIRCUMSTANCES TO PREVENT NON-STORM WATER AND SEDIMENT-LADEN DISCHARGES.

13. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.

14. ALL EROSION AND SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED SWPPP/WPCP SHALL BE INSTALLED AND MAINTAINED. ALL EROSION AND SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE PROPERLY DOCUMENTED AND INSTALLED TO THE SATISFACTION OF THE RESIDENT ENGINEER.

15. UPON NOTIFICATION BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL ARRANGE FOR MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION AND SEDIMENT CONTROL MEASURES AND OTHER BMPS RELATIVE TO ANTICIPATED CONSTRUCTION ACTIVITIES.

16. THE CONTRACTOR SHALL CONDUCT VISUAL INSPECTIONS DAILY AND MAINTAIN ALL BMPS AS NEEDED. VISUAL INSPECTIONS AND MAINTENANCE OF ALL BMPS SHALL BE CONDUCTED BEFORE, DURING AND AFTER EVERY RAIN EVENT AND EVERY 24 HOURS DURING ANY PROLONGED RAIN EVENT. THE CONTRACTOR SHALL MAINTAIN AND REPAIR ALL BMPS AS SOON AS POSSIBLE AS SAFETY ALLOWS.

17. CONSTRUCTION ENTRANCE AND EXIT AREA. TEMPORARY CONSTRUCTION ENTRANCE AND EXIT AREA SHALL BE ON LEVEL, STABILIZED GROUND. THE ENTRANCE AND EXIT AREA SHALL BE CONSTRUCTED BY OVERLAYING THE STABILIZED ACCESS AREA WITH 3 TO 6 DIAMETER STONES. THE AREA SHALL BE MINIMUM 50' LONG X 30' WIDE. IN LIEU OF STONE COVERED AREA, THE CONTRACTOR MAY CONSTRUCT RUMBLE RACKS OF STEEL PANELS WITH RIDGES MINIMUM 20' LONG X 30' WIDE CAPABLE OF PREVENTING THE MIGRATION OF CONSTRUCTION MATERIALS INTO THE TRAVELED WAYS.

18. PERFORMANCE STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING WATER POLLUTION CONTROL MEASURES BASED ON PERFORMANCE STANDARDS. PERFORMANCE STANDARDS SHALL INCLUDE:

A. NON-STORM WATER DISCHARGES FROM THE SITE SHALL NOT OCCUR TO THE MEP.3. STORM WATER DISCHARGES SHALL BE FREE OF POLLUTANTS INCLUDING SEDIMENT TO THE MEP.

B. EROSION SHALL BE CONTROLLED BY ACCEPTABLE BMPS TO THE MEP. IF RILLS AND GULLIES APPEAR THEY SHALL BE REPAIRED AND ADDITIONAL BMPS INSTALLED TO PREVENT A REOCCURRENCE OF EROSION.

C. AN INACTIVE AREA SHALL BE PROTECTED TO PREVENT POLLUTANT DISCHARGES. A SITE OR PORTIONS OF A SITE SHALL BE CONSIDERED INACTIVE WHEN CONSTRUCTION ACTIVITIES HAVE CEASED FOR A PERIOD OF 14 OR MORE CONSECUTIVE DAYS.

GRADING NOTES

1. GRADING AS SHOWN ON THESE PLANS SHALL BE IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS AND CHAPTER 14, ARTICLE 2, DIVISION 1, OF THE SAN DIEGO MUNICIPAL CODE.

2. PLANT AND IRRIGATE ALL CUT AND FILL SLOPES AS REQUIRED BY ARTICLE 2, DIVISION 4, SECTION 142.0411 OF THE SAN DIEGO LAND DEVELOPMENT CODE AND ACCORDING TO SECTION IV OR THE LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS.

3. GRADED, DISTURBED, OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED, COVERED BY STRUCTURE, OR PLANTED FOR A PERIOD OVER 90 DAYS SHALL BE TEMPORARILY RE-VEGETATED WITH A NON-IRRIGATED HYDROSEED MIX, GROUND COVER, OR EQUIVALENT MATERIAL. SEE SHEET ___ FOR MIX AND SPECIFICATIONS.

GROUND WATER DISCHARGE NOTES

1. ALL GROUND WATER EXTRACTION AND SIMILAR WASTE DISCHARGES TO SURFACE WATERS NOT TRIBUTARY TO THE SAN DIEGO BAY ARE PROHIBITED UNTIL IT CAN BE DEMONSTRATED THAT THE OWNER HAS APPLIED AND OBTAINED AUTHORIZATION FROM THE STATE OF CALIFORNIA VIA AN OFFICIAL "ENROLLMENT LETTER" FROM THE REGIONAL WATER QUALITY CONTROL BOARD IN ACCORDANCE WITH THE TERMS, PROVISIONS AND CONDITIONS OF STATE ORDER NO R9-2015-0013 NPDES CAG919003.

2. THE ESTIMATED MAXIMUM DISCHARGE RATES MUST NOT EXCEED THE LIMITS SET IN THE OFFICIAL "ENROLLMENT LETTER" FROM THE REGIONAL BOARD UNLESS PRIOR NOTIFICATION AND SUBSEQUENT AUTHORIZATION HAS BEEN OBTAINED, AND DISCHARGE OPERATIONS MODIFIED TO ACCOMMODATE THE INCREASED RATES.

3. ALL GROUND WATER EXTRACTIONS AND SIMILAR WASTE DISCHARGES TO SURFACE WATERS TRIBUTARY TO THE SAN DIEGO BAY ARE PROHIBITED UNTIL IT CAN BE DEMONSTRATED THAT THE OWNER HAS APPLIED AND OBTAINED AUTHORIZATION FROM THE STATE OF CALIFORNIA VIA AN OFFICIAL "ENROLLMENT LETTER" FROM THE REGIONAL WATER QUALITY CONTROL BOARD IN ACCORDANCE WITH THE TERMS, PROVISIONS AND CONDITIONS OF STATE ORDER NO R9-2015-0013 NPDES NO. CAG919003.

MINIMUM POST-CONSTRUCTION MAINTENANCE PLAN

AT THE COMPLETION OF THE WORK SHOWN, THE FOLLOWING PLAN SHALL BE FOLLOWED TO ENSURE WATER QUALITY CONTROL IS MAINTAINED FOR THE LIFE OF THE PROJECT:

1. STABILIZATION: ALL PLANTED SLOPES AND OTHER VEGETATED AREAS SHALL BE INSPECTED PRIOR TO OCTOBER 1 OF EACH YEAR AND AFTER MAJOR RAINFALL EVENTS (MORE THAN ½ INCH) AND REPAIRED AND REPLANTED AS NEEDED UNTIL A NOTICE OF TERMINATION (NOT) IS FILED.

2. STRUCTURAL PRACTICES: DESILTING BASINS, DIVERSION DITCHES, DOWNDRAINS, INLETS, OUTLET PROTECTION MEASURES, AND OTHER PERMANENT WATER QUALITY AND SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED PRIOR TO OCTOBER 1ST OF EACH YEAR AND AFTER MAJOR RAINFALL EVENTS (MORE THAN ½ INCH). REPAIRS AND REPLACEMENTS SHALL BE MADE AS NEEDED AND RECORDED IN THE MAINTENANCE LOG IN PERPETUITY.

3. OPERATION AND MAINTENANCE, FUNDING: POST-CONSTRUCTION MANAGEMENT MEASURES ARE THE RESPONSIBILITY OF THE DEVELOPER UNTIL THE TRANSFER OF RESPECTIVE SITES TO HOME BUILDERS, INDIVIDUAL OWNERS, HOMEOWNERS ASSOCIATIONS, SCHOOL DISTRICTS, OR LOCAL AGENCIES AND/OR GOVERNMENTS. AT THAT TIME, THE NEW OWNERS SHALL ASSUME RESPONSIBILITY FOR THEIR RESPECTIVE PORTIONS OF THE DEVELOPMENT.

STORM WATER REQUIREMENTS

1. THIS PROJECT IS SUBJECT TO MUNICIPAL CODE SECTION 4303 AND ORDER NO. R9-2013-0001 AS AMENDED BY R9-2015-0001 AND R9-2015-0100

2. ALL WORK RELATED TO POST-CONSTRUCTION STORMWATER QUALITY SHALL BE IN ACCORDANCE WITH THE STORM WATER QUALITY MANAGEMENT PLAN ENTITLED, PROJECT NAME AND NUMBER, PROJECT APPLICANT PROJECT ADDRESS, PREPARED BY (COMPANY NAME), REPORT DATE.

3. POST-CONSTRUCTION BMPS ARE REQUIRED, SEE SHEET(S)_____.

PRIVATE NOTE

ALL ONSITE, PRIVATE IMPROVEMENTS SHOWN ON THIS DRAWING ARE FOR INFORMATION ONLY. THE CITY ENGINEER'S APPROVAL OF THIS DRAWING, IN NO WAY CONSTITUTES AN APPROVAL OF SAID PRIVATE IMPROVEMENTS. A SEPARATE PERMIT FOR SUCH IMPROVEMENTS MAY BE REQUIRED.

LEGAL DESCRIPTION

LEGAL DESCRIPTION PER TITLE REPORT PREPARED BY CHICAGO TITLE COMPANY, ORDER NO. 830014981-USD, DATED JULY 01, 2008.

PARCEL 1:

LOT 1 OF EL CAMINO MEMORIAL PARK, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 4719, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 20, 1961.

EXCEPTING THEREFROM THOSE PORTIONS DESCRIBED IN STIPULATION FOR AMENDMENT OF JUDGMENT AND ORDER THEREON OF THE SUPERIOR COURT OF THE STATE OF CALIFORNIA, CASE NO. 304283, RECORDED FEBRUARY 8, 1972 AS RECORDER'S FILE/PAGE NO. 30967 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION OF LOT 1 OF EL CAMINO MEMORIAL PARK MAP NO. 4719 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, ALL IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

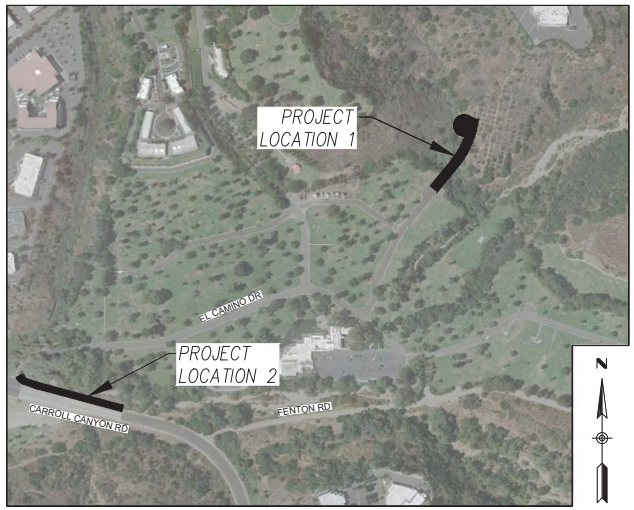
BEGINNING AT THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF SECTION 3, TOWNSHIP 15 SOUTH, RANGE 3 WEST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF; THENCE 1. SOUTH 87°53'15" EAST, 931.45 FEET TO A POINT ON THE SOUTHERLY BOUNDARY OF LOT 1 OF EL CAMINO MEMORIAL PARK, ACCORDING TO MAP THEREOF, SAID POINT BEING ON A NON-TANGENT CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 949.00 FEET AND TO WHICH POINT A RADIAL LINE BEARS SOUTH 73°01'32" WEST, ALSO BEING THE TRUE POINT OF BEGINNING; THENCE
2. NORTH 23°14'00" EAST, 239.32 FEET; THENCE
3. NORTH 67°20'00" EAST, 387.00 FEET; THENCE
4. NORTH 82°50'00" EAST, 208.00 FEET; THENCE
5. SOUTH 50°31'00" EAST, 690.28 FEET; THENCE
6. NORTH 87°53'15" WEST, 1,191.47 FEET TO THE TRUE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM THAT PORTION LYING IN LUSK MIRA MESA BUSINESS PARK EAST I, UNIT NO. 5, ACCORDING TO MAP THEREOF NO. 12281, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 14, 1988.

AND ALSO EXCEPTING ALL OF THE OIL, GAS, ASPHALTUM AND OTHER HYDROCARBON SUBSTANCES IN, ON, OR UNDER, OR WHICH MAY HEREAFTER BE PRODUCED IN THE FOLLOWING DESCRIBED LAND:

THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 3, TOWNSHIP 15 SOUTH, RANGE 3 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, AS SAID RIGHTS WERE SET OUT IN DEED RECORDED NOVEMBER 10, 1950, RECORDER'S FILE NO. 130342 IN BOOK 3856, PAGE 197 OF OFFICIAL RECORDS.

