DRAINAGE REPORT / HYDROLOGY STUDY / SUSMP

FOR

VESTING PARCEL MAP (PM 062646)

CITY OF SANTA CLARITA

Prepared For:

TMC Properties, Inc.
25655 Springbrook Avenue
Santa Clarita, CA 91350

Prepared By:

SIKAND
Engineering | Planning | Surveying

15230 Burbank Blvd., Suite 100, Van Nuys, Ca 91411
Tel: (818) 787-8550; Fax: (818) 901-7451

W.O.: 5099-037-01
Date: 02-01-2007
Rev. Date: 03-20-2009

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APPROVED HYDROLOGY STUDY / SUSMP
APPROVED FOR AREA AND Q ONLY
DATE: 5-19-09
RCE NO. 40872

DRAINAGE CONCEPT / SUSMP / HYDROLOGY STUDY
APPROVED FOR AREA AND Q ONLY
RECOMMEND CITY APPROVAL
APPROVED BY: Vishwa Condoor DATE: 4-29-09
RCE NO. C68328
CHECKED BY: DATE: 4-29-09
LAND DEVELOPMENT DIVISION
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

RECEIVED
MAR 2009
PROCESSING CENTER
LAND DEVELOPMENT DIVISION

REGISTERED PROFESSIONAL ENGINEER
DOUG FARMER
No. 49041
Exp. 9-30-10
CIVIL
STATE OF CALIFORNIA

TABLE OF CONTENTS

Purpose of the Study

The purpose of this study is to analyze any hydrological impact for the development of the Parcel Map No. 062646 to the downstream.

Project Description

The project is located in the east side of San Fernando Road and north side of Via Princessa in the City of Santa Clarita, with the Southern Pacific Railroad (MTA) right-of-way to the west and Metropolitan Water District right-of-way to the east. The project is within the floodway as shown in the FIRM map (See Section 2 for Vicinity Map and FIRM map).

EXISTING CONDITION: Presently, the site is graded and unpaved, and is mostly used as stockyard for a variety of manufactured vehicles; and for small portion, concrete products. The site is naturally draining from southwest to northeast corner of the tract boundary, where it meets with 2 offsite drainage tributaries: overflow discharge from the existing tracts 33516 and 43532, from the southeast; and, discharge from about 148 acres of natural watershed from the northeast. These drainages flow towards the existing fenced earth ditch (approximately 1040 feet long) which drains to the north and into the existing storm drain, which drains to the south and into the South Fork Santa Clara River. Two existing offsite storm drain systems per PD 1532, PD 1869 and MTD 1585 are located at south side of this project, including trapezoidal channel, basin, inlets and pipelines.

PROPOSED CONDITION: The project consists of industrial lots, roads, paved ditches, retaining walls, several storm drain systems (public and private), including an offsite desilting-detention basin, series of catch basins, inlets, pipelines, outlets, ripraps, trapezoidal channel with a vehicle access road and ramp, and a reinforced concrete box connecting to the downstream river. The drainage facilities will tie the flow directly into the south fork Santa Clara River.

Hydrologic Criteria & Methodology

This report follows the hydrologic criteria and methodology set forth by Los Angeles County Department of Public Works, as explained in its "Hydrology Manual", "Sedimentation Manual", and "Development Planning for Storm Water Management (SUSMP manual)".

The following are the criteria used in the calculations:

- Design Storm Frequencies = 25-yr for developed areas,
  50-yr for undeveloped areas, developed sumps and areas within floodway
- Soil Type Number = 098 and 020
- Basin Name = Santa Clara Basin
- DPA Zones = 8 and 9
- Peak Bulking Factor = 1.360 (for area ≤ 64 ac)
- Debris Production = 55.0 cy/ac (for area ≤ 64 ac)
- % Imperviousness:
  1% for undeveloped areas,
  10% for existing graded areas and graded slopes,
  15% for existing graded areas with little improvements, and
  91% for industrial and paved street areas.

The Time of Concentration (TC) and the clear-water Peak Flow (Q) for each subarea are calculated using the TC Calculator. Burning of flows, flood routing and confluence Qs are calculated using F0601M program, also know as the Modified Rational Method program (MODRAT) (See Section 3 and 4). Peak Mitigation Flow Rate is calculated using the Appendix A of the SUSMP manual and using the TC Calculator with Isohyet set to ¾ in, and Qpm are added peak-to-peak (See Section 5) on all subareas tributary to each SUSMP device.

Debris Production Volumes are calculated using DPR Chart, considering only DPA Zone 8 as the governing zone for the entire watershed, which is conservative; and bulking of the flows are obtained through multiplying the burned flows by the factors from Peak Bulk Factors Chart (See Section 6 for Calculations, Section 2 for Charts).

Detention is calculated by the RETARD program with the assumption that the debris settles first on a level debris cone and that the resulting basin geometry is the effective water capacity storage. Hence, the total basin capacity is the combined debris volume and the maximum detained water volume; the inlet control used is a combination orifice and weir (See Section 6 for Calculations and Illustrations). The resulting output hydrograph is then re-inserted into MODRAT to calculate the effective peak Q at the outlets.

Summary

The following table below summarizes the Pre- and Post-Development hydrologic conditions of the project with respect to outlet discharges for both design and the Interim Peak Flow Policy frequencies.

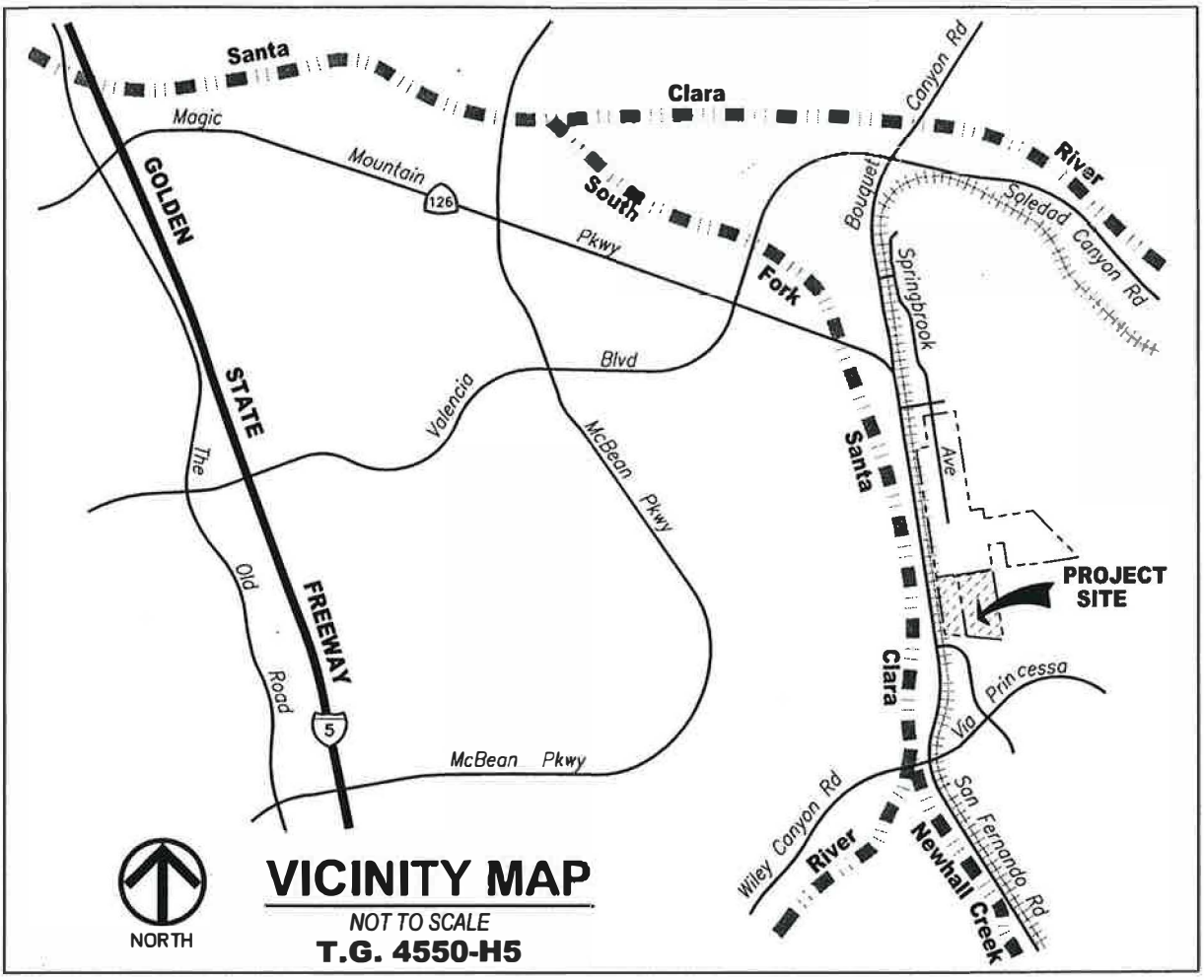
Table: Design and Interim Peak Flow Policy Frequencies Outlet Discharge Summary

			PROJECT WATERSHED			OFFSITE TRIBUTARY (Ex. Tr 33516 & 43532)			TOTAL WATERSHED BOUNDARY		
Outlet Node	**Description**	**Frequency**	**Area** (ac)	**Q** (cfs)	**DPV** (cy)	**Area** (ac)	**Q** (cfs)	**DPV** (cy)	**Area** (ac)	**Q** (cfs)	**DPV** (cy)
15AC	Pre-Dev't	Design 50-yr, b	187.8	401.0	5635	426.8	913.0	-	614.6	1314.0	5635
		Design 50-yr, bb	187.8	495.9	5635	426.8	913.0	-	614.6	1408.9	5635
		50-yr, bb	187.8	495.9	5635	426.8	913.0	-	614.6	1408.9	5635
		2-yr, b	187.8	79.7	-	426.8	447.4	-	614.6	527.1	-
44A	Post-Dev't	Design 50-yr, b	187.6	435.0	-	426.8	913.0	-	614.4	1348.0	-
		50-yr, b	187.6	435.0	-	426.8	913.0	-	614.4	1348.0	-
		2-yr, b	187.6	90.0	-	426.8	447.4	-	614.4	537.4	-
44A	Post-Dev't, Post Detention	Design 50-yr, b	187.6	301.2	-	426.8	913.0	-	614.4	1214.2	-
		50-yr, bb	187.6	301.2	-	426.8	913.0	-	614.4	1214.2	-
		2-yr, b	187.6	79.0	-	426.8	447.4	-	614.4	526.4	-

The design frequency, burned and bulked, shows no increase on discharge comparisons. This design frequency will be the design criteria for the onsite storm drain system.