AND ALSO EXCEPTING THEREFROM ALL OIL, GAS, ASPHALTUM AND OTHER HYDROCARBON SUBSTANCES THAT MAY BE PRODUCED, AND OTHER RIGHTS IN CONNECTION THEREWITH, IN OR UNDER THE FOLLOWING DESCRIBED LAND:
ALL THAT PORTION OF EL CAMINO MEMORIAL PARK, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AS SHOWN ON MAP NO. 4719, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 20, 1961, DESCRIBED AS FOLLOWS:
COMMENCING AT THE SOUTHEAST CORNER OF SAID EL CAMINO MEMORIAL PARK; THENCE ALONG THE FOLLOWING BEARINGS AND DISTANCES ACCORDING TO RECORD OF SURVEY MAP NO. 5988 AS FILED IN THE OFFICE OF THE COUNTY RECORDER, DECEMBER 27, 1961; NORTH 88°36'52" WEST, 656.95 FEET; THENCE NORTH 01°23'08" EAST, 51.00 FEET TO A POINT ON A 1365.41 FOOT RADIUS CURVE, CONCAVE NORTHEASTERLY, A RADIAL LINE THROUGH SAID POINT ON CURVE BEARS NORTH 01°23'08" EAST, SAID POINT ALSO BEING ON THE NORTHERLY LINE OF A STRIP OF LAND, 102.00 FEET WIDE RESERVED FOR FUTURE STREET AS SHOWN ON SAID RECORD OF SURVEY MAP NO. 5988; THENCE NORTHWESTERLY ALONG SAID CURVE AND SAID NORTHERLY LINE THROUGH A CENTRAL ANGLE OF 25°04'40", AN ARC DISTANCE OF 597.63 FEET; THENCE TANGENT TO SAID CURVE NORTH 63°32'12" WEST, 509.30 FEET TO THE BEGINNING OF A TANGENT 1553.56 FOOT RADIUS CURVE CONCAVE SOUTHWESTERLY; THENCE NORTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 28°42'48" AN ARC DISTANCE OF 778.56 FEET TO THE TRUE POINT OF BEGINNING;B
THENCE FROM SAID TRUE POINT OF BEGINNING, SOUTH 87°45'00" WEST, 518.00 FEET; THENCE LEAVING SAID NORTHERLY LINE NORTH 02°15'00" WEST, 200.00 FEET; THENCE NORTH 76°45'00" EAST, 200.00 FEET; THENCE SOUTH 02°15'00" EAST, 100.00 FEET; THENCE NORTH 87°45'00" EAST, 443.45 FEET; THENCE SOUTH 01°52'02" WEST, 142.54 FEET TO A POINT ON THE ABOVE MENTIONED 1553.56 FOOT RADIUS CURVE, A RADIAL LINE THROUGH SAID POINT ON CURVE THROUGH A CENTRAL ANGLE OF 04°07'02" AN ARC DISTANCE OF 111.64 FEET TO THE TRUE POINT OF BEGINNING, AS EXCEPTED IN DEED RECORDED OCTOBER 11, 1966, RECORDER'S FILE NO. 163945.
1985.



LOCATION MAP

NTS

GRADING PLANS FOR:

GENERAL NOTES & LOCATION MAP
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 2 OF 14 SHEETS

PROJECT NO._____

V.T.M._____

FOR CITY ENGINEER _____ DATE _____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

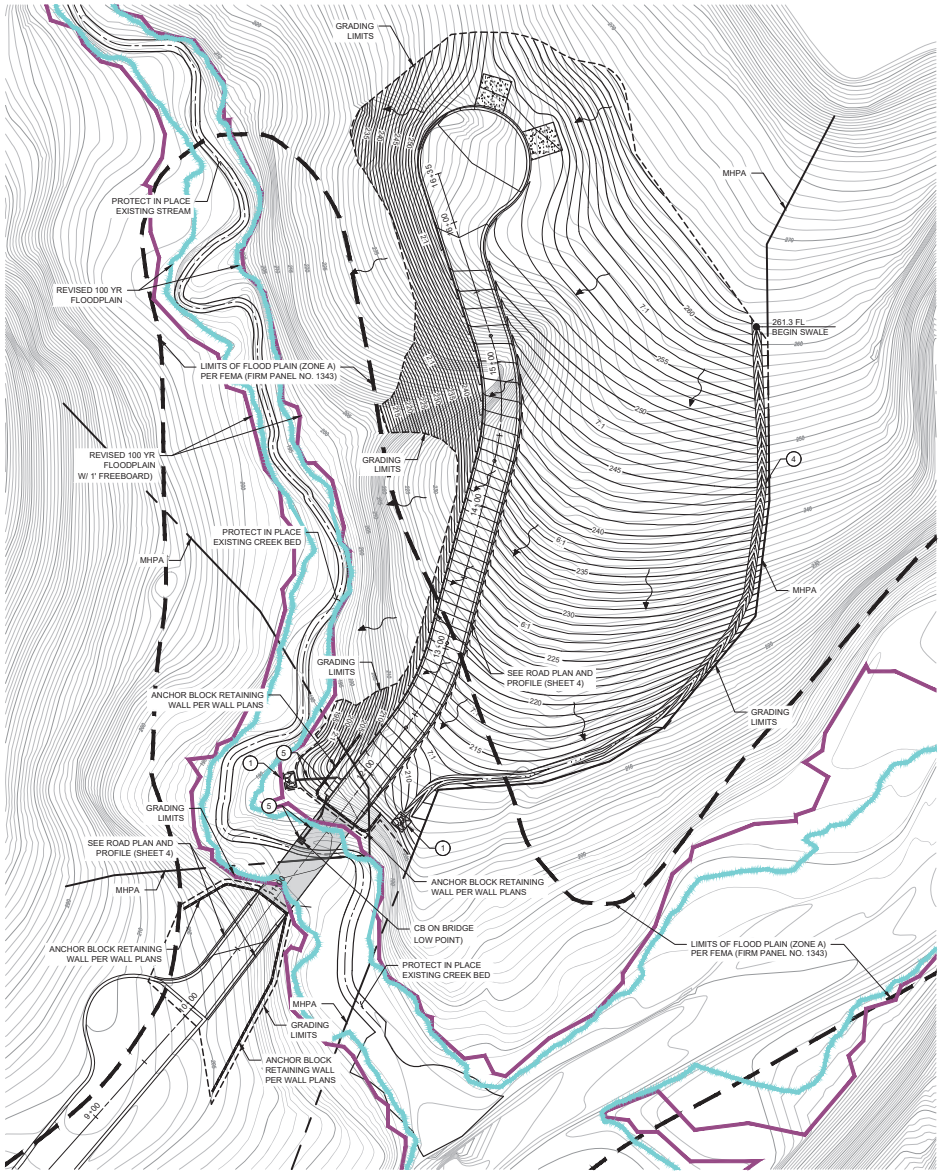
PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
40 20 0 40 80

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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GRADING AND DRAINAGE CONSTRUCTION NOTES

1. CONSTRUCT 10' X 10' RIP RAP ENERGY DISSIPATER PER CITY OF SAN DIEGO STD. DWG. NO. SDD-104 AND DETAIL A
4. CONSTRUCT EARTHEN SWALE PER DETAIL B
5. CONSTRUCT DRAINAGE IMPROVEMENTS PER SHEET 4.

LEGEND

- 245 — EXISTING CONTOUR
- 265 — PROPOSED MAJOR CONTOUR (5')
- PROPOSED GRADING LIMITS
- PROPOSED ANCHOR BLOCK RETAINING WALL
- PROPOSED BRIDGE
- RIP RAP
- EXISTING CREEK BED (PROTECT IN PLACE)
- OVERLAND FLOW DIRECTION
- FLOOD PLAIN LIMITS (ZONE A)
- REVISED 100 YEAR FLOODPLAIN (W/ 1' FREEBOARD)
- REVISED 100 YEAR FLOODPLAIN

EARTHWORK VOLUMES

	RAW CUT =	7,340 CY
LESS:	RAW FILL =	6,395 CY
	SHRINKAGE 10% =	640 CY
	NET EXPORT:	305 CY

NOTES:

1) FOR GRADING CROSS SECTIONS SEE SHEETS 8-10

2) ALL IMPROVEMENTS SHALL BE PER CURRENT CITY OF SAN DIEGO STANDARDS FOR PUBLIC WORKS

N

SCALE: 1" = 40'

GRAPHIC SCALE
40 20 0 40 80

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

GRADING PLANS FOR:
GRADING AND DRAINAGE PLANS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 3 OF 14 SHEETS

PROJECT NO.
V.T.M.

FOR CITY ENGINEER _____ DATE _____

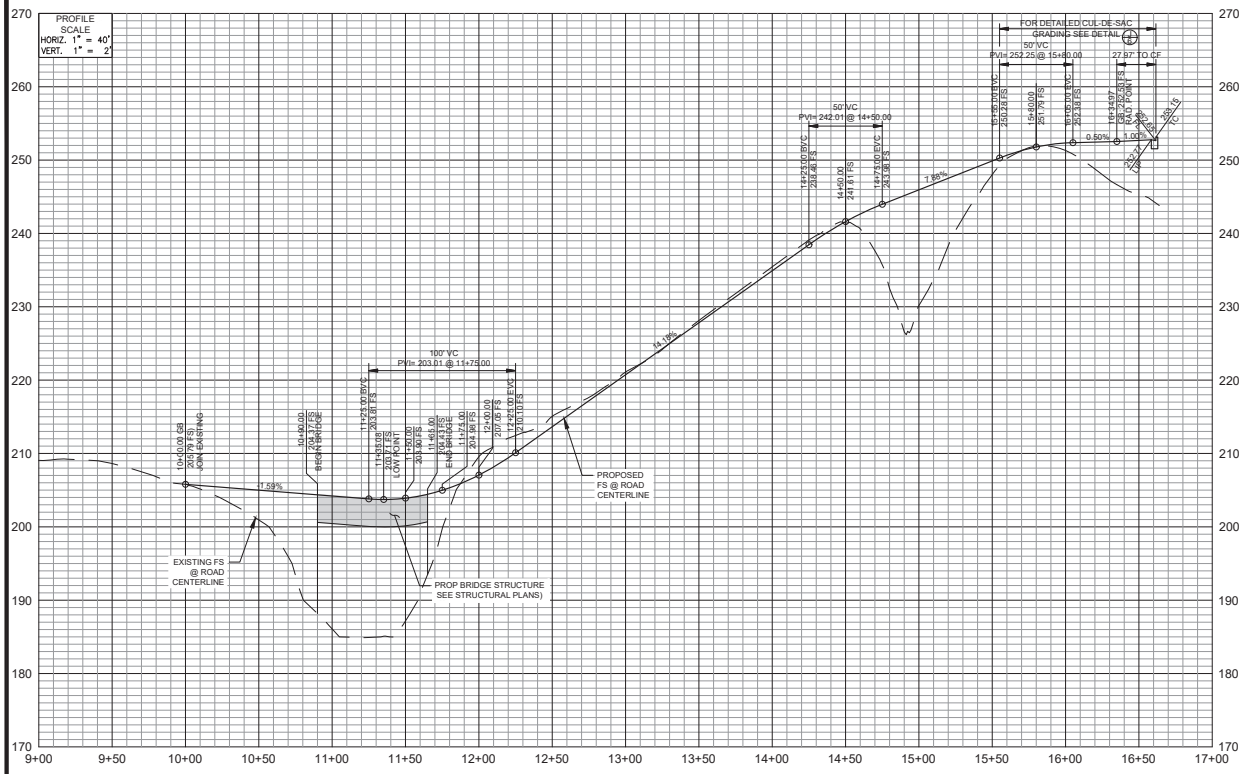
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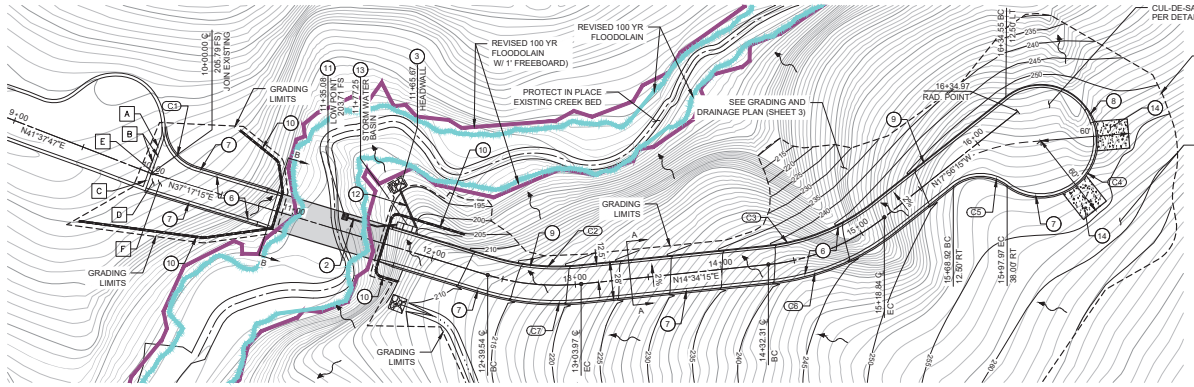
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INSPECTOR _____ DATE COMPLETED _____

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EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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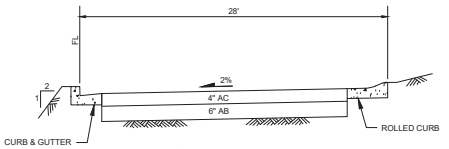


ROADWAY CONSTRUCTION NOTES

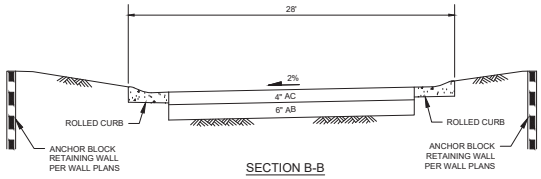
2. FURNISH AND INSTALL 8" HDPE (DUAL WALL) PIPE. TRENCH SECTION PER CITY OF SAN DIEGO STD. DWG. NO. SDD-110 AND DRAINAGE LAYOUT DETAIL
3. CONSTRUCT STRAIGHT HEADWALL, TYPE A, PER CITY OF SAN DIEGO STD. DWG. NO. D-30 AND DETAIL
6. FURNISH AND PLACE 4" AC OVER 6" AB OVER NG @ 95% RELATIVE COMPACTION.
7. CONSTRUCT ROLLED CURB AND GUTTER PER DETAIL
8. CONSTRUCT 10' LONG ROLLED CURB AND GUTTER TO CURB AND GUTTER TRANSITION PER DETAIL
9. CONSTRUCT 6" CURB AND GUTTER PER CITY OF SAN DIEGO STD. DWG. NO. SDG-151 AND DETAIL
10. CONSTRUCT ANCHOR BLOCK RETAINING WALL PER WALL PLANS.
11. CONSTRUCT CATCH BASIN, TYPE G (SINGLE) PER CITY OF SAN DIEGO STD. DWG. NO. SDD-120 AND DETAIL
12. FURNISH AND INSTALL 12" HDPE (DUAL WALL) PIPE. TRENCH SECTION PER CITY OF SAN DIEGO STD. DWG. NO. SDD-110 AND DRAINAGE LAYOUT DETAIL
13. CONSTRUCT STORM WATER BIOFILTRATION BASIN PER DETAIL
14. CONSTRUCT 6" THICK (22' LONG X 20' WIDE) PCC HAMMERHEAD PAD ADJACENT TO MOUNTABLE CURB.

ROADWAY REMOVAL NOTES

- A. SAWCUT EXISTING PAVEMENT
- B. REMOVE EXISTING A.C. PAVEMENT
- C. REMOVE EXISTING CONCRETE ROLLED CURB AND GUTTER
- D. REMOVE AND SALVAGE EXISTING SIGNS
- E. RELOCATE EXISTING SPRINKLER HEAD SEE IRRIGATION PLANS)
- F. REMOVE AND SALVAGE EXISTING TRASH CONTAINER



SECTION A-A
NTS



SECTION B-B
NTS

LEGEND

- 245 — EXISTING CONTOUR
- 265 — PROPOSED MAJOR CONTOUR (5')
- PROPOSED GRADING LIMITS
- PROPOSED ANCHOR BLOCK RETAINING WALL
- PROPOSED BRIDGE
- RIP RAP
- EXISTING CREEK BED (PROTECT IN PLACE)
- OVERLAND FLOW DIRECTION
- PCC HAMMERHEAD PAD
- REVISED 100 YEAR FLOODPLAIN (W/ 1' FREEBOARD)
- REVISED 100 YEAR FLOODPLAIN

CURVE DATA TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C1	71° 40' 31"	30.00'	37.53'	21.67'
C2	22° 43' 00"	150.00'	59.47'	30.13'
C3	32° 30' 30"	140.00'	79.43'	40.82'
C4	255° 49' 54"	38.00'	169.67'	48.79'
C5	75° 31' 19"	30.00'	39.54'	23.24'
C6	32° 30' 30"	165.00'	93.62'	48.11'
C7	22° 43' 00"	175.00'	69.38'	35.15'

NOTE: ALL IMPROVEMENTS SHALL BE PER CURRENT CITY OF SAN DIEGO STANDARDS FOR PUBLIC WORKS.

GRADING PLANS FOR:

STREET PLAN AND PROFILE
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 4 OF 14 SHEETS

PROJECT NO.
V.T.M.

FOR CITY ENGINEER _____ DATE _____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

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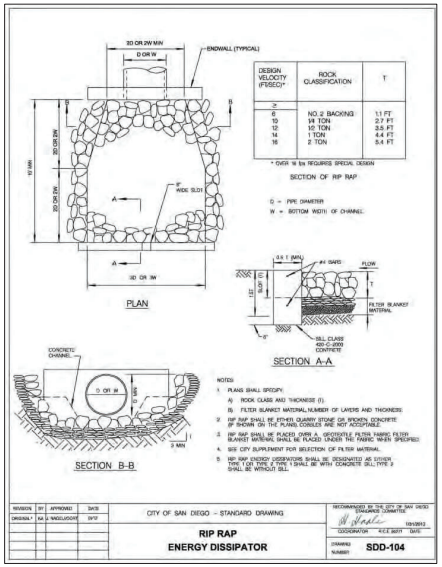
PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
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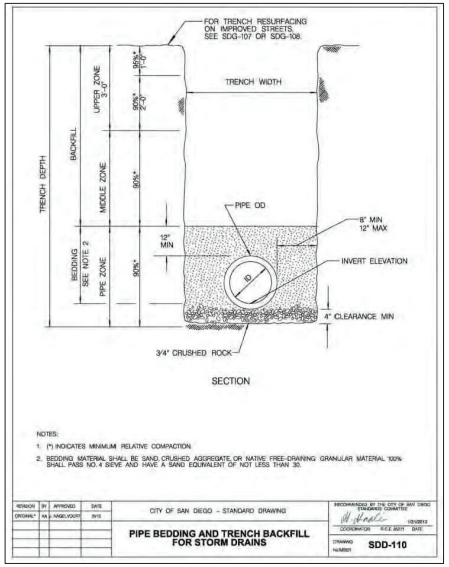
REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

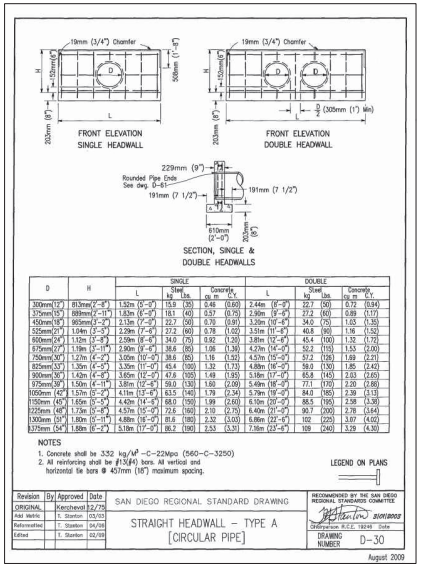
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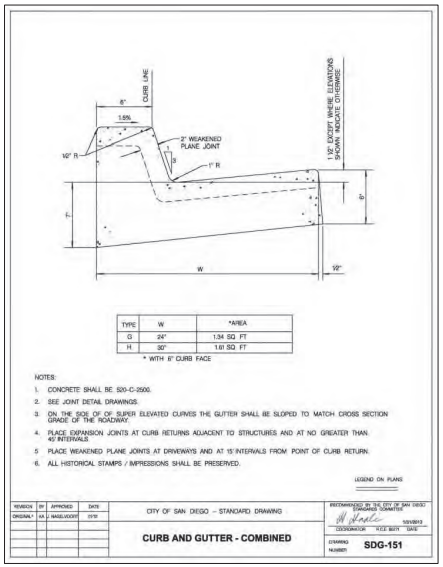
RIP RAP ENERGY DISSIPATOR (A)
NTS



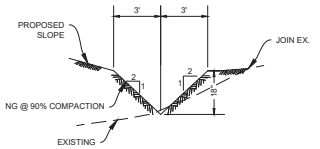
PIPE TRENCH SECTION (B)
NTS



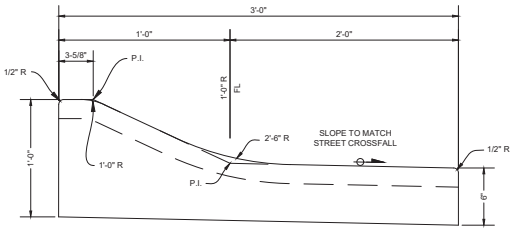
STRAIGHT HEADWALL (C)
NTS



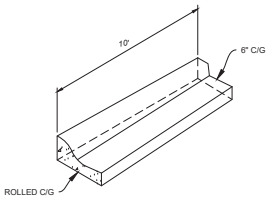
CURB & GUTTER (G)
NTS



EARTHEN SWALE (D)
NTS



ROLLED CURB & GUTTER (E)
NTS



ROLLED CURB & GUTTER TO
6" CURB & GUTTER TRANSITION (F)
NTS

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

GRADING PLANS FOR:
CONSTRUCTION DETAILS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 5 OF 14 SHEETS

PROJECT NO.
V.T.M.

FOR CITY ENGINEER ____ DATE ____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

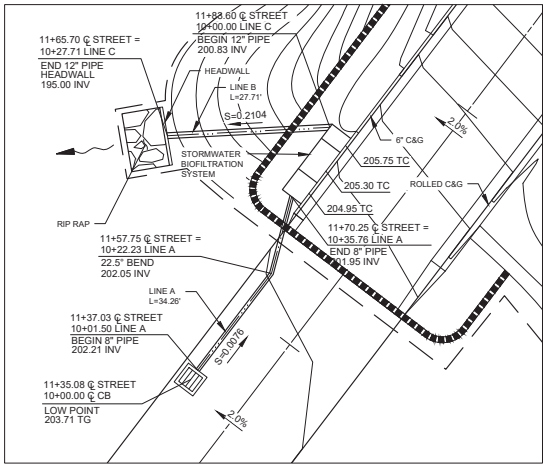
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PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

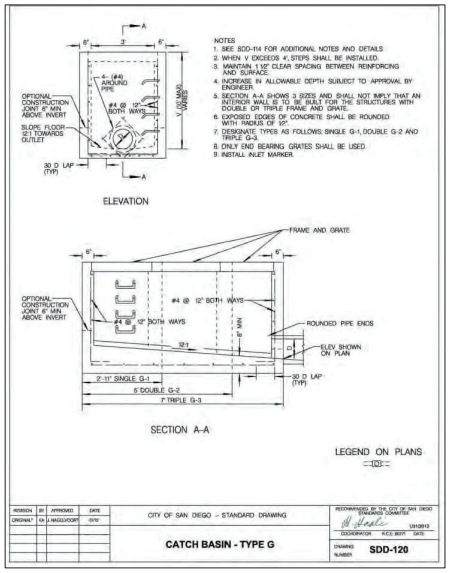
GRAPHIC SCALE
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REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

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DRAINAGE LAYOUT (H)
1"=10'

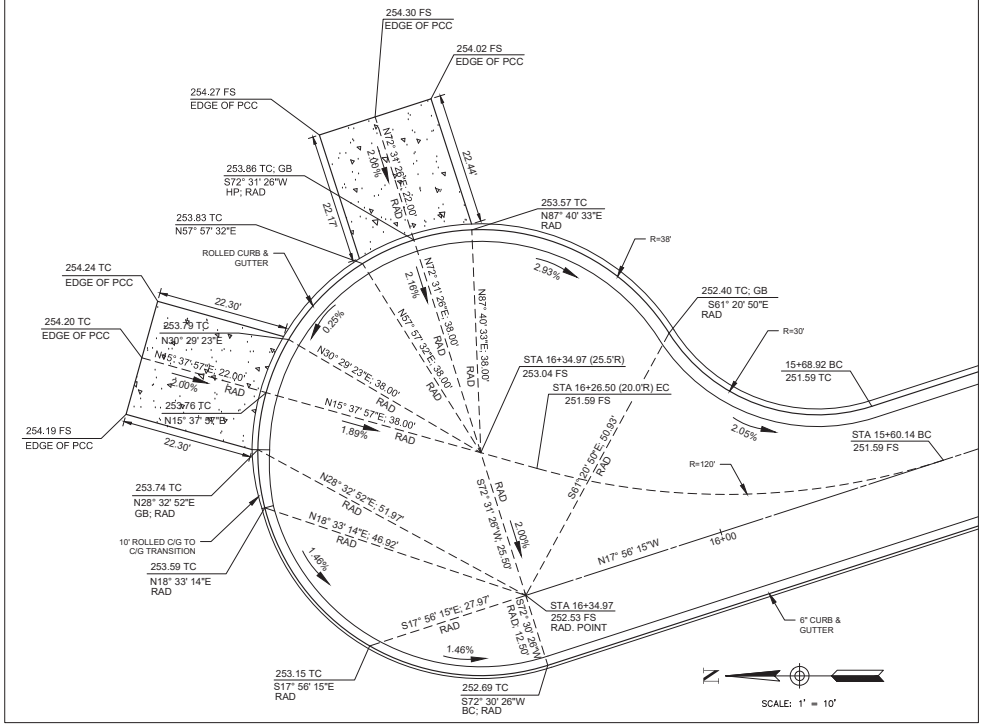


CATCH BASIN (I)
NTS

CUL DE SAC NOTES:

1.) THIS HAMMERHEAD 60-FOOT "Y" CUL-DE-SAC IS IN ACCORDANCE WITH APPENDIX D CFC. FIGURE D103.1.

2.) ALL EXISTING AND/OR PROPOSED FIRE HYDRANTS WITHIN 600' OF THE PROJECT SITE AND A 300' RADIUS OVERLAY SHALL BE SHOWN TO ENCOMPASS ALL PORTIONS OF ALL STRUCTURES AS PART OF SUBMITTED PROJECT. SD ORDINANCE 17927.



CUL-DE-SAC (J)
1"=10'

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

GRADING PLANS FOR:
CONSTRUCTION DETAILS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 6 OF 14 SHEETS

PROJECT NO.
V.T.M.