For the Interim Peak Flow Policy frequencies, the 50-yr (burned) does not show increase, while, the 2-yr (burned) discharge show increase. The provision of the proposed offsite desilting-detention basin will mitigate the increase.

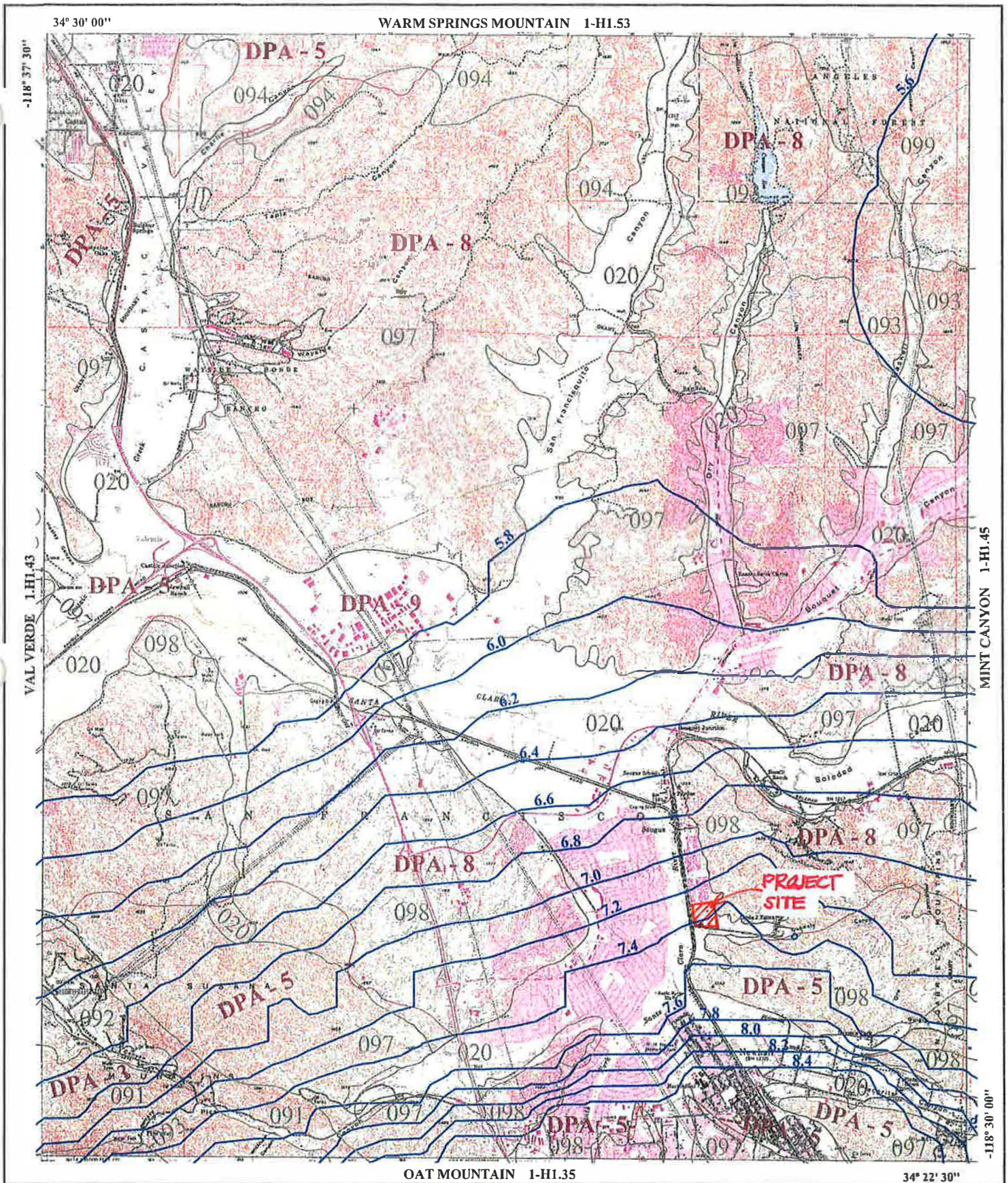
All the criteria for the purposes of design and mitigation measures have been presented in this report, hence, further details such as (but not limited to) public storm drain / flood control facilities and basins, ripraps and outlet velocities, SUSMP device types and others will be provided in the final Strom Drain Plans and Grading Plans, and will be subject to the satisfaction of the Department of Public Works. Also, all drainage devices in the industrial lots are private and will be maintained by the HOA.