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

FOR CITY ENGINEER _____ DATE _____
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

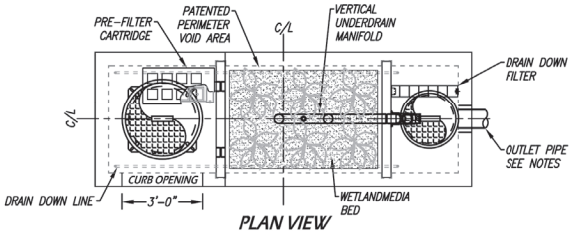
PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
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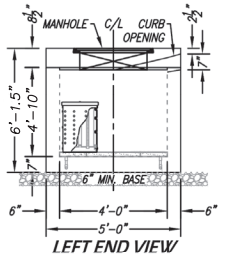
REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

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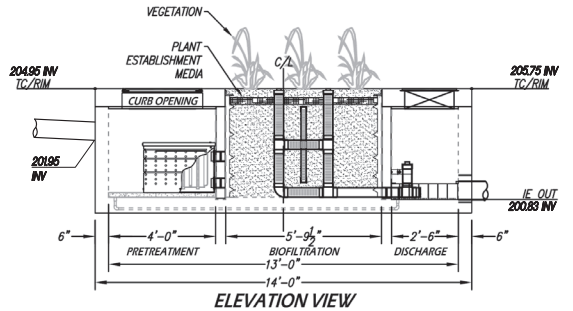
SITE SPECIFIC DATA			
PROJECT NAME	El Camino Memorial Park		
PROJECT LOCATION	Secret Canyon		
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.117 cfs	
TREATMENT HGL AVAILABLE (FT)			--
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			5.0 cfs
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	201.95 INV	HDPE	8"
INLET PIPE 2	—	—	—
OUTLET PIPE	200.83 INV	HDPE	12"
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION	204.95 TC	205.30 TC	205.75 TC
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			3.05
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø1.71"
MAXIMUM PICK WEIGHT (LBS)			27000
NOTES:			



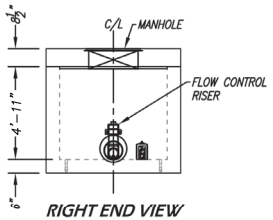
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANIFOLDS, AND HATCHES. CONTRACTOR TO GROUT ALL MANIFOLDS AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

TREATMENT FLOW (CFS)	0.144
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MODULAR WETLANDS SYSTEMS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MODULAR WETLANDS SYSTEMS IS PROHIBITED.

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MWS-L-4-13-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL (MOD)

STORMWATER BIOFILTRATION BASIN (K)
NTS

GRADING PLANS FOR:
CONSTRUCTION DETAILS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 7 OF 14 SHEETS

PROJECT NO.

FOR CITY ENGINEER _____ DATE _____

V.T.M.

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

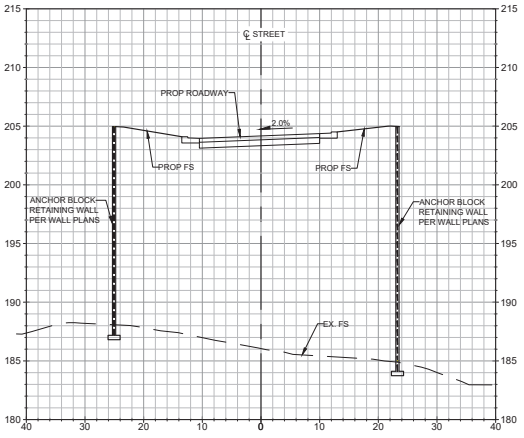
GRAPHIC SCALE
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REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

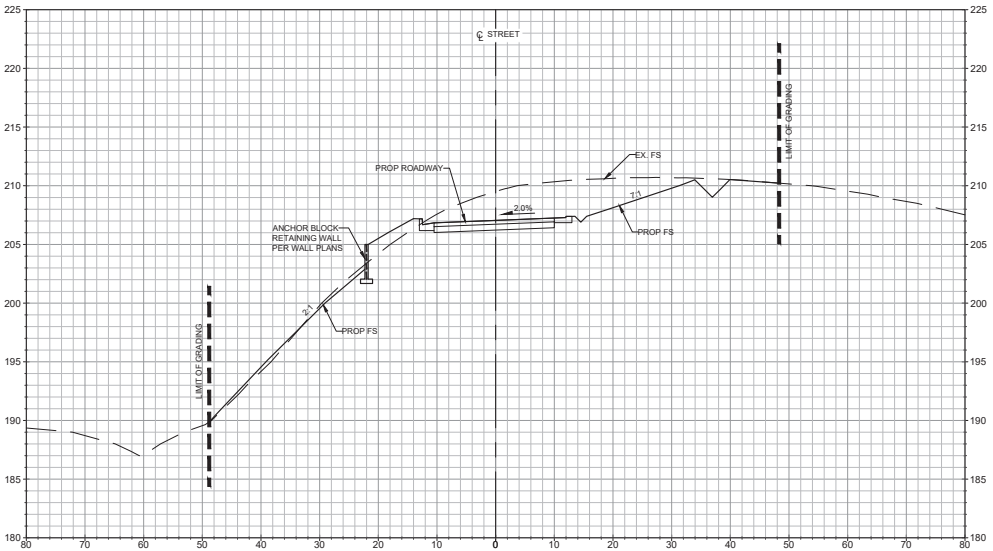
EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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PROFILE
SCALE
VERT. 1" = 5'
HORIZ. 1" = 10'



STATION 11+00
SEE SHEET 4)



STATION 12+00
SEE SHEET 4)

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

GRADING PLANS FOR:

GRADING CROSS SECTIONS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 8 OF 14 SHEETS

PROJECT NO.

V.T.M.

FOR CITY ENGINEER _____ DATE _____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

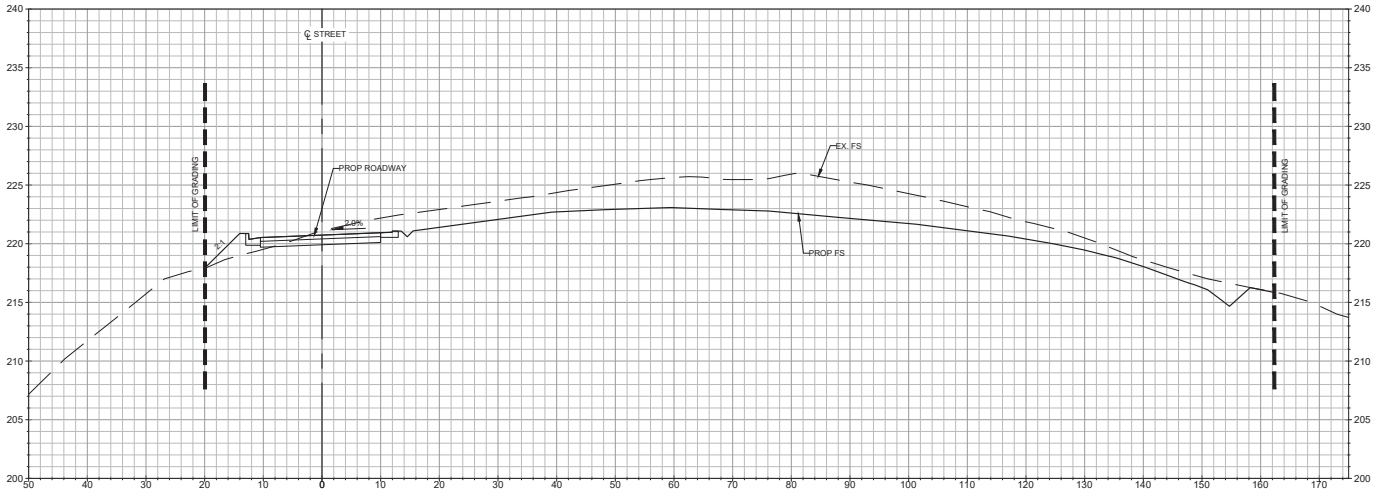
PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
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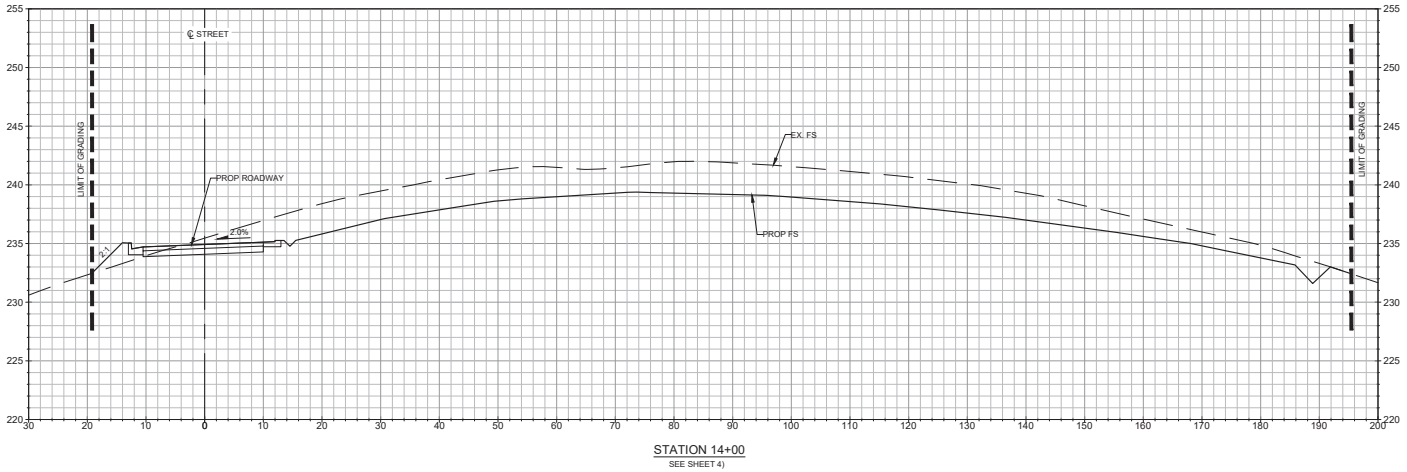
REGISTERED PROFESSIONAL ENGINEER
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Exp. 3-31-22
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STATE OF CALIFORNIA

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PROFILE
SCALE
VERT. 1" = 5'
HORIZ. 1" = 10'



STATION 13+00
SEE SHEET 4)



STATION 14+00
SEE SHEET 4)

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

GRADING PLANS FOR:
GRADING CROSS SECTIONS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 9 OF 14 SHEETS

PROJECT NO.

V.T.M.

FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR DATE STARTED
INSPECTOR DATE COMPLETED

XXXXX-X-D

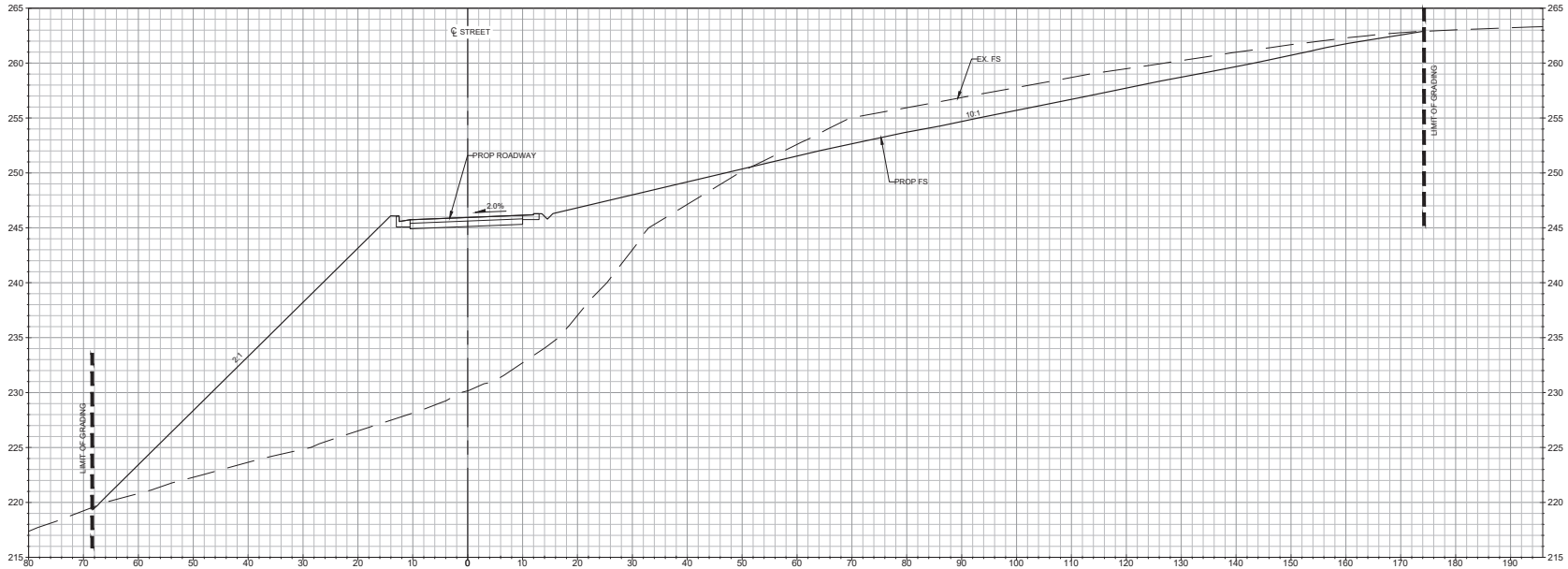
PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
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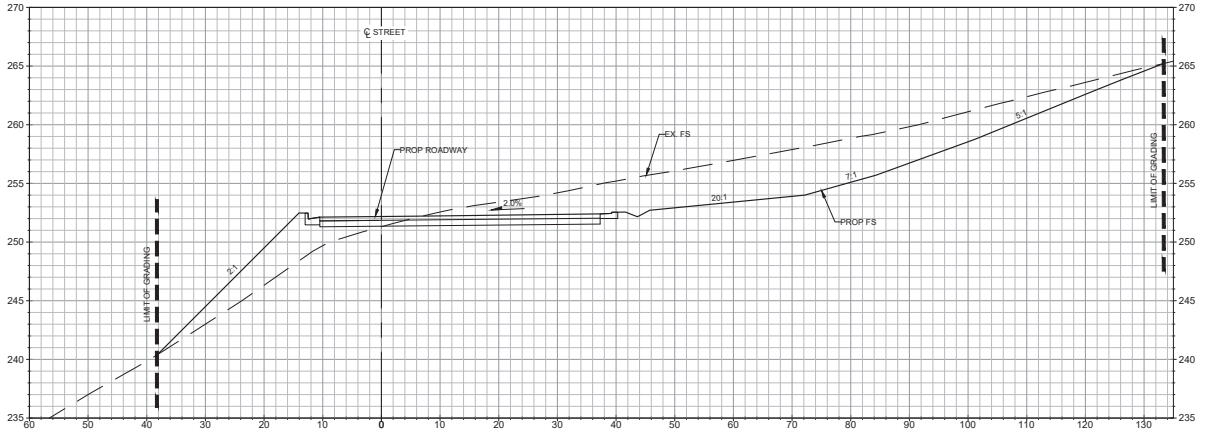
REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

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PROFILE
SCALE
VERT. 1" = 5'
HORIZ. 1" = 10'



STATION 15+00
SEE SHEET 4)



STATION 16+00
SEE SHEET 4)

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
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714-656-0160

GRAPHIC SCALE
40 20 0 40 80

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STATE OF CALIFORNIA

GRADING PLANS FOR:
GRADING CROSS SECTIONS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 10 OF 14 SHEETS

PROJECT NO.