VICINITY MAP

NOT TO SCALE

T.G. 4550-H5



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

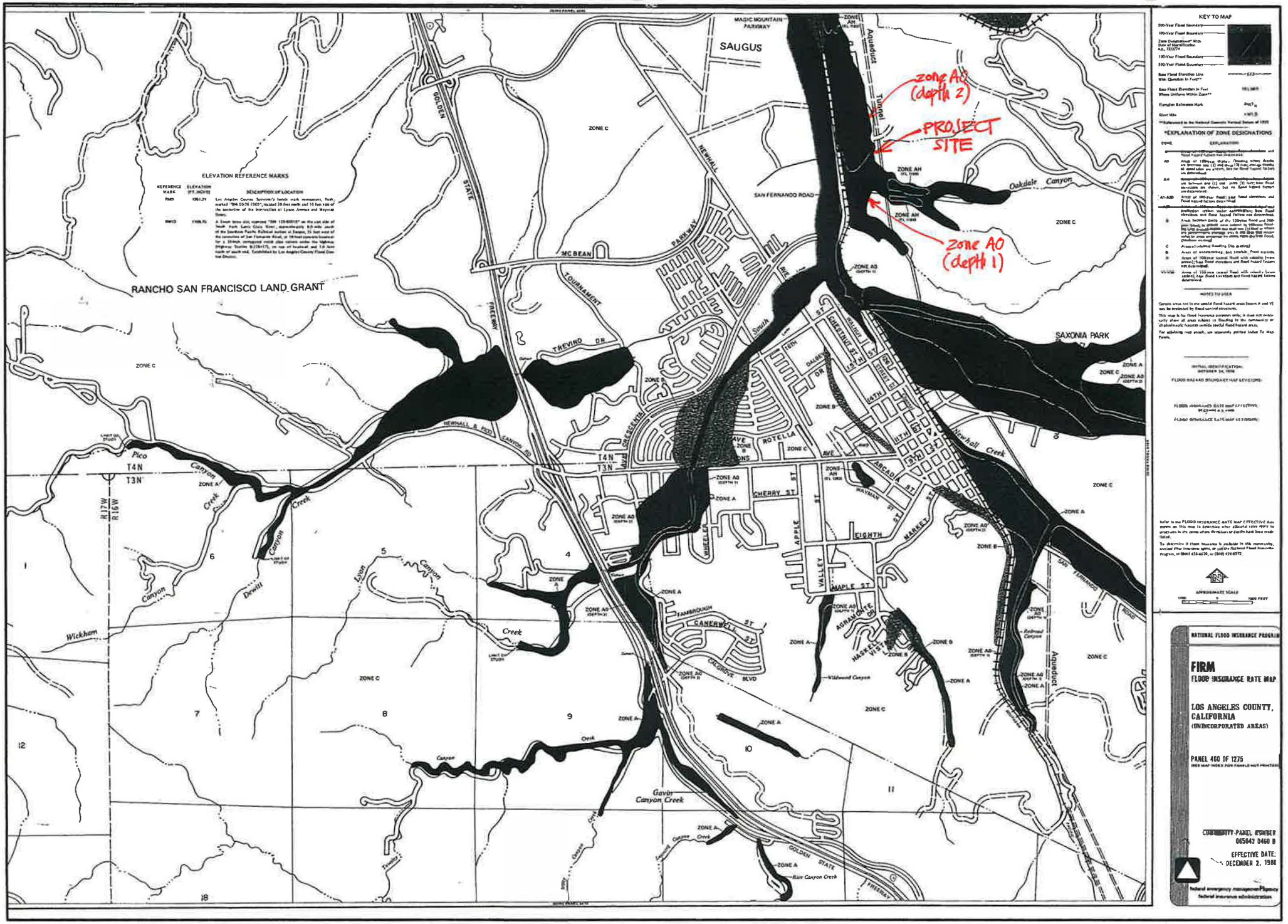
1 0 1 2 Miles

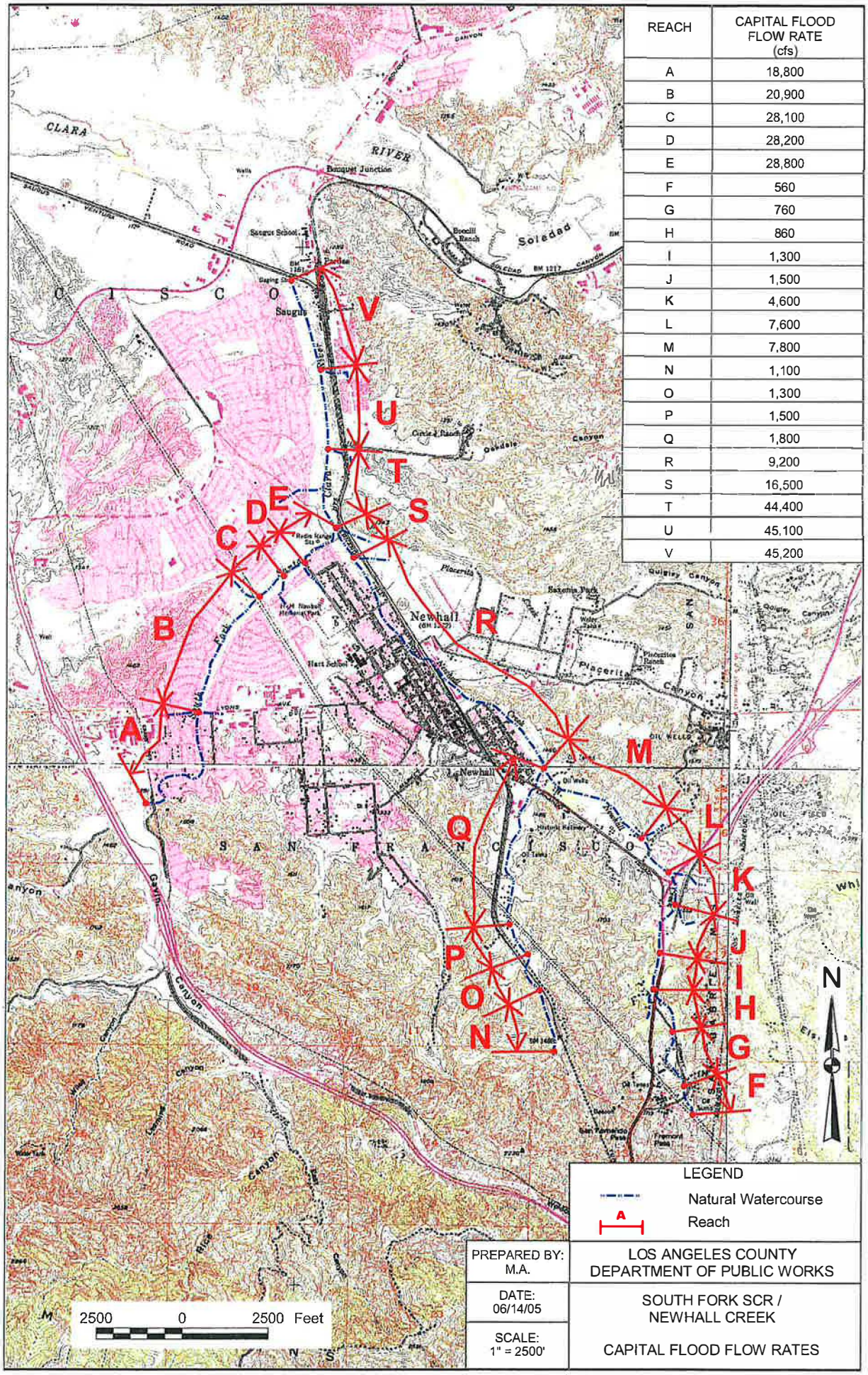
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

N E W H A L L
50-YEAR 24-HOUR ISOHYET

1-H1.44

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works


zone AO (depth 2)
PROJECT SITE
zone AO (depth 1)
SAUGUS
SAXONIA PARK
RANCHO SAN FRANCISCO LAND GRANT
Oakdale Canyon
Newhall Creek
Aqueduct
Tunnel
SAN FERNANDO ROAD
NEWHALL
MC BEAN PARKWAY
TOURNAMENT
TREVINO DR
GOLDEN STATE FREEWAY
MAGIC MOUNTAIN PARKWAY
ROTELLA AVE
CHERRY ST
EIGHTH
MAPLE ST
VALLEY
APPLE
MARKET
ARCADIA ST
RAYMAN
WHEELER
CANERWOOD ST
CALGROVE BLVD
AGRAMONTE
HASKELL VIST
Pico Canyon Creek
Wickham Canyon
Dewitt Canyon
Lyon Canyon
Gavin Canyon Creek
Redrock Canyon
Wildwood Canyon
River Canyon Creek
T4N
T3N
R17W
R16W
ZONE C
ZONE A
ZONE AO
ZONE AH
ZONE B
ELEVATION REFERENCE MARKS
REFERENCE MARK
ELEVATION (FT. ABOVE)
DESCRIPTION OF LOCATION
KEY TO MAP
EXPLANATION OF ZONE DESIGNATIONS
NOTES TO USER
FLOOD INSURANCE RATE MAP
FIRM
FLOOD INSURANCE RATE MAP
LOS ANGELES COUNTY, CALIFORNIA
(UNINCORPORATED AREAS)
PANEL 460 OF 1275
COMMUNITY-PANEL NUMBER
065043 0460 B
EFFECTIVE DATE:
DECEMBER 2, 1980
Federal Emergency Management Agency
Federal Insurance Administration



REACH	CAPITAL FLOOD FLOW RATE (cfs)
A	18,800
B	20,900
C	28,100
D	28,200
E	28,800
F	560
G	760
H	860
I	1,300
J	1,500
K	4,600
L	7,600
M	7,800
N	1,100
O	1,300
P	1,500
Q	1,800
R	9,200
S	16,500
T	44,400
U	45,100
V	45,200

LEGEND

Natural Watercourse

A — Reach

PREPARED BY: M.A.	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE: 06/14/05	SOUTH FORK SCR / NEWHALL CREEK
SCALE: 1" = 2500'	CAPITAL FLOOD FLOW RATES

APPENDIX E: Proportion Impervious Values

Residential

Single-Family	0.418
Two-Unit	0.418
Three-Unit	0.682
Four-Unit	0.819
Five-Unit	0.855

Commercial

Stores, Office Buildings, Manufacturing Outlets	0.909
Shopping Centers (Regional), Restaurants, Service Shops, Auto Equipment, Parking Lots	0.946
Shopping Centers (Neighborhood), Motels, Hotels, Kennels, Professional Buildings, Banks, Service Stations	0.958
Supermarkets	0.976
Department Stores	0.985

Industrial

Mineral Processing	0.473
Open Storage	0.655
Motion Picture, Radio, Television	0.819
Manufacturing, Warehousing, Storage, Parking	0.909
Food Processing Plants, Lumber Yards	0.958

Institutional Property

Colleges, Universities	0.473
Homes for the Aged	0.682
Hospitals, Cemeteries, Mausoleums, Mortuaries	0.744
Churches, Schools	0.819

Undeveloped Property

Rural	0.01

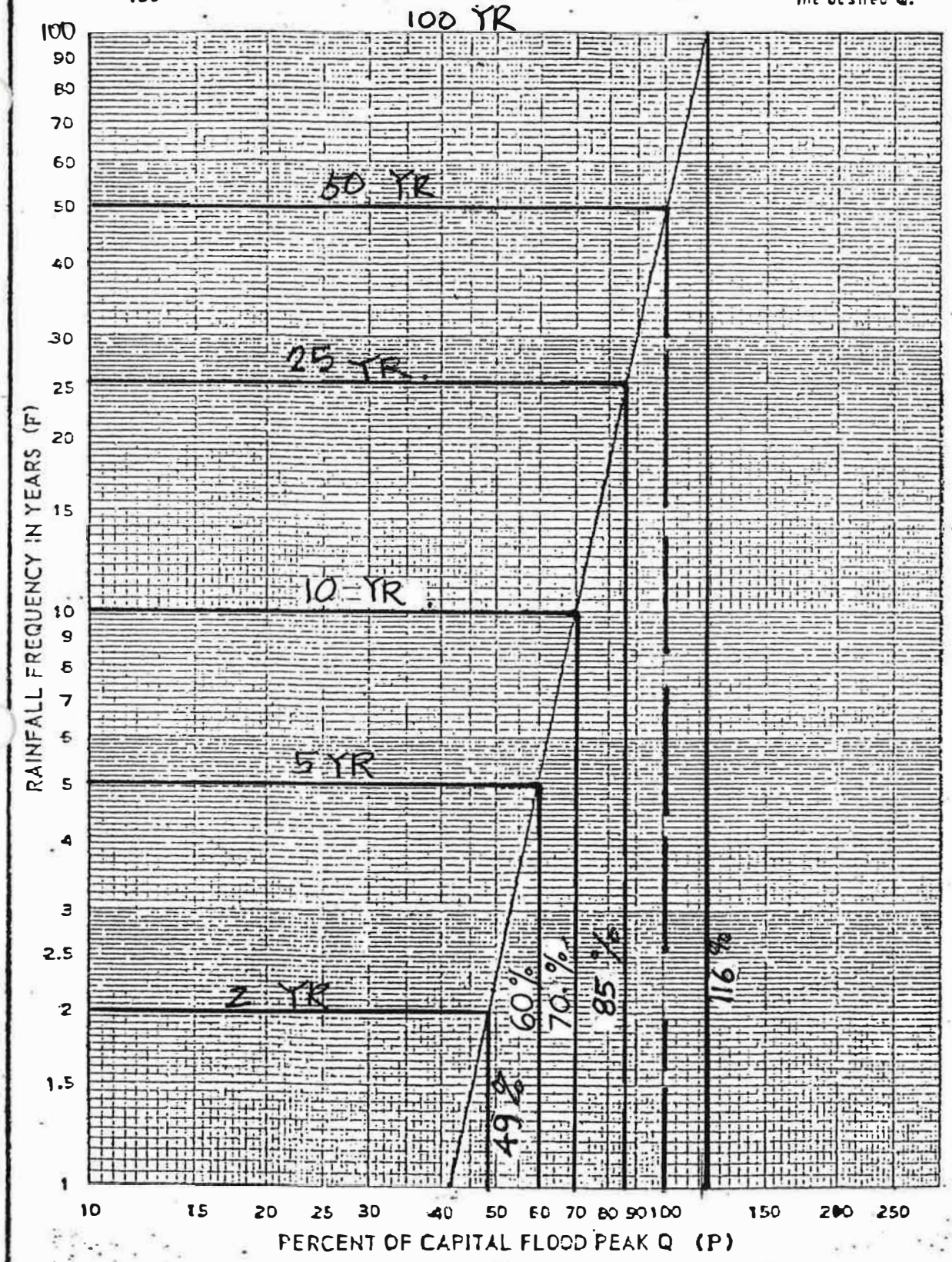
100

$\frac{P}{100} = .417\ F^{.223}$

$Q_y = \left(\frac{y}{x}\right)^{.223} Q_x$

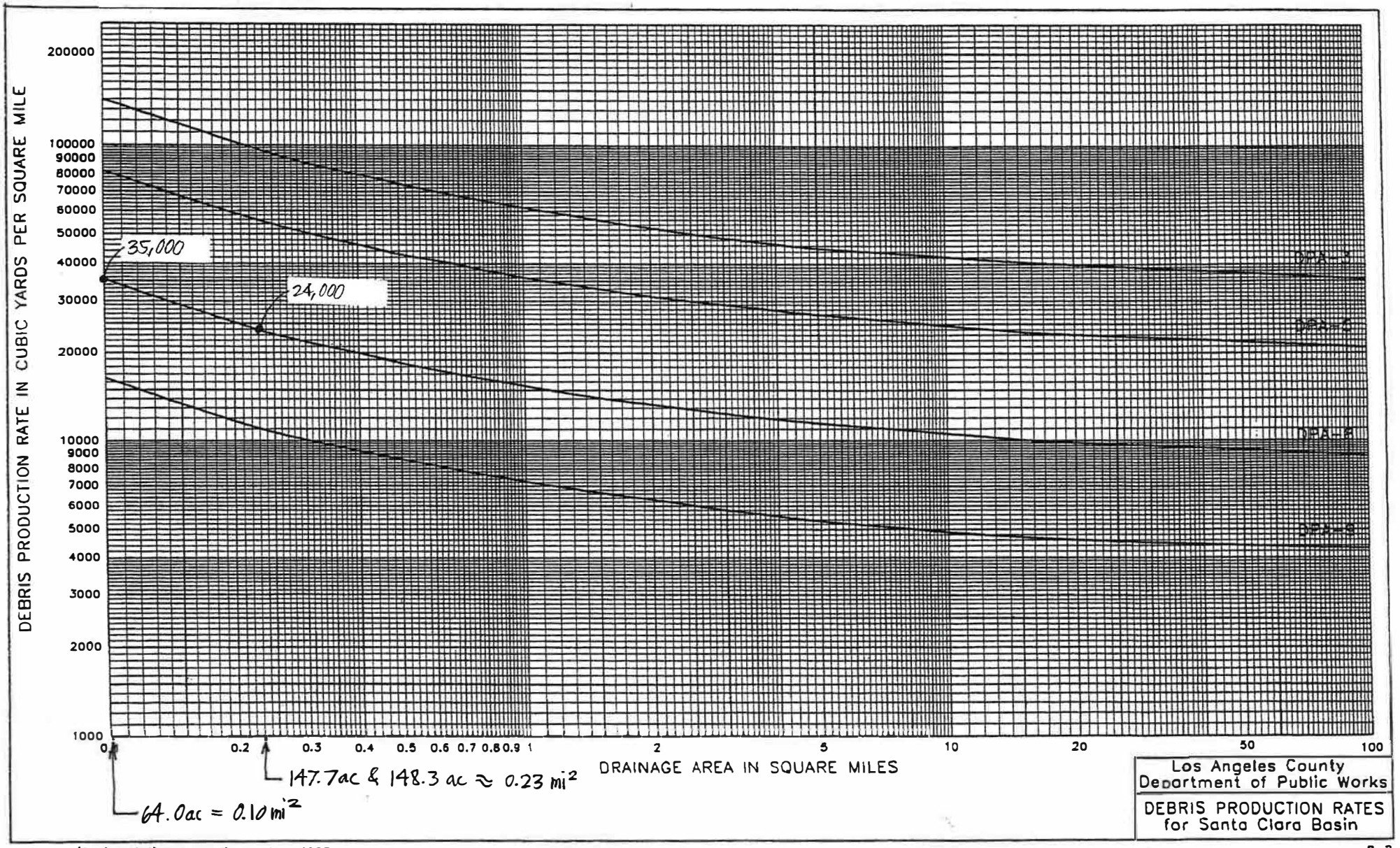
frequency x.

y = the frequency for the desired Q.

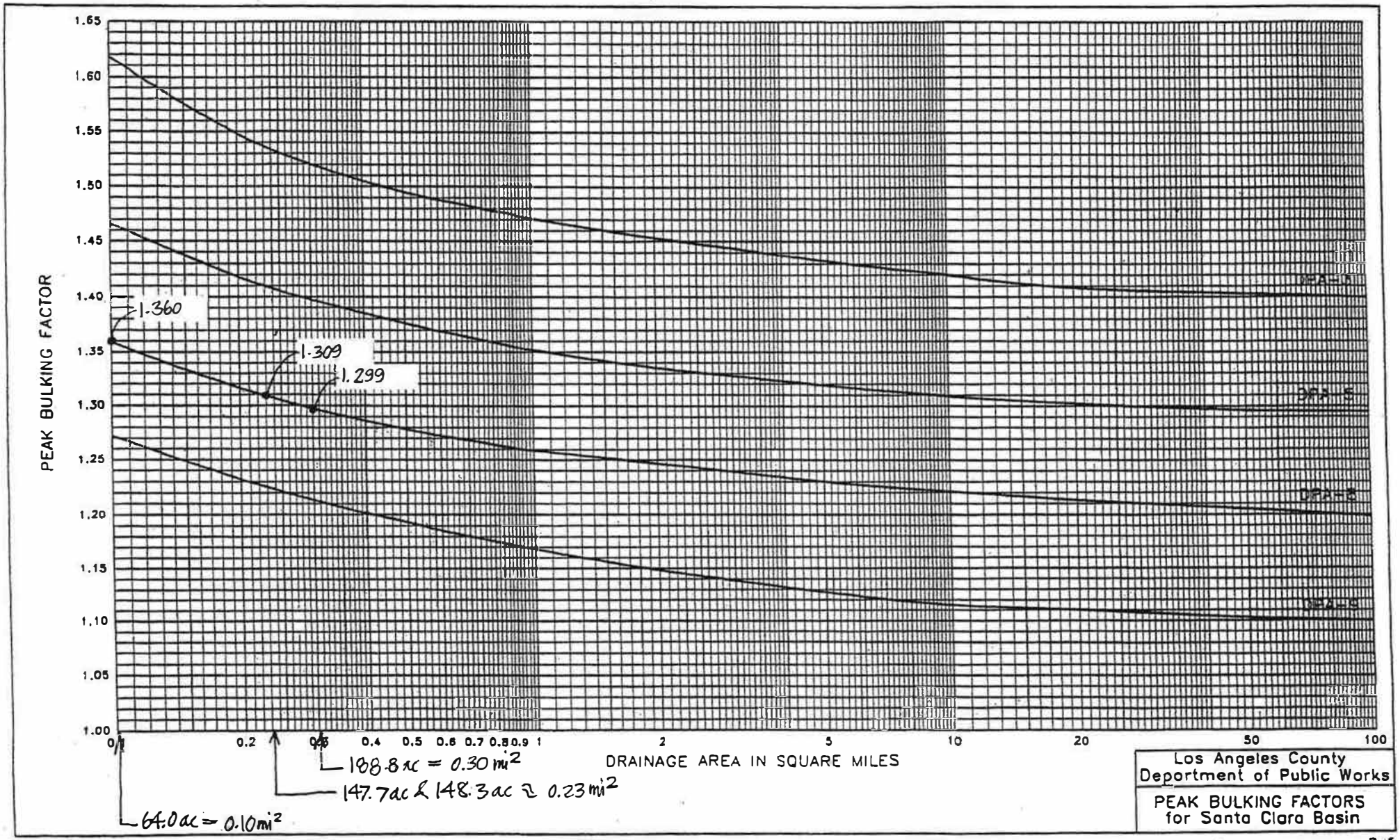


PREPARED BY	LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
R.E. BREDEHORST	PERCENT OF CAPITAL FLOOD PEAK Q VERSUS RAINFALL FREQUENCY
DATE: 6-19-73 NO.	