FOR CITY ENGINEER _____ DATE _____

V.T.M.

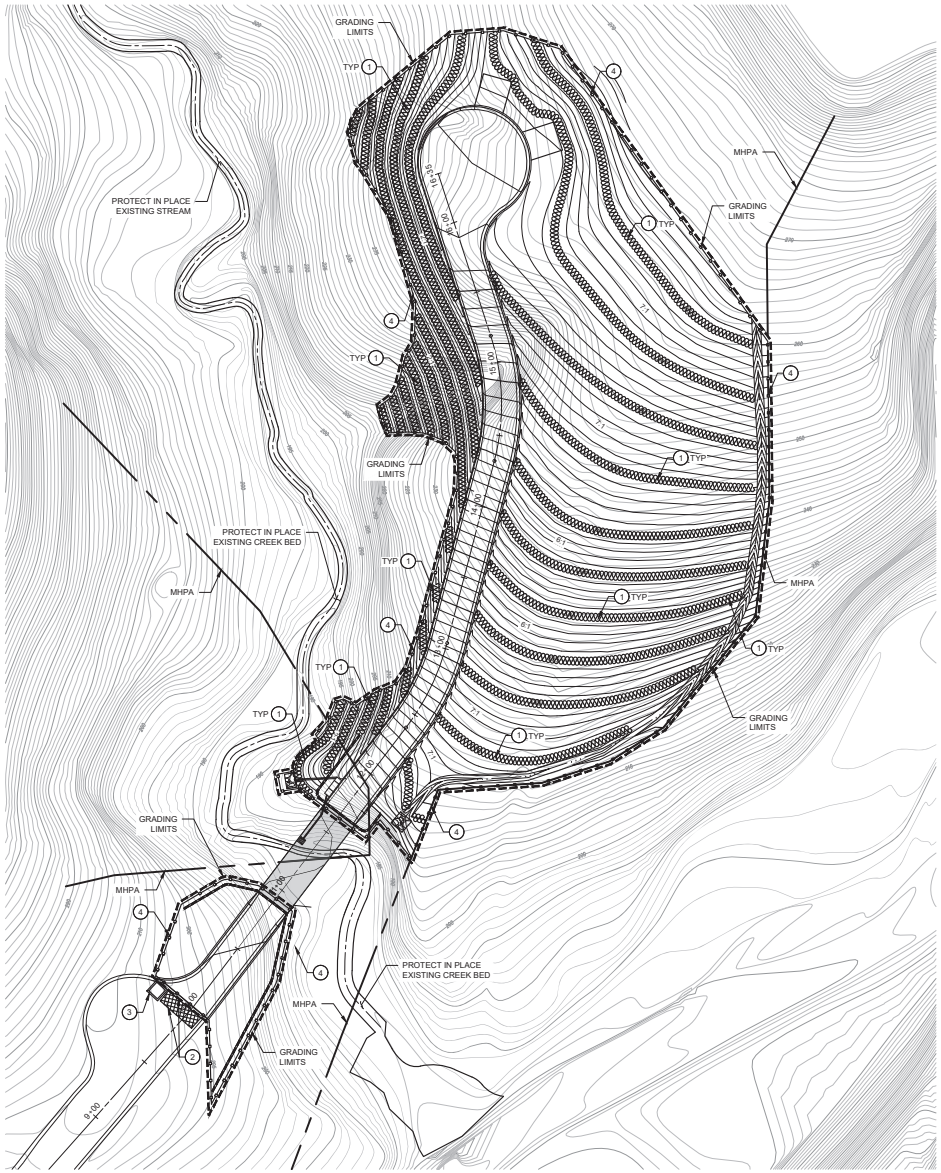
DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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EROSION CONTROL CONSTRUCTION NOTES

1. CONSTRUCT FIBER ROLL PER SE-5 ON SHEET 12
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE/EXIT PER TC-1 ON SHEET 12
3. CONSTRUCT CONCRETE WASHOUT PER WM-8 ON SHEET 12
4. CONSTRUCT SILT FENCE PER SE-1 ON SHEET 12

EROSION CONTROL GENERAL NOTES

1.) ALL GRADED, DISTURBED OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED OR COVERED BY STRUCTURES SHALL BE PERMANENTLY REVEGETATED AND IRRIGATED AS SHOWN IN TABLE 142-04F AND IN ACCORDANCE WITH THE STANDARDS IN THE SAN DIEGO MUNICIPAL CODE, SECTION 142.0411. ALL REQUIRED REVEGETATION AND EROSION CONTROL SHALL BE COMPLETED WITHIN 90 CALENDAR DAYS OF THE COMPLETION OF GRADING OR DISTURBANCE.

2.) GRADED, DISTURBED, OR ERODED AREAS TO BE TREATED WITH A NON-IRRIGATED HYDROSEED MIX SHALL RECEIVE AN INTERIM BINDER/TACKIFIER AS NEEDED BETWEEN APRIL 2 AND AUGUST 31 FOR DUST-EROSION CONTROL WITH SUBSEQUENT APPLICATION OF HYDROSEED MIX DURING THE RAINY SEASON BETWEEN OCTOBER 1 AND APRIL 1.

LEGEND

- FIBER ROLLS
- STABALIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- SILT FENCE
- CONTOUR
- EXISTING CONTOUR
- LIMIT OF GRADING
- PROP ANCHOR BLOCK RW
- PROP BRIDGE
- RIP RAP
- EXISTING CREEK BED (PROTECT IN PLACE)

N

SCALE: 1" = 40'

GRADING PLANS FOR:

EROSION CONTROL PLAN
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 11 OF 14 SHEETS

PROJECT NO.

V.T.M.

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

GRAPHIC SCALE
40 20 0 40 80

FOR CITY ENGINEER _____ DATE _____

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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GENERAL CSJ EROSION AND SEDIMENT CONTROL NOTES:

1. Contractor/Owner:
   It shall be the owner's responsibility to maintain control of the entire construction operation and to keep the entire site in compliance with the soil erosion control plan
2. Civil Engineer: Rick Kreuzer, 320 Main Street Unit D, Seal Beach CA 90740; 714-656-0160
3. Construction Superintendent: name, address, 24-hour phone number
   Contractor: name, address, 24-hour phone number
4. This plan is intended to be used for interim erosion and sediment control only and is not to be used for final elevations or permanent improvements.
5. Developer will submit to the City monthly (at the first of each month) certifications that all erosion/sediment measures identified on the approved erosion control plan are in place. If measures are not in place, Developer shall provide the City with a written explanation of why the measure is not in place and what will be done to remedy this situation.
6. Owner/contractor shall be responsible for monitoring erosion and sediment control measures prior, during, and after storm events
7. Reasonable care shall be taken when hauling any earth, sand, gravel, stone, debris, paper or any other substance over any public street, alley or other public place. Should any blow spill or track over and upon said public or adjacent private property immediate remedy shall occur
8. Sanitary facilities shall be maintained on the site.
9. All paved areas shall be kept clear of earth material and debris. The site shall be maintained so as to minimize sediment laden runoff to any storm drainage system, including existing drainage swales and water courses.
10. Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local laws concerning pollution abatement shall be complied with.
11. Contractor shall provide dust control as required by the appropriate federal, state and local agency requirements.

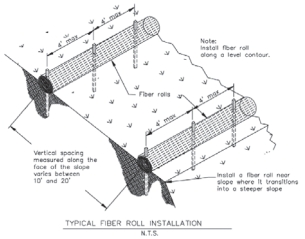
EROSION AND SEDIMENT CONTROL MEASURES

1. The facilities shown on this plan are designed to control erosion and sediment year round per Municipal Regional Permit Requirements. Facilities are to be operable at all times. Grading operations which leave denuded slopes shall be protected with erosion control measures immediately following grading on the slopes. Best Management Practices (BMPs) must be implemented during construction which includes, but is not limited to: stabilized construction entrance, tire wash area and inlet protection.
2. The erosion control plan covers all phases of construction. Prior to September 15, the completion of site improvement shall be evaluated and revisions made to this plan as necessary with the approval of the City Engineer. Plans are to be resubmitted for city approval prior to September 1 of each subsequent year until site improvements are accepted by the City.
3. Construction entrances shall be installed prior to commencement of grading. All construction traffic entering onto the paved roads must cross the stabilized construction entrance ways. (Also include this note on grading plans.)
4. Contractor shall maintain stabilized entrance at each vehicle access point to existing paved streets. Any mud or debris tracked onto public streets shall be removed daily and as required by the City.
5. If hydroseeding is not used or is not effective, then other immediate methods shall be implemented, such as Erosion control Blankets, or a three-step application of 1) seed, mulch, fertilizer 2) blown straw 3) tackifier and mulch.
6. Inlet protection shall be installed at open inlets to prevent sediment from entering the storm drain system. Inlets not used in conjunction with erosion control are to be blocked to prevent entry of sediment.
7. This erosion and sediment control plan may not cover all the situations that may arise during construction due to unanticipated field conditions. Variations and additions may be made to this plan in the field. Notify the City Representative of any field changes

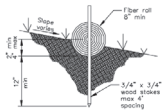
Maintenance Notes

1. Maintenance is to be performed as follows:
   A. Repair damages caused by soil erosion or construction at the end of each working day.
   B. Swales shall be inspected periodically and maintained as needed.
   C. Sediment traps, berms, and swales are to be inspected after each storm and repairs made as needed.
   D. Sediment shall be removed and sediment trap restored to its original dimensions when sediment has accumulated to a depth of 1 foot.
   E. Sediment removed from trap shall be deposited in a suitable area and in such a manner that it will not erode.
   F. Rills and gullies must be repaired.
2. Sand bag inlet protection shall be cleaned out whenever sediment depth is one half the height of one sand bag.

SE-5 Fiber Rolls

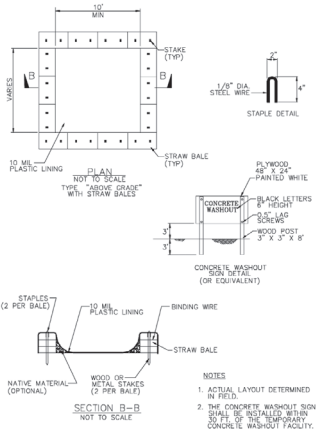


TYPICAL FIBER ROLL INSTALLATION
N.T.S.



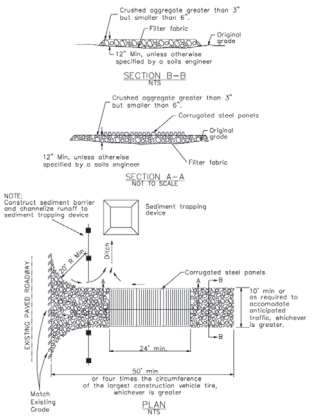
ENTRENCHMENT DETAIL
N.T.S.

Concrete Waste Management WM-8

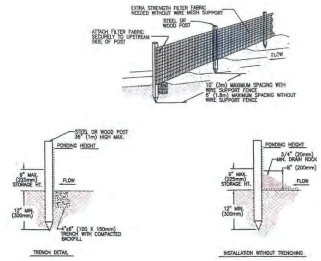


NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Stabilized Construction Entrance/Exit TC-1



SILT FENCE SE-1



NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. SILT FENCE SHALL BE INSPECTED AFTER EACH RAIN AND REMOVE SEDIMENT WHEN NECESSARY. 8" (225mm) MAXIMUM RECOMMENDED STORAGE HIGH.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
* CONTRACTOR MAY ADJUST LOCATIONS AS DESIRED FOR CONTINUITY IN FENCING. CRITERIA IS THAT ALL DISTURBED AREA UPSTREAM OF FENCING SHALL BE CONTAINED BY THE FENCING.

BMP'S (CASQA BMP HANDBOOK 2015)

EROSION CONTROL
WIND EROSION CONTROL
TRACKING CONTROL
CONTROL BLANKETS/MATS
WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL
TEMPORARY SEDIMENT CONTROL
WMB - CONCRETE WASTE MANAGEMENT
NON-STORMWATER MANAGEMENT
NS1 - WATER CONSERVATION PRACTICES
NS6 - ILLICIT CONNECTION/DISCHARGE
NS8 - VEHICLE AND EQUIPMENT CLEANING
NS9 - VEHICLE AND EQUIPMENT FUELING
NS10 - VEHICLE AND EQUIPMENT MAINTENANCE

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
40 20 0 40 80

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
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GRADING PLANS FOR:
EROSION CONTROL DETAILS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 12 OF 14 SHEETS

PROJECT NO.
V.T.M.