* = 50-YR. FREQUENCY RAINFALL



PROPOSED & EXISTING CONDITION



PROPOSED & EXISTING CONDITION

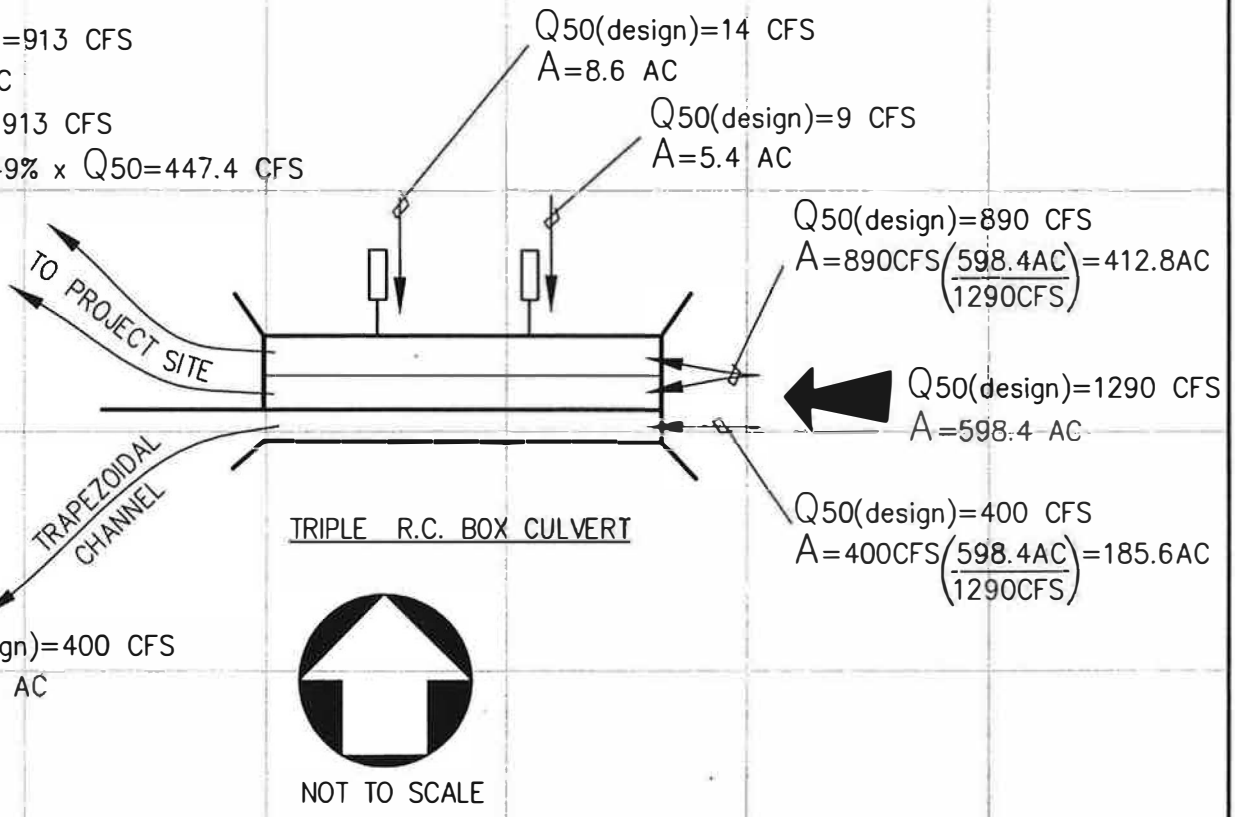
TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita

Proposed Condition, Design 50-yr Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	50	98	1481	0.091	7.2	9	3.26	0.85	0.85	41.29
62646	2A	29.7	0.01	50	98	2680	0.085	7.3	12	2.89	0.84	0.84	72.1
62646	3A	8.8	0.01	50	98	1596	0.102	7.3	9	3.3	0.85	0.85	24.68
62646	4A	3.5	0.01	50	98	1096	0.103	7.4	7	3.77	0.86	0.86	11.35
62646	5B	22.5	0.01	50	98	2459	0.087	7.1	12	2.81	0.83	0.83	52.48
62646	6B	18.8	0.01	50	98	2157	0.1	7.2	11	2.97	0.84	0.84	46.9
62646	7B	19	0.01	50	98	1932	0.101	7.3	10	3.14	0.85	0.85	50.71
62646	8B	30.5	0.01	50	98	3449	0.069	7.3	15	2.6	0.83	0.83	65.82
62646	10A	6.4	0.1	50	98	791	0.014	7.4	8	3.54	0.86	0.86	19.48
62646	12C	5.3	0.1	50	20	771	0.021	7.5	8	3.59	0.64	0.67	12.75
62646	13D	0.7	0.5	50	20	309	0.032	7.5	5	4.47	0.68	0.79	2.47
62646	14D	1.8	0.91	50	20	483	0.012	7.5	6	4.11	0.67	0.88	6.51
62646	15D	0.2	0.91	50	20	166	0.007	7.5	5	4.47	0.68	0.88	0.79
62646	17C	3.8	0.1	50	20	554	0.007	7.4	8	3.54	0.64	0.67	9.01
62646	18C	0.8	0.91	50	20	594	0.005	7.4	8	3.54	0.64	0.88	2.49
62646	21E	1.4	0.91	50	20	299	0.015	7.4	5	4.42	0.68	0.88	5.45
62646	22E	1.6	0.91	50	20	362	0.015	7.4	5	4.42	0.68	0.88	6.22
62646	23E	0.5	0.91	50	20	358	0.009	7.4	5	4.42	0.68	0.88	1.94
62646	24E	1	0.91	50	20	290	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	25E	0.8	0.91	50	20	226	0.013	7.4	5	4.42	0.68	0.88	3.11
62646	26E	2.5	0.91	50	20	390	0.013	7.4	5	4.42	0.68	0.88	9.72
62646	30F	0.4	0.91	50	20	332	0.005	7.5	5	4.47	0.68	0.88	1.57
62646	31F	1.9	0.91	50	20	366	0.016	7.5	5	4.47	0.68	0.88	7.47
62646	32F	0.6	0.91	50	20	191	0.016	7.4	5	4.42	0.68	0.88	2.33
62646	33F	1.7	0.91	50	20	309	0.016	7.4	5	4.42	0.68	0.88	6.61
62646	35B	0.9	0.91	50	20	264	0.015	7.5	5	4.47	0.68	0.88	3.54
62646	36B	1	0.91	50	20	280	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	37B	1	0.91	50	20	288	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	38B	1	0.91	50	20	289	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	39C	1.7	0.91	50	20	289	0.017	7.3	5	4.36	0.67	0.88	6.52
62646	40C	2.1	0.91	50	20	1048	0.009	7.4	10	3.19	0.62	0.87	5.83
62646	44A	0.8	0.91	50	20	1096	0.007	7.4	11	3.05	0.61	0.87	2.12

OFFSITE EXISTING DRAINAGE
TRACTS 33516 & 43532



NOT TO SCALE

NOTE:
1. THERE IS NO DEBRIS FLOWING IN THIS CULVERT; A NUMBER OF DEBRIS BASINS ARE LOCATED UPSTREAM TO CONTROL ALL DEBRIS.
2. SEE SECTION 2: LACoFCD, PERCENT OF CAPITAL FLOOD PEAK Q VERSUS RAINFALL FREQUENCY, WHERE Q2YR = 49% x Q50YR.

SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd., #100 Van Nuys, CA 91411
Phone: (818) 787-8550; Fax: (818) 901-7451
www.sikand.com; E-mail: info@sikand.com

BY:	E.R.	CLIENT:	TMC Properties, Inc. 25655 SPRINGBROOK AVENUE, SANTA CLARITA, CA 91350
W.O. NO.:	5099-037-01		
DATE:	01/21/08	PROJECT:	TPM 62646 Hydrology City of Santa Clarita
SCALE:	NTS		

SHT. 1 OF 1

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6     1    2A 298  129.712A36
6     1    3A 298  1 8.8 9A362  939 02700
6     1    4A 298  1 3.5 7A37
6     1    5B 298  122.512A36
6     1    6B 298  118.811A362  860 03500
6     1    7B 298  119.010A362  395 02000
6     1    8B 298  130.515A36
6     1    9AB 98        A364  369 02100                  2
6     1   10A  98 10 6.4 8A374  164 02100
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6     1   41BC 20        A374   16 01000
6     1   42AB 20        A375  297 00600
6     1   43A  20       99A37
6     1   44A  20 91 0.811A375  234 00600                  2  2
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Program Package Serial Number: 2083

03/17/09 FILE: 50yr_D INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, PROP. COND., DESIGN 50-YR BURNED

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
1	1A	14.9	42.03	14.9	42.03	2	1362.	.05700	.00	.00	0.	298	9	A36	.01
1	2A	29.7	72.27	44.6	108.99	0	0.	.00000	.00	.00	0.	298	12	A36	.01
1	3A	8.8	24.82	53.4	132.76	2	939.	.02700	.00	.00	0.	298	9	A36	.01
1	4A	3.5	11.46	56.9	136.14	0	0.	.00000	.00	.00	0.	298	7	A37	.01
1	5B	22.5	54.75	22.5	54.75	0	0.	.00000	.00	.00	0.	298	12	A36	.01
1	6B	18.8	47.99	41.3	102.74	2	860.	.03500	.00	.00	0.	298	11	A36	.01
1	7B	19.0	51.12	60.3	149.41	2	395.	.02000	.00	.00	0.	298	10	A36	.01
1	8B	30.5	66.55	90.8	213.58	0	0.	.00000	.00	.00	0.	298	15	A36	.01
1	9AB	90.8	213.58	147.7	349.29	4	369.	.02100	4.75	.00	0.	98	0	A36	.00
1	10A	6.4	19.24	154.1	361.44	4	164.	.02100	5.00	.00	0.	98	8	A37	.10
1	11C	426.8	913.0	426.8	913.0	2	286.	.00400	.00	.00	0.	20	99	A37	.00
1	12C	5.3	12.74	5.3	12.74	0	0.	.00000	.00	.00	0.	20	8	A38	.10
1	13D	.7	2.52	.7	2.52	5	39.	.01200	.20	1.50	0.	20	5	A38	.50
1	14D	1.8	6.52	2.5	8.98	5	126.	.00500	.20	1.50	0.	20	6	A38	.91
1	15D	.2	.80	2.7	9.56	0	0.	.00000	.00	.00	0.	20	5	A38	.91
1	16CD	2.7	9.56	8.0	22.27	5	594.	.00500	.20	1.50	0.	20	0	A38	.00
1	17C	3.8	8.82	11.8	29.74	0	0.	.00000	.00	.00	0.	20	8	A37	.10
1	18C	.8	2.45	12.6	32.09	5	420.	.00500	3.00	.00	0.	20	8	A37	.91
1	19C	.0	.00	12.6	31.36	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	20AC	12.6	31.36	166.7	391.81	5	87.	.00500	9.00	.00	0.	20	0	A37	.00
1	21E	1.4	5.44	1.4	5.44	4	32.	.00200	2.00	.00	0.	20	5	A37	.91
1	22E	1.6	6.22	3.0	11.50	4	81.	.00200	2.25	.00	0.	20	5	A37	.91
1	23E	.5	1.94	3.5	12.76	4	30.	.00200	2.25	.00	0.	20	5	A37	.91
1	24E	1.0	3.89	4.5	16.24	0	0.	.00000	.00	.00	0.	20	5	A37	.91
1	25E	.8	3.11	5.3	19.35	4	364.	.00200	2.50	.00	0.	20	5	A37	.91
1	26E	2.5	9.72	7.8	24.79	4	41.	.00200	2.75	.00	0.	20	5	A37	.91
1	27AE	7.8	24.69	174.5	410.27	5	308.	.00500	9.00	.00	0.	20	0	A37	.00
1	28A	.0	.00	174.5	408.91	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	29A	.0	.00	174.5	408.91	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	30F	.4	1.60	.4	1.60	4	193.	.01000	2.00	.00	0.	20	5	A38	.91
1	31F	1.9	7.59	2.3	8.98	4	546.	.01000	2.00	.00	0.	20	5	A38	.91
1	32F	.6	2.33	2.9	10.11	4	189.	.01000	2.00	.00	0.	20	5	A37	.91
1	33F	1.7	6.61	4.6	15.15	4	47.	.01000	2.00	.00	0.	20	5	A37	.91
1	34AF	4.6	15.12	179.1	419.02	5	43.	.00600	9.00	.00	0.	20	0	A37	.00
1	35B	.9	3.60	.9	3.60	4	190.	.01000	2.00	.00	0.	20	5	A38	.91
1	36B	1.0	3.89	1.9	7.12	4	176.	.01000	2.00	.00	0.	20	5	A37	.91
1	37B	1.0	3.89	2.9	10.41	4	169.	.01000	2.00	.00	0.	20	5	A37	.91
1	38B	1.0	3.89	3.9	13.79	4	228.	.01000	2.00	.00	0.	20	5	A37	.91
1	39C	1.7	6.43	1.7	6.43	4	42.	.01000	2.00	.00	0.	20	5	A36	.91
1	40C	2.1	5.85	3.8	12.07	4	21.	.01000	2.00	.00	0.	20	10	A37	.91
1	41BC	3.8	11.97	7.7	25.19	4	16.	.01000	2.25	.00	0.	20	0	A37	.00
1	42AB	7.7	25.16	186.8	435.39	5	297.	.00600	9.00	.00	0.	20	0	A37	.00
1	43A	.0	.00	186.8	433.05	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	44A	.8	2.12	187.6	435.02	5	234.	.00600	9.00	.00	0.	20	11	A37	.91

$\Sigma Q_{50B} = 435.0 + 913.0 = 1348.0$ cfs

$\Sigma A = 187.6 + 426.8 = 614.4$ ac

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., DESIGN 50-YR BURNED, BASIN HYD.

HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	4.16	200	4.33	300	4.55	400	4.81
500	5.14	600	5.52	700	6.02	800	7.64	900	12.08
1000	19.65	1050	29.37	1100	45.34	1110	56.23	1120	71.06
1130	86.94	1131	88.79	1132	90.56	1133	92.69	1134	94.80
1135	97.15	1136	99.28	1137	101.80	1138	104.43	1139	107.33
1140	110.46	1141	114.44	1142	118.74	1143	123.53	1144	128.49
1145	134.86	1146	141.57	1147	149.01	1148	156.75	1149	171.19
1150	188.95	1151	212.07	1152	240.06	1153	272.31	1154	300.83
1155	325.35	1156	340.31	1157	347.90	1158	349.29	1159	344.63
1160	332.75	1161	317.39	1162	298.19	1163	273.82	1164	242.04
1165	210.76	1166	181.11	1167	152.95	1168	128.07	1169	111.66
1170	99.10	1171	89.41	1172	81.70	1173	75.42	1174	70.12
1175	65.64	1176	61.96	1177	58.42	1178	55.63	1179	52.97
1180	50.61	1181	48.46	1182	46.36	1183	44.64	1184	42.98
1185	41.48	1186	40.00	1187	38.67	1188	37.45	1189	36.25
1190	35.09	1191	33.98	1192	33.05	1193	31.97	1194	31.12
1195	30.31	1196	29.48	1197	28.79	1198	28.16	1199	27.56
1200	26.88	1201	26.31	1202	25.72	1203	25.13	1204	24.58
1205	24.03	1206	23.49	1207	22.93	1208	22.55	1209	21.99
1210	21.52	1211	21.06	1212	20.70	1213	20.27	1214	19.84
1215	19.42	1216	19.14	1217	18.74	1218	18.46	1219	18.09
1220	17.73	1221	17.36	1222	17.01	1223	16.75	1224	16.48
1225	16.09	1226	15.88	1227	15.57	1228	15.25	1229	15.05
1230	14.82	1231	14.42	1232	14.23	1233	13.93	1234	13.70
1235	13.44	1236	13.09	1237	12.90	1238	12.61	1239	12.41
1240	12.12	1241	11.91	1242	11.68	1243	11.54	1244	11.27
1245	11.11	1246	11.04	1247	10.77	1248	10.58	1249	10.44
1250	10.19	1251	10.13	1252	9.90	1253	9.65	1254	9.54
1255	9.39	1256	9.18	1257	9.13	1258	8.89	1259	8.77
1260	8.57	1261	8.34	1262	8.33	1263	8.17	1264	7.95
1265	7.85	1266	7.64	1267	7.52	1268	7.42	1269	7.23
1270	7.12	1271	7.02	1272	6.93	1273	6.82	1274	6.73
1275	6.66	1276	6.59	1277	6.52	1278	6.47	1279	6.42
1280	6.38	1281	6.34	1282	6.32	1283	6.29	1284	6.25
1285	6.23	1286	6.21	1287	6.20	1288	6.17	1289	6.13
1290	6.12	1291	6.10	1292	6.05	1293	6.03	1294	6.00
1295	5.99	1296	5.94	1297	5.93	1298	5.90	1299	5.88
1300	5.86	1310	5.66	1320	5.47	1330	5.31	1340	5.20
1350	5.06	1360	4.92	1370	4.76	1380	4.66	1390	4.62
1400	4.50	1420	4.33	1440	4.20	1460	3.20	1500	3.20

TOTAL VOLUME THIS HYDROGRAPH = 30.89(Ac.Ft)

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., DESIGN 50-YR BURNED, OUTLET HYD.
HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	7.86	200	8.16	300	8.60	400	9.07
500	9.68	600	10.39	700	11.31	800	13.50	900	19.01
1000	28.38	1050	39.96	1100	59.70	1110	70.84	1120	89.11
1130	108.04	1131	110.17	1132	112.35	1133	114.64	1134	117.08
1135	119.73	1136	122.56	1137	125.58	1138	128.79	1139	132.19
1140	135.78	1141	139.71	1142	144.09	1143	149.03	1144	154.49
1145	160.64	1146	167.63	1147	175.54	1148	184.69	1149	196.32
1150	211.99	1151	233.20	1152	260.91	1153	295.37	1154	334.42
1155	372.36	1156	403.34	1157	424.70	1158	435.02	1159	434.91
1160	426.72	1161	412.12	1162	391.83	1163	367.57	1164	340.90
1165	312.19	1166	281.06	1167	248.79	1168	217.65	1169	189.51
1170	166.58	1171	146.49	1172	130.11	1173	117.39	1174	107.42
1175	99.34	1176	92.66	1177	87.02	1178	82.18	1179	77.95
1180	74.22	1181	70.99	1182	68.20	1183	65.46	1184	62.91
1185	60.59	1186	58.62	1187	56.81	1188	55.04	1189	53.35
1190	51.76	1191	50.27	1192	48.86	1193	47.52	1194	46.22
1195	44.99	1196	43.82	1197	42.71	1198	41.68	1199	40.72
1200	39.89	1201	39.15	1202	38.39	1203	37.64	1204	36.90
1205	36.17	1206	35.45	1207	34.75	1208	34.07	1209	33.42
1210	32.79	1211	32.19	1212	31.61	1213	31.05	1214	30.51
1215	29.99	1216	29.48	1217	28.99	1218	28.52	1219	28.10
1220	27.70	1221	27.28	1222	26.87	1223	26.46	1224	26.05
1225	25.64	1226	25.24	1227	24.85	1228	24.47	1229	24.09
1230	23.73	1231	23.38	1232	23.05	1233	22.74	1234	22.43
1235	22.11	1236	21.78	1237	21.44	1238	21.12	1239	20.79
1240	20.46	1241	20.13	1242	19.83	1243	19.53	1244	19.24
1245	18.98	1246	18.75	1247	18.52	1248	18.30	1249	18.06
1250	17.83	1251	17.61	1252	17.38	1253	17.15	1254	16.94
1255	16.73	1256	16.52	1257	16.31	1258	16.11	1259	15.91
1260	15.71	1261	15.52	1262	15.32	1263	15.11	1264	14.90
1265	14.67	1266	14.46	1267	14.26	1268	14.07	1269	13.88
1270	13.69	1271	13.51	1272	13.34	1273	13.17	1274	13.01
1275	12.87	1276	12.74	1277	12.62	1278	12.49	1279	12.37
1280	12.26	1281	12.16	1282	12.07	1283	11.98	1284	11.90
1285	11.84	1286	11.77	1287	11.72	1288	11.67	1289	11.62
1290	11.56	1291	11.51	1292	11.46	1293	11.41	1294	11.36
1295	11.32	1296	11.29	1297	11.24	1298	11.20	1299	11.16
1300	11.13	1310	10.79	1320	10.40	1330	10.10	1340	9.87
1350	9.57	1360	9.35	1370	9.12	1380	8.87	1390	8.73
1400	8.53	1420	8.24	1440	8.00	1460	7.75	1500	7.76

TOTAL VOLUME THIS HYDROGRAPH = 45.64(Ac.Ft)

TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita
Existing Condition, Design Frequency (50-yr)