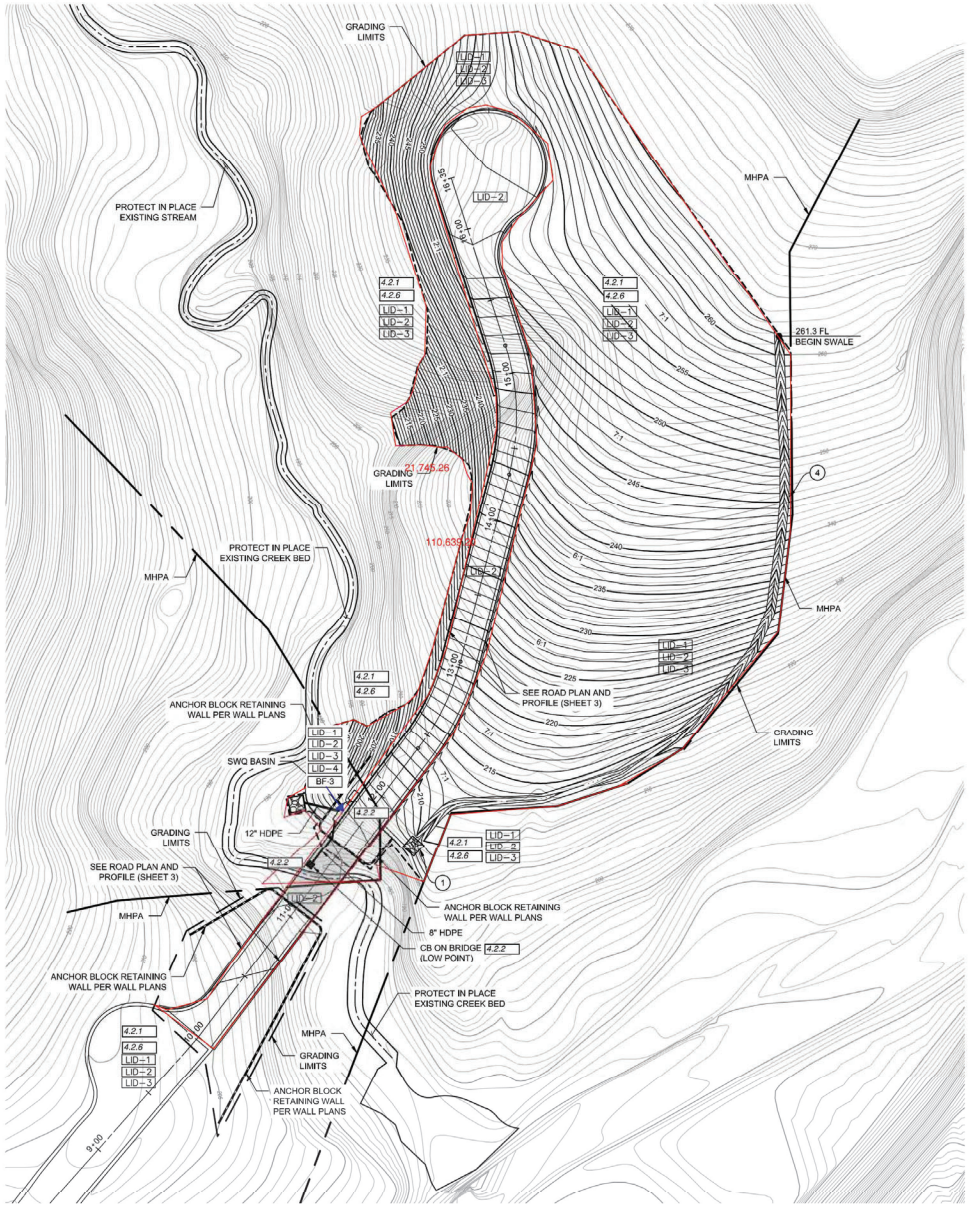
DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

FOR CITY ENGINEER _____ DATE _____
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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GRADING AND DRAINAGE CONSTRUCTION NOTES

1. CONSTRUCT 10' X 10' RIP RAP ENERGY DISSIPATER PER CITY OF SAN DIEGO STD. DWG. NO. SDD-104 AND DETAIL A
2. FURNISH AND INSTALL 18" HDPE (DUAL WALL) PIPE. TRENCH SECTION PER CITY OF SAN DIEGO STD. DWG. NO. SDD-110 AND DETAIL B. SEE PROFILES ON SHEET 6.
3. CONSTRUCT STRAIGHT HEADWALL, TYPE A, PER CITY OF SAN DIEGO STD. DWG. NO. D-30 AND DETAIL C
4. CONSTRUCT EARTHEN SWALE PER DETAIL D

PERMANENT BMP LEGEND

SOURCE CONTROL BMPs *

4.2.1	PREVENTION/JUSTIFICATION OF ILLICIT DISCHARGES
4.2.2	STORM DRAIN STENCILING OR SIGNAGE
4.2.6	ADDITIONAL BMPS
	-ON-SITE STORM DRAIN INLETS
	-LANDSCAPE OUTDOOR PESTICIDE USE
	-OTHER WATER FEATURES
	-REFUSE AREAS (TRASH CANS)

LID & SITE DESIGN BMPs

LID-1	OPTIMIZE SITE LAYOUT
LID-2	MINIMIZE IMPERVIOUS FOOTPRINT
LID-3	DISPERSE RUNOFF TO ADJACENT LANDSCAPING
LID-4	CONSTRUCTION CONSIDERATIONS
BF-3	PROPRIETARY BIOINFILTRATION (BIO CLEAN MODEL: MWS-L-4-14)

* REFER TO WATER QUALITY STUDY AND STORM WATER STANDARDS

SITE DATA SUMMARY

TOTAL SITE SIZE:	2.37 AC
IMPERVIOUS:	1.72 AC
PERVIOUS:	0.65 AC
SOILS:	HSG D
GROUNDWATER:	6-10'
DMA A:	1.72 AC
DMA B:	0.65 AC

(See Hydrology Report Attached)

LEGEND

- 240 — EXISTING CONTOUR
- 265 — PROPOSED MAJOR CONTOUR (5')
- PROPOSED GRADING LIMITS
- PROPOSED ANCHOR BLOCK RETAINING WALL
- PROPOSED BRIDGE
- RIP RAP
- EXISTING CREEK BED (PROTECT IN PLACE)

EARTHWORK VOLUMES

	RAW CUT =	7,340 CY
LESS:	RAW FILL =	6,395 CY
	SHRINKAGE 10% =	640 CY
	NET EXPORT:	305 CY

N

GRADING PLANS FOR:

WOMP DRAWING
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 1.3 OF 14 SHEETS

PROJECT NO.

V.T.M.

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

GRAPHIC SCALE
40 20 0 40 80

FOR CITY ENGINEER _____ DATE _____

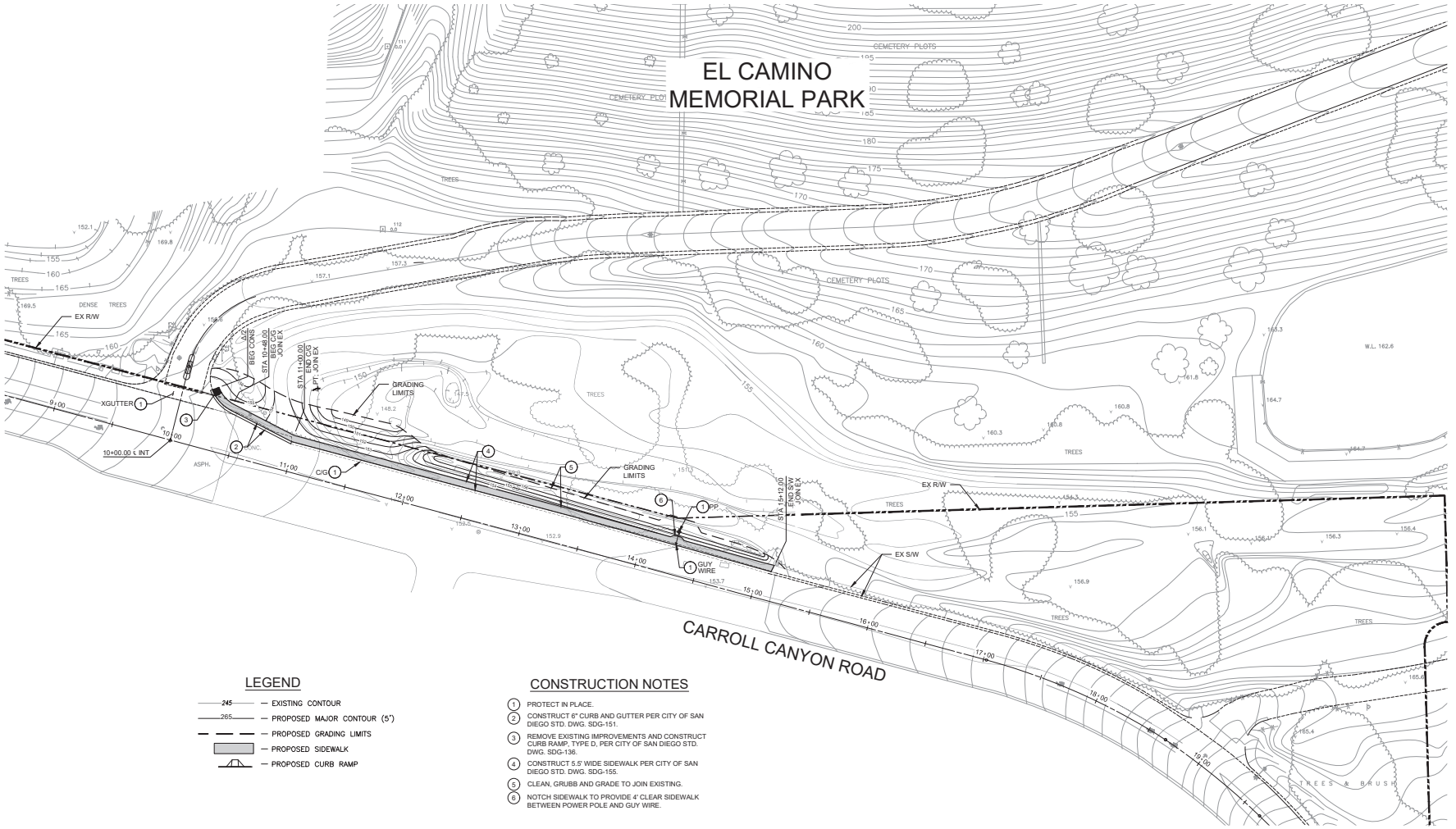
DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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LEGEND

- 245 — EXISTING CONTOUR
- 265 — PROPOSED MAJOR CONTOUR (5')
- — PROPOSED GRADING LIMITS
- — PROPOSED SIDEWALK
- — PROPOSED CURB RAMP

CONSTRUCTION NOTES

1. PROTECT IN PLACE.
2. CONSTRUCT 6" CURB AND GUTTER PER CITY OF SAN DIEGO STD. DWG. SDG-151.
3. REMOVE EXISTING IMPROVEMENTS AND CONSTRUCT CURB RAMP, TYPE D, PER CITY OF SAN DIEGO STD. DWG. SDG-136.
4. CONSTRUCT 5.5' WIDE SIDEWALK PER CITY OF SAN DIEGO STD. DWG. SDG-155.
5. CLEAN, GRUBB AND GRADE TO JOIN EXISTING.
6. NOTCH SIDEWALK TO PROVIDE 4' CLEAR SIDEWALK BETWEEN POWER POLE AND GUY WIRE.

N

SCALE: 1" = 40'

PREPARED BY:
Kreuzer Consulting Group
320 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-656-0160

GRAPHIC SCALE
40 20 0 40 80

REGISTERED PROFESSIONAL ENGINEER
RICK KREUZER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

GRADING PLANS FOR:
CARROLL CANYON RD S/W IMPROVEMENTS
EL CAMINO MEMORIAL PARK
SECRET CANYON EXPANSION AREA

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 14 OF 14 SHEETS

PROJECT NO.

FOR CITY ENGINEER _____ DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
AS-BUILTS				

V.T.M.

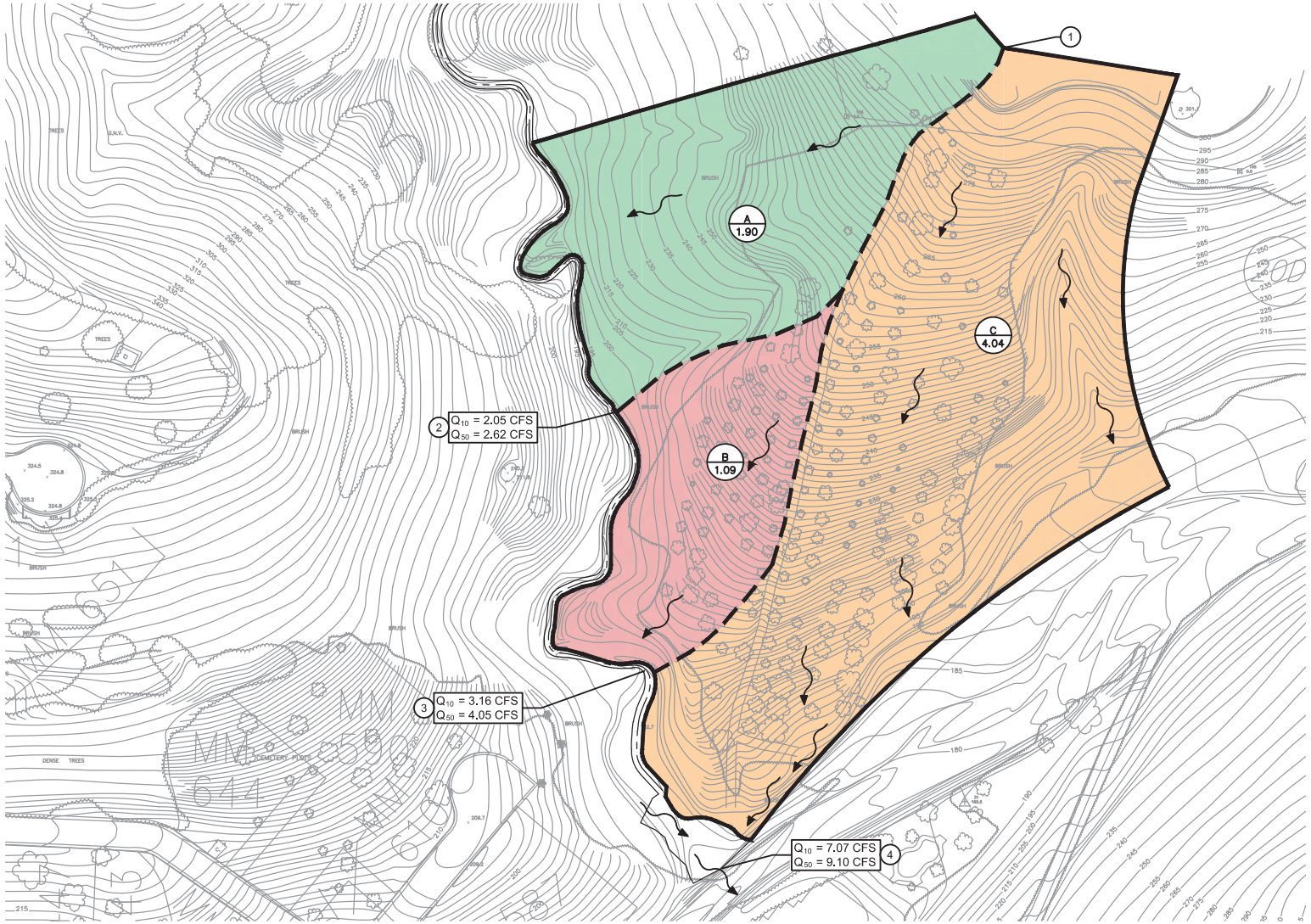
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

XXXXX-X-D

EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION AREA

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APPENDIX B
EXISTING CONDITION HYDROLOGY MAP AND CALCULATIONS



LEGEND

- DRAINAGE TRIBUTARY AREA
- DRAINAGE SUB-AREA
- A / 1.72 — DRAINAGE SUB-AREA DESIGNATION / AREA (ACRES)
- Q_{10} — 10 YEAR STORM
- Q_{50} — 50 YEAR STORM
- DRAINAGE TRIBUTARY AREA
- DRAINAGE SUB-AREA
- 1 — HYDROLOGY NODE (SEE CALCS)
- OVERLAND FLOW DIRECTION

N

GRAPHIC SCALE
0 50 100 200
1" = 100'

NO.	REVISION DESCRIPTION	BY:	DATE

PREPARED BY:

KC Group — 300 MAIN STREET UNIT D SEAL BEACH, CA 90740 714-655-0100

REGISTERED PROFESSIONAL ENGINEER — RICK KRATZMEIER — No. 42407 — Exp. 3-31-22 — CIVIL — STATE OF CALIFORNIA

EL CAMINO MEMORIAL PARK – SECRET CANYON EXPANSION
EXISTING CONDITION HYDROLOGY MAP

DESIGNED BY : MH/RK	SCALE : AS SHOWN
DRAWN BY : MH	DATE : 12/22/20
CHECKED BY : RK	DATE : 12/22/20
APPROVED BY : RK	DATE : 12/22/20

L:\Civil-Condenser\207-D Cranbo Secret Canyon\Design\Sheets xls\Qs Cranfilm Hydrology Map.dwg 12/22/2020 16:26

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        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                2003,1985,1981 HYDROLOGY MANUAL
      (c) Copyright 1982-2012 Advanced Engineering Software (aes)
        Ver. 18.2 Release Date: 05/08/2012  License ID 1627

              Analysis prepared by:



 ************************** DESCRIPTION OF STUDY **************************
* EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION                       *
* EXISTING CONDITION HYDROLOGY MAP                                        *
* 10 YEAR STORM                                                           *
 **************************************************************************

 FILE NAME: ELCAMEX.DAT
 TIME/DATE OF STUDY: 15:21 12/22/2020
--------------------------------------------------------------------------
 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION
--------------------------------------------------------------------------
 1981 SAN DIEGO HYDROLOGY MANUAL RAINFALL INFORMATION USED

 USER SPECIFIED STORM EVENT(YEAR) =  10.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
 RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
 SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
 NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
 *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
   HALF- CROWN TO  STREET-CROSSFALL:  CURB  GUTTER-GEOMETRIES:  MANNING
   WIDTH  CROSSFALL  IN- / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.  (FT)    (FT)   SIDE / SIDE/ WAY    (FT)   (FT)  (FT)  (FT)    (n)
=== ===== ========== ================== ====== ===== ====== ===== =======
 1  30.0    20.0   0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

**************************************************************************
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
 OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
 SOIL CLASSIFICATION IS "D"
 S.C.S. CURVE NUMBER (AMC II) =  83
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  11.78(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  520.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  195.00
 ELEVATION DIFFERENCE(FEET) =  105.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  11.78
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.402
 SUBAREA RUNOFF(CFS) =    2.05
 TOTAL AREA(ACRES) =    1.90  TOTAL RUNOFF(CFS) =    2.05

**************************************************************************
 FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
```

```
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   195.00  DOWNSTREAM(FEET) =   183.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  300.00  CHANNEL SLOPE =  0.0400
 CHANNEL FLOW THRU SUBAREA(CFS) =      2.05
 FLOW VELOCITY(FEET/SEC) =  3.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.44  Tc(MIN.) =  13.23
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    820.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.262
 OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
 SOIL CLASSIFICATION IS "D"
 S.C.S. CURVE NUMBER (AMC II) =  83
 SUBAREA AREA(ACRES) =   1.09  SUBAREA RUNOFF(CFS) =   1.11
 TOTAL AREA(ACRES) =      3.0  TOTAL RUNOFF(CFS) =     3.16
 TC(MIN.) =  13.23

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     4.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   183.00  DOWNSTREAM(FEET) =   180.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  200.00  CHANNEL SLOPE =  0.0150
 CHANNEL FLOW THRU SUBAREA(CFS) =      3.16
 FLOW VELOCITY(FEET/SEC) =  2.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.43  Tc(MIN.) =  14.66
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =   1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.147
 OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
 SOIL CLASSIFICATION IS "D"
 S.C.S. CURVE NUMBER (AMC II) =  83
 SUBAREA AREA(ACRES) =   4.04  SUBAREA RUNOFF(CFS) =   3.90
 TOTAL AREA(ACRES) =      7.0  TOTAL RUNOFF(CFS) =     7.07
 TC(MIN.) =  14.66
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)    =      7.0  TC(MIN.) =    14.66
 PEAK FLOW RATE(CFS)  =      7.07
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

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

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        Ver. 18.2 Release Date: 05/08/2012  License ID 1627

              Analysis prepared by:



 ************************** DESCRIPTION OF STUDY **************************
* EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION                       *
* EXISTING CONDITION HYDROLOGY MAP                                        *
* 50 YEAR STORM                                                           *
 ****************************************************************************

 FILE NAME: ELCAMEX.DAT
 TIME/DATE OF STUDY: 15:25 12/22/2020
----------------------------------------------------------------------------
 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
 1981 SAN DIEGO HYDROLOGY MANUAL RAINFALL INFORMATION USED

 USER SPECIFIED STORM EVENT(YEAR) =  50.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
 RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
 SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
 NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
 *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
   HALF-  CROWN TO  STREET-CROSSFALL:  CURB  GUTTER-GEOMETRIES:  MANNING
   WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP  HIKE  FACTOR
NO.  (FT)   (FT)   SIDE / SIDE/ WAY   (FT)   (FT)  (FT)  (FT)   (n)
=== ===== ========= ================== ======  ===== ======  ===== =======
 1  30.0    20.0   0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

****************************************************************************
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
 SOIL CLASSIFICATION IS "D"
 S.C.S. CURVE NUMBER (AMC II) =  83
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  11.78(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  520.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  195.00
 ELEVATION DIFFERENCE(FEET) =  105.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  11.78
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.059
 SUBAREA RUNOFF(CFS) =    2.62
 TOTAL AREA(ACRES) =    1.90  TOTAL RUNOFF(CFS) =    2.62

****************************************************************************
 FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
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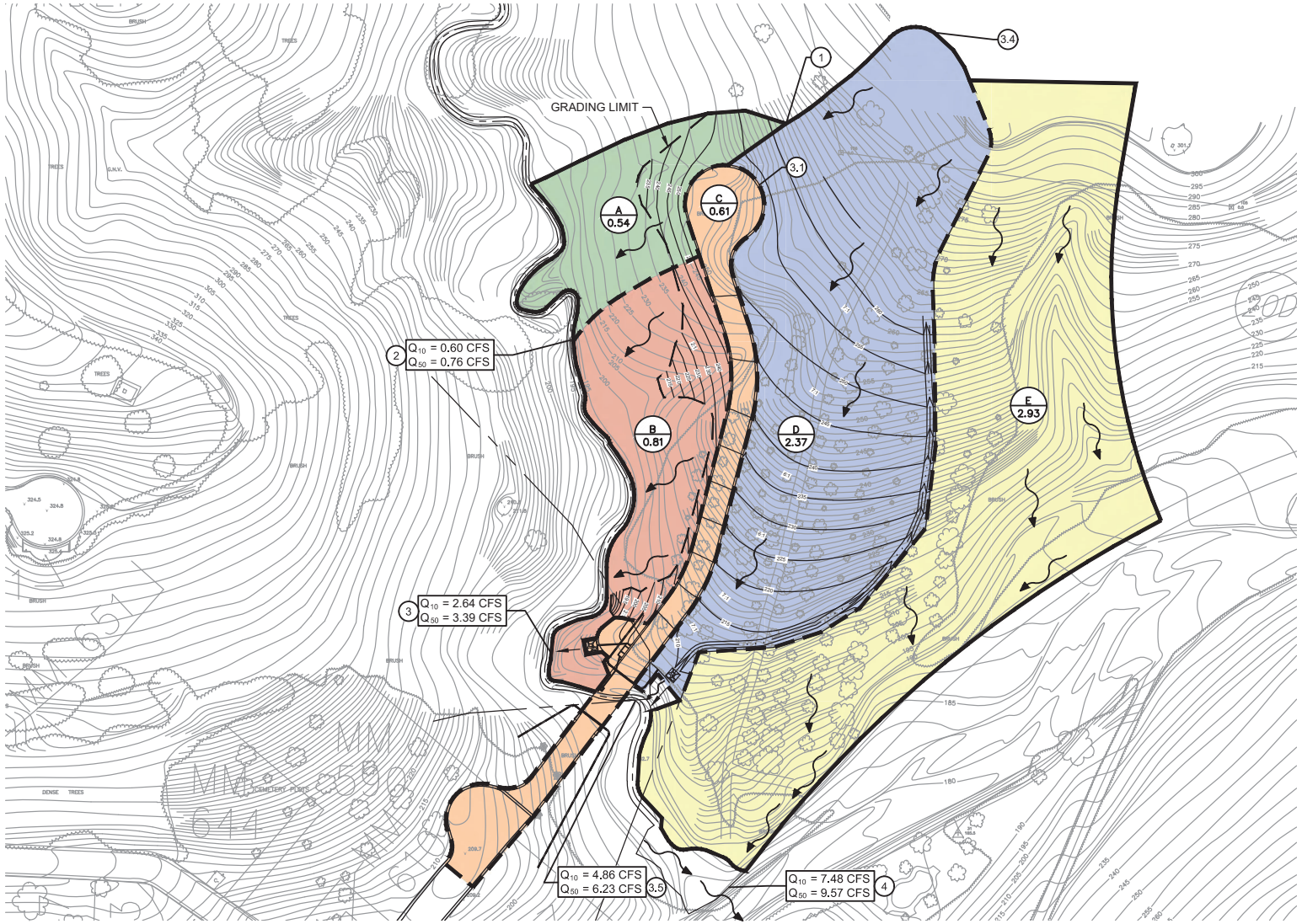
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 ------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
 ========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   195.00  DOWNSTREAM(FEET) =   183.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  300.00  CHANNEL SLOPE =  0.0400
  CHANNEL FLOW THRU SUBAREA(CFS) =     2.62
  FLOW VELOCITY(FEET/SEC) =  3.64 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =  1.37  Tc(MIN.) =  13.16
  LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    820.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  81
 ----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.932
  OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
  SOIL CLASSIFICATION IS "D"
  S.C.S. CURVE NUMBER (AMC II) =  83
  SUBAREA AREA(ACRES) =   1.09  SUBAREA RUNOFF(CFS) =   1.44
  TOTAL AREA(ACRES) =      3.0  TOTAL RUNOFF(CFS) =     4.05
  TC(MIN.) =  13.16

 ****************************************************************************
  FLOW PROCESS FROM NODE     3.00 TO NODE     4.00 IS CODE =  52
 ----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
 ========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   183.00  DOWNSTREAM(FEET) =   180.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  200.00  CHANNEL SLOPE =  0.0150
  CHANNEL FLOW THRU SUBAREA(CFS) =     4.05
  FLOW VELOCITY(FEET/SEC) =  2.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =  1.35  Tc(MIN.) =  14.51
  LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =   1020.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  81
 ----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.776
  OPEN BRUSH FAIR COVER RUNOFF COEFFICIENT = .4500
  SOIL CLASSIFICATION IS "D"
  S.C.S. CURVE NUMBER (AMC II) =  83
  SUBAREA AREA(ACRES) =   4.04  SUBAREA RUNOFF(CFS) =   5.05
  TOTAL AREA(ACRES) =      7.0  TOTAL RUNOFF(CFS) =     9.10
  TC(MIN.) =  14.51
 ========================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)   =      7.0  TC(MIN.) =    14.51
  PEAK FLOW RATE(CFS) =      9.10
 ========================================================================
 ========================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX C
PROPOSED CONDITION HYDROLOGY MAP AND CALCULATIONs