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	50	98	1481	0.091	7.2	9	3.26	0.85	0.85	41.29
62646	2A	29.7	0.01	50	98	2680	0.085	7.3	12	2.89	0.84	0.84	72.1
62646	3A	8.8	0.01	50	98	1596	0.102	7.3	9	3.3	0.85	0.85	24.68
62646	4A	4.1	0.01	50	98	1187	0.095	7.4	7	3.77	0.86	0.86	13.29
62646	5B	22.5	0.01	50	98	2459	0.087	7.1	12	2.81	0.83	0.83	52.48
62646	6B	18.8	0.01	50	98	2157	0.1	7.2	11	2.97	0.84	0.84	46.9
62646	7B	19	0.01	50	98	1932	0.101	7.3	10	3.14	0.85	0.85	50.71
62646	8B	30.5	0.01	50	98	3462	0.069	7.3	15	2.6	0.83	0.83	65.82
62646	10A	7	0.1	50	98	938	0.014	7.4	9	3.35	0.85	0.86	20.17
62646	11A	14.5	0.15	50	20	1639	0.005	7.4	19	2.36	0.55	0.6	20.53
62646	13C	17	0.1	50	20	1414	0.012	7.4	15	2.63	0.57	0.6	26.83
62647	14C	1	0.1	50	20	527	0.002	7.4	10	3.19	0.62	0.65	2.07

50yr_D.INL

```
6     0    1A 298  114.9 9A362 1362 05700                        G1
6     0    2A 298  129.712A36
6     0    3A 298  1 8.8 9A362 1017 02500
6     0    4A 298  1 4.1 7A37
6     0    5B 298  122.512A36
6     0    6B 298  118.811A362  860 03500
6     0    7B 298  119.010A362  422 01900
6     0    8B 298  130.515A36
6     0    9AB 98         A362  471 01100
6     0   10A  98 10 7.0 9A37
6     0   11A  20 1514.519A37
6     0   12C  20       99A372  900 00200
6     0   13C  20 1017.015A372  527 00200
6     0   14C  20 10 1.010A37
6     0   15AC 20         A37                              2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 50yr_D INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, EXIST. COND., DESIGN 50-YR BURNED STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
0	1A	14.9	42.03	14.9	42.03	2	1362.	.05700	.00	.00	0.	298	9	A36	.01
0	2A	29.7	72.27	44.6	108.99	0	0.	.00000	.00	.00	0.	298	12	A36	.01
0	3A	8.8	24.82	53.4	132.76	2	1017.	.02500	.00	.00	0.	298	9	A36	.01
0	4A	4.1	13.43	57.5	135.78	0	0.	.00000	.00	.00	0.	298	7	A37	.01
0	5B	22.5	54.75	22.5	54.75	0	0.	.00000	.00	.00	0.	298	12	A36	.01
0	6B	18.8	47.99	41.3	102.74	2	860.	.03500	.00	.00	0.	298	11	A36	.01
0	7B	19.0	51.12	60.3	149.41	2	422.	.01900	.00	.00	0.	298	10	A36	.01
0	8B	30.5	66.55	90.8	213.20	0	0.	.00000	.00	.00	0.	298	15	A36	.01
0	9AB	90.8	213.20	148.3	348.92	2	471.	.01100	.00	.00	0.	98	0	A36	.00
0	10A	7.0	19.95	155.3	359.92	0	0.	.00000	.00	.00	0.	98	9	A37	.10
0	11A	14.5	20.79	169.8	380.23	0	0.	.00000	.00	.00	0.	20	19	A37	.15
0	12C	426.8 ~~.0~~	913.0 ~~.00~~	426.8 + .0	913.0 + .00	2	900.	.00200	.00	.00	0.	20	99	A37	.00
0	13C	17.0	27.50	" 17.0	" 27.50	2	527.	.00200	.00	.00	0.	20	15	A37	.10
0	14C	1.0	2.06	" 18.0	" 24.48	0	0.	.00000	.00	.00	0.	20	10	A37	.10
0	15AC	18.0	24.48	" 187.8	" 401.04	0	0.	.00000	.00	.00	0.	20	0	A37	.00

ΣQ_{50B} = 401.0 + 913.0 = 1314.0 cfs

ΣA_{bb} = 148.3 ac

ΣQ_{50BB} = 495.9 + 913.0 = 1408.9 cfs

ΣA = 187.8 + 426.8 = 614.6 ac

Program Package Serial Number: 2083

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, EXIST. COND., DESIGN 50-YR BURNED, OUTLET HYD.

HYDROGRAPH AT 0 15A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	5.46	200	5.67	300	5.97	400	6.29
500	6.72	600	7.22	700	7.86	800	9.69	900	14.53
1000	23.20	1050	34.02	1100	52.61	1110	63.01	1120	79.51
1130	98.18	1131	100.11	1132	102.04	1133	104.29	1134	106.57
1135	109.00	1136	111.55	1137	114.42	1138	117.40	1139	120.48
1140	123.67	1141	127.43	1142	131.44	1143	136.11	1144	141.18
1145	147.29	1146	153.92	1147	161.50	1148	169.78	1149	182.07
1150	197.27	1151	217.00	1152	241.43	1153	271.42	1154	302.40
1155	334.17	1156	362.51	1157	384.60	1158	396.72	1159	401.04
1160	398.42	1161	389.09	1162	374.31	1163	357.38	1164	336.02
1165	309.51	1166	279.80	1167	250.28	1168	220.36	1169	191.83
1170	167.44	1171	147.70	1172	131.53	1173	119.03	1174	108.77
1175	100.21	1176	92.79	1177	86.40	1178	81.13	1179	76.34
1180	72.14	1181	68.39	1182	65.12	1183	62.10	1184	59.36
1185	56.83	1186	54.60	1187	52.56	1188	50.71	1189	48.92
1190	47.24	1191	45.66	1192	44.17	1193	42.75	1194	41.39
1195	40.12	1196	38.98	1197	37.82	1198	36.82	1199	35.84
1200	35.00	1201	34.20	1202	33.41	1203	32.68	1204	31.95
1205	31.20	1206	30.54	1207	29.83	1208	29.19	1209	28.54
1210	27.95	1211	27.38	1212	26.75	1213	26.23	1214	25.72
1215	25.18	1216	24.71	1217	24.17	1218	23.75	1219	23.28
1220	22.92	1221	22.54	1222	22.11	1223	21.73	1224	21.33
1225	20.92	1226	20.57	1227	20.18	1228	19.82	1229	19.50
1230	19.16	1231	18.86	1232	18.53	1233	18.20	1234	17.90
1235	17.53	1236	17.25	1237	16.95	1238	16.62	1239	16.31
1240	16.04	1241	15.71	1242	15.43	1243	15.17	1244	14.90
1245	14.67	1246	14.45	1247	14.19	1248	14.00	1249	13.77
1250	13.60	1251	13.36	1252	13.16	1253	12.96	1254	12.80
1255	12.55	1256	12.39	1257	12.17	1258	11.98	1259	11.81
1260	11.65	1261	11.43	1262	11.30	1263	11.08	1264	10.90
1265	10.71	1266	10.60	1267	10.43	1268	10.23	1269	10.06
1270	9.91	1271	9.73	1272	9.62	1273	9.48	1274	9.36
1275	9.21	1276	9.10	1277	8.99	1278	8.89	1279	8.80
1280	8.71	1281	8.62	1282	8.55	1283	8.49	1284	8.43
1285	8.38	1286	8.33	1287	8.29	1288	8.24	1289	8.20
1290	8.17	1291	8.13	1292	8.10	1293	8.07	1294	8.02
1295	7.99	1296	7.96	1297	7.94	1298	7.91	1299	7.86
1300	7.83	1310	7.56	1320	7.29	1330	7.07	1340	6.90
1350	6.71	1360	6.55	1370	6.35	1380	6.19	1390	6.09
1400	5.97	1420	5.75	1440	5.55	1460	4.69	1500	4.69

TOTAL VOLUME THIS HYDROGRAPH = 37.90(Ac.Ft)