LEGEND

- DRAINAGE TRIBUTARY AREA
- DRAINAGE SUB-AREA
- A / 1.72 — DRAINAGE SUB-AREA DESIGNATION / AREA (ACRES)
- Q_{10} — 10 YEAR STORM
- Q_{50} — 50 YEAR STORM
- DRAINAGE TRIBUTARY AREA
- DRAINAGE SUB-AREA
- 1 — HYDROLOGY NODE (SEE CALCS)
- OVERLAND FLOW DIRECTION

N

GRAPHIC SCALE

0 50 100 200

1" = 100'

NO.	REVISION DESCRIPTION	BY:	DATE

PREPARED BY:

Krieger Consulting Group
330 MAIN STREET
UNIT D
SEAL BEACH, CA 90740
714-655-0100

REGISTERED PROFESSIONAL ENGINEER
RICK KRIEGER
No. 42407
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

EL CAMINO MEMORIAL PARK – SECRET CANYON EXPANSION
PROPOSED CONDITION HYDROLOGY MAP

DESIGNED BY : MH/RK	SCALE : AS SHOWN
DRAWN BY : MH	DATE : 12/22/20
CHECKED BY : RK	DATE : 12/22/20
APPROVED BY : RK	DATE : 12/22/20

L:\Civil-Condews\107-D Cranbo Sweet Canyon\Design\Drawings\Hydrology Mapping 12/22/2020 16:23

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

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        Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                2003,1985,1981 HYDROLOGY MANUAL
      (c) Copyright 1982-2012 Advanced Engineering Software (aes)
        Ver. 18.2 Release Date: 05/08/2012  License ID 1627

              Analysis prepared by:



 ************************** DESCRIPTION OF STUDY **************************
 * EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION                      *
 * PROPOSED CONDITION HYDROLOGY CALCULTAIONS                              *
 * 10 YEAR STORM                                                          *
 **************************************************************************

  FILE NAME: ECPROP.DAT
  TIME/DATE OF STUDY: 15:08 12/22/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  1981 SAN DIEGO HYDROLOGY MANUAL RAINFALL INFORMATION USED

  USER SPECIFIED STORM EVENT(YEAR) =  10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO  STREET-CROSSFALL:  CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN- / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.  (FT)    (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
=== ===== ========== ================== ======= ===== ====== ===== ========
  1  30.0    20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .4500
  S.C.S. CURVE NUMBER (AMC II) =  83
  NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
  WITH 10-MIN. ADDED =  11.12(MIN.)
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  300.00
  UPSTREAM ELEVATION(FEET) =  263.00
  DOWNSTREAM ELEVATION(FEET) =  195.00
  ELEVATION DIFFERENCE(FEET) =  68.00
  NATURAL WATERSHED TIME OF CONCENTRATION =  11.12
    10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.468
  SUBAREA RUNOFF(CFS) =  0.60
  TOTAL AREA(ACRES) =  0.54  TOTAL RUNOFF(CFS) =  0.60

**************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
--------------------------------------------------------------------------
```

```
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   195.00  DOWNSTREAM(FEET) =   192.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  300.00  CHANNEL SLOPE =  0.0100
 NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =      0.60
 FLOW VELOCITY(FEET/SEC) =  1.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  3.33  Tc(MIN.) =  14.45
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    600.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.164
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  83
 SUBAREA AREA(ACRES) =   0.81  SUBAREA RUNOFF(CFS) =   0.79
 TOTAL AREA(ACRES) =      1.4  TOTAL RUNOFF(CFS) =     1.39
 TC(MIN.) =  14.45

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     3.10 TO NODE     3.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .9500
 S.C.S. CURVE NUMBER (AMC II) =  92
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  12.31(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  500.00
 UPSTREAM ELEVATION(FEET) =  252.00
 DOWNSTREAM ELEVATION(FEET) =  204.00
 ELEVATION DIFFERENCE(FEET) =  48.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  12.31
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.349
 SUBAREA RUNOFF(CFS) =    1.36
 TOTAL AREA(ACRES) =    0.61  TOTAL RUNOFF(CFS) =    1.36

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       1.36   12.31       2.349       0.61
 LONGEST FLOWPATH FROM NODE     3.10 TO NODE     3.00 =    500.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       1.39   14.45       2.164       1.35
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    600.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       2.64    12.31       2.349
    2       2.64    14.45       2.164
```

```
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     2.64  Tc(MIN.) =  14.45
 TOTAL AREA(ACRES) =     2.0

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.50 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   192.00  DOWNSTREAM(FEET) =   190.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  150.00  CHANNEL SLOPE =  0.0133
 CHANNEL FLOW THRU SUBAREA(CFS) =     2.64
 FLOW VELOCITY(FEET/SEC) =  2.11 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.19  Tc(MIN.) =  15.64
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.50 =    750.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     3.50 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     3.40 TO NODE     3.50 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  80
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  12.39(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  680.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  190.00
 ELEVATION DIFFERENCE(FEET) =  110.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  12.39
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.341
 SUBAREA RUNOFF(CFS) =     2.50
 TOTAL AREA(ACRES) =     2.37  TOTAL RUNOFF(CFS) =     2.50

****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     3.50 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       2.50    12.39       2.341       2.37
 LONGEST FLOWPATH FROM NODE     3.40 TO NODE     3.50 =    680.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       2.64    15.64       2.082       1.96
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.50 =    750.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       4.85    12.39       2.341
    2       4.86    15.64       2.082

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     4.86  Tc(MIN.) =  15.64
 TOTAL AREA(ACRES) =     4.3
```

```
 ****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     4.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   190.00  DOWNSTREAM(FEET) =   188.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  200.00  CHANNEL SLOPE =  0.0100
 CHANNEL FLOW THRU SUBAREA(CFS) =     4.86
 FLOW VELOCITY(FEET/SEC) =  2.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.59  Tc(MIN.) =  17.23
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =    950.00 FEET.

 ****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

 ****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  83
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  13.28(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  900.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  188.00
 ELEVATION DIFFERENCE(FEET) =  112.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  13.28
  10 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.258
 SUBAREA RUNOFF(CFS) =     2.98
 TOTAL AREA(ACRES) =     2.93  TOTAL RUNOFF(CFS) =     2.98

 ****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       2.98   13.28       2.258       2.93
 LONGEST FLOWPATH FROM NODE     4.00 TO NODE     4.00 =    900.00 FEET.

 ** MEMORY BANK #  3 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       4.86   17.23       1.988       4.33
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =    950.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       7.26    13.28       2.258
    2       7.48    17.23       1.988

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     7.48  Tc(MIN.) =  17.23
 TOTAL AREA(ACRES) =      7.3
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)    =      7.3  TC(MIN.) =    17.23
 PEAK FLOW RATE(CFS)  =     7.48
============================================================================
============================================================================
```

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

        RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
        Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                   2003,1985,1981 HYDROLOGY MANUAL
      (c) Copyright 1982-2012 Advanced Engineering Software (aes)
        Ver. 18.2 Release Date: 05/08/2012  License ID 1627

              Analysis prepared by:



 ************************** DESCRIPTION OF STUDY **************************
* EL CAMINO MEMORIAL PARK - SECRET CANYON EXPANSION
* PROPOSED CONDITION HYDROLOGY CALCULTAIONS
* 50 YEAR STORM
 **************************************************************************

 FILE NAME: ECPROP.DAT
 TIME/DATE OF STUDY: 15:12 12/22/2020
--------------------------------------------------------------------------
 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
 1981 SAN DIEGO HYDROLOGY MANUAL RAINFALL INFORMATION USED

 USER SPECIFIED STORM EVENT(YEAR) =  50.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
 RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
 SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
 NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
 *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
    HALF- CROWN TO  STREET-CROSSFALL:  CURB  GUTTER-GEOMETRIES:  MANNING
    WIDTH  CROSSFALL  IN- / OUT-/PARK-  HEIGHT  WIDTH  LIP  HIKE  FACTOR
NO.  (FT)    (FT)   SIDE / SIDE/ WAY    (FT)   (FT)  (FT)  (FT)    (n)
=== ===== ========= ================= ====== ===== ====== ===== =======
 1  30.0    20.0   0.018/0.018/0.020  0.67   2.00 0.0313 0.167 0.0150

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

**************************************************************************
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  83
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  11.12(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  300.00
 UPSTREAM ELEVATION(FEET) =  263.00
 DOWNSTREAM ELEVATION(FEET) =  195.00
 ELEVATION DIFFERENCE(FEET) =  68.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  11.12
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.119
 SUBAREA RUNOFF(CFS) =  0.76
 TOTAL AREA(ACRES) =  0.54  TOTAL RUNOFF(CFS) =  0.76

**************************************************************************
 FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
--------------------------------------------------------------------------
```

```
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   195.00  DOWNSTREAM(FEET) =   192.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  300.00  CHANNEL SLOPE =  0.0100
 NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =      0.76
 FLOW VELOCITY(FEET/SEC) =  1.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  3.33  Tc(MIN.) =  14.45
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    600.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.783
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  83
 SUBAREA AREA(ACRES) =   0.81  SUBAREA RUNOFF(CFS) =   1.01
 TOTAL AREA(ACRES) =      1.4  TOTAL RUNOFF(CFS) =      1.77
 TC(MIN.) =  14.45

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     3.10 TO NODE     3.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .9500
 S.C.S. CURVE NUMBER (AMC II) =  92
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  12.31(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  500.00
 UPSTREAM ELEVATION(FEET) =  252.00
 DOWNSTREAM ELEVATION(FEET) =  204.00
 ELEVATION DIFFERENCE(FEET) =  48.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  12.31
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.013
 SUBAREA RUNOFF(CFS) =     1.75
 TOTAL AREA(ACRES) =     0.61  TOTAL RUNOFF(CFS) =     1.75

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       1.75   12.31       3.013       0.61
 LONGEST FLOWPATH FROM NODE     3.10 TO NODE     3.00 =    500.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       1.77   14.45       2.783       1.35
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.00 =    600.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       3.38   12.31       3.013
    2       3.39   14.45       2.783
```

```
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     3.39  Tc(MIN.) =  14.45
 TOTAL AREA(ACRES) =     2.0

****************************************************************************
 FLOW PROCESS FROM NODE     3.00 TO NODE     3.50 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   192.00  DOWNSTREAM(FEET) =   190.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  150.00  CHANNEL SLOPE =  0.0133
 CHANNEL FLOW THRU SUBAREA(CFS) =     3.39
 FLOW VELOCITY(FEET/SEC) =  2.23 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.12  Tc(MIN.) =  15.57
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.50 =    750.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     3.50 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     3.40 TO NODE     3.50 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  80
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  12.39(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  680.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  190.00
 ELEVATION DIFFERENCE(FEET) =  110.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  12.39
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.005
 SUBAREA RUNOFF(CFS) =     3.20
 TOTAL AREA(ACRES) =     2.37  TOTAL RUNOFF(CFS) =     3.20

****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     3.50 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       3.20    12.39       3.005       2.37
 LONGEST FLOWPATH FROM NODE     3.40 TO NODE     3.50 =    680.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       3.39    15.57       2.668       1.96
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     3.50 =    750.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       6.21    12.39       3.005
    2       6.23    15.57       2.668

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     6.23  Tc(MIN.) =  15.57
 TOTAL AREA(ACRES) =     4.3
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     3.50 TO NODE     4.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   190.00  DOWNSTREAM(FEET) =   188.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  200.00   CHANNEL SLOPE =  0.0100
 CHANNEL FLOW THRU SUBAREA(CFS) =      6.23
 FLOW VELOCITY(FEET/SEC) =  2.22 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  1.50   Tc(MIN.) =  17.07
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =    950.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .4500
 S.C.S. CURVE NUMBER (AMC II) =  83
 NATURAL WATERSHED NOMOGRAPH TIME OF CONCENTRATION (APPENDIX X-A)
 WITH 10-MIN. ADDED =  13.28(MIN.)
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  900.00
 UPSTREAM ELEVATION(FEET) =  300.00
 DOWNSTREAM ELEVATION(FEET) =  188.00
 ELEVATION DIFFERENCE(FEET) =  112.00
 NATURAL WATERSHED TIME OF CONCENTRATION =  13.28
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.918
 SUBAREA RUNOFF(CFS) =     3.85
 TOTAL AREA(ACRES) =     2.93   TOTAL RUNOFF(CFS) =     3.85

****************************************************************************
 FLOW PROCESS FROM NODE     4.00 TO NODE     4.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       3.85    13.28      2.918       2.93
 LONGEST FLOWPATH FROM NODE     4.00 TO NODE     4.00 =    900.00 FEET.

 ** MEMORY BANK #  3 CONFLUENCE DATA **
 STREAM    RUNOFF     Tc     INTENSITY    AREA
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)  (ACRE)
    1       6.23    17.07      2.535       4.33
 LONGEST FLOWPATH FROM NODE     1.00 TO NODE     4.00 =    950.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF     Tc     INTENSITY
 NUMBER     (CFS)   (MIN.)  (INCH/HOUR)
    1       9.26    13.28      2.918
    2       9.57    17.07      2.535

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     9.57   Tc(MIN.) =  17.07
 TOTAL AREA(ACRES) =      7.3
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)    =      7.3  TC(MIN.) =    17.07
 PEAK FLOW RATE(CFS)  =      9.57
============================================================================
============================================================================
```