```
6     1    1A  98        99A36                                    G1
6     1    2A  98        99A36
6     1    3A  98        99A36
6     1    4A  98        99A36
6     1    5B  98        99A36
6     1    6B  98        99A36
6     1    7B  98        99A36
6     1    8B  98        99A36
6     1    9A  98        00A364  369 02100                  2    A
6     1   10A  98 10 6.4 8A374  164 02100
6     1   11C  20       99A372  286 00400
6     1   12C  20 10 5.3 8A38
6     1   13D  20 50 0.7 5A385   39 01200150  20
6     1   14D  20 91 1.8 6A385  126 00500150  20
6     1   15D  20 91 0.2 5A38
6     1   16CD 20         A385  594 00500150  20
6     1   17C  20 10 3.8 8A37
6     1   18C  20 91 0.8 8A375  420 00500
6     1   19C  20       99A37
6     1   20AC 20         A375   87 00500
6     1   21E  20 91 1.4 5A374   32 00200
6     1   22E  20 91 1.6 5A374   81 00200
6     1   23E  20 91 0.5 5A374   30 00200
6     1   24E  20 91 1.0 5A37
6     1   25E  20 91 0.8 5A374  364 00200
6     1   26E  20 91 2.5 5A374   41 00200
6     1   27AE 20         A375  308 00500
6     1   28A  20       99A37
6     1   29A  20       99A37
6     1   30F  20 91 0.4 5A384  193 01000
6     1   31F  20 91 1.9 5A384  546 01000
6     1   32F  20 91 0.6 5A374  189 01000
6     1   33F  20 91 1.7 5A374   47 01000
6     1   34AF 20         A375   43 00600
6     1   35B  20 91 0.9 5A384  190 01000
6     1   36B  20 91 1.0 5A374  176 01000
6     1   37B  20 91 1.0 5A374  169 01000
6     1   38B  20 91 1.0 5A374  228 01000
6     1   39C  20 91 1.7 5A364   42 01000
6     1   40C  20 91 2.110A374   21 01000
6     1   41BC 20         A374   16 01000
6     1   42AB 20         A375  297 00600
6     1   43A  20       99A37
6     1   44A  20 91 0.811A375  234 00600                  2  2
```

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 Program Package Serial Number:  2083
03/17/09   FILE: 50yr_D   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE      1
                                            LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                            PROG F0601M

          Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

          TPM 62646, PROP. COND., DES. 50-YR BURNED, POST DET.                                                  STORM DAY 4
                        SUBAREA   SUBAREA     TOTAL    TOTAL  CONV    CONV      CONV      CONV    CONV     CONTROL  SOIL      RAIN   PCT
          LOCATION      AREA(Ac)  Q(CFS)     AREA(Ac)  Q(CFS) TYPE  LNGTH(Ft)  SLOPE     SIZE(Ft)   Z       Q(CFS)  NAME  TC  ZONE   IMPV
             1    1A        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    2A        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    3A        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    4A        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    5B        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    6B        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    7B        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    8B        .0       .00        .0       .00  0        0.    .00000       .00    .00         0.    98   99   A36    .00
             1    9A     147.7    258.00     147.7    258.00  4      369.    .02100      4.25    .00         0.    98    0   A36    .00
             1   10A       6.4     19.24     154.1    261.50  4      164.    .02100      4.25    .00         0.    98    8   A37    .10
             1   11C  426.8 .0 913.0 .00 426.8+ .0  913.0+ .00  2      286.    .00400       .00    .00         0.    20   99   A37    .00
             1   12C       5.3     12.74   "    5.3  "  12.74  0        0.    .00000       .00    .00         0.    20    8   A38    .10
             1   13D        .7      2.52        .7      2.52  5       39.    .01200       .20   1.50         0.    20    5   A38    .50
             1   14D       1.8      6.52       2.5      8.98  5      126.    .00500       .20   1.50         0.    20    6   A38    .91
             1   15D        .2       .80       2.7      9.56  0        0.    .00000       .00    .00         0.    20    5   A38    .91
             1   16CD      2.7      9.56   "    8.0  "  22.27  5      594.    .00500       .20   1.50         0.    20    0   A38    .00
             1   17C       3.8      8.82   "   11.8  "  29.74  0        0.    .00000       .00    .00         0.    20    8   A37    .10
             1   18C        .8      2.45   "   12.6  "  32.09  5      420.    .00500      3.00    .00         0.    20    8   A37    .91
             1   19C        .0       .00   "   12.6  "  31.36  0        0.    .00000       .00    .00         0.    20   99   A37    .00
             1   20AC     12.6     31.36   "  166.7  " 274.73  5       87.    .00500      7.00    .00         0.    20    0   A37    .00
             1   21E       1.4      5.44       1.4      5.44  4       32.    .00200      2.00    .00         0.    20    5   A37    .91
             1   22E       1.6      6.22       3.0     11.50  4       81.    .00200      2.25    .00         0.    20    5   A37    .91
             1   23E        .5      1.94       3.5     12.76  4       30.    .00200      2.25    .00         0.    20    5   A37    .91
             1   24E       1.0      3.89       4.5     16.24  0        0.    .00000       .00    .00         0.    20    5   A37    .91
             1   25E        .8      3.11       5.3     19.35  4      364.    .00200      2.50    .00         0.    20    5   A37    .91
             1   26E       2.5      9.72       7.8     24.79  4       41.    .00200      2.75    .00         0.    20    5   A37    .91
             1   27AE      7.8     24.69   "  174.5  " 283.97  5      308.    .00500      8.00    .00         0.    20    0   A37    .00
             1   28A        .0       .00   "  174.5  " 283.70  0        0.    .00000       .00    .00         0.    20   99   A37    .00
             1   29A        .0       .00   "  174.5  " 283.70  0        0.    .00000       .00    .00         0.    20   99   A37    .00
             1   30F        .4      1.60        .4      1.60  4      193.    .01000      2.00    .00         0.    20    5   A38    .91
             1   31F       1.9      7.59       2.3      8.98  4      546.    .01000      2.00    .00         0.    20    5   A38    .91
             1   32F        .6      2.33       2.9     10.11  4      189.    .01000      2.00    .00         0.    20    5   A37    .91
             1   33F       1.7      6.61       4.6     15.15  4       47.    .01000      2.00    .00         0.    20    5   A37    .91
             1   34AF      4.6     15.12   "  179.1  " 289.48  5       43.    .00600      7.00    .00         0.    20    0   A37    .00
             1   35B        .9      3.60        .9      3.60  4      190.    .01000      2.00    .00         0.    20    5   A38    .91
             1   36B       1.0      3.89       1.9      7.12  4      176.    .01000      2.00    .00         0.    20    5   A37    .91
             1   37B       1.0      3.89       2.9     10.41  4      169.    .01000      2.00    .00         0.    20    5   A37    .91
             1   38B       1.0      3.89       3.9     13.79  4      228.    .01000      2.00    .00         0.    20    5   A37    .91
             1   39C       1.7      6.43       1.7      6.43  4       42.    .01000      2.00    .00         0.    20    5   A36    .91
             1   40C       2.1      5.85       3.8     12.07  4       21.    .01000      2.00    .00         0.    20   10   A37    .91
             1   41BC      3.8     11.97       7.7     25.19  4       16.    .01000      2.25    .00         0.    20    0   A37    .00
             1   42AB      7.7     25.16   "  186.8  " 300.04  5      297.    .00600      7.00    .00         0.    20    0   A37    .00
             1   43A        .0       .00   "  186.8  " 299.62  0        0.    .00000       .00    .00         0.    20   99   A37    .00
             1   44A        .8      2.12   "  187.6  " 301.15  5      234.    .00600      7.00    .00         0.    20   11   A37    .91
```

In row 11C, ~~.0~~ and ~~.00~~ are struck out and replaced by 426.8 and 913.0.

$\Sigma Q_{50B} = 301.2 + 913.0 = 1214.2$ cfs

ΣA 187.6 + 426.8 = 614.4 ac

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., DES. 50-YR BURNED, POST DET., BASIN HYD.
HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

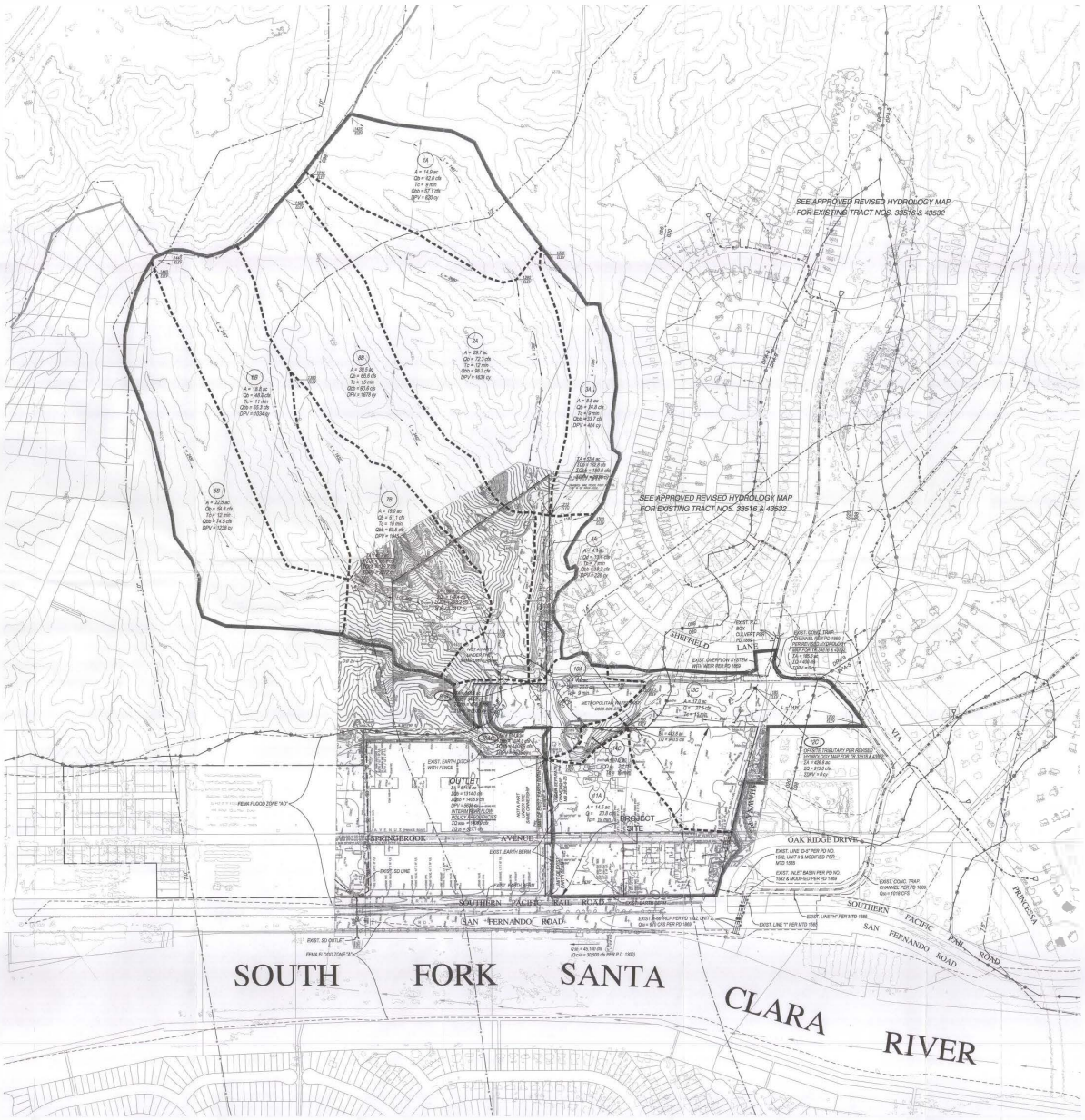
TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	4.00	200	4.00	300	5.00	400	5.00
500	5.00	600	6.00	700	6.00	800	8.00	900	12.00
1000	20.00	1050	29.00	1100	45.00	1110	51.00	1120	58.00
1130	68.00	1131	69.00	1132	71.00	1133	72.00	1134	73.00
1135	75.00	1136	76.00	1137	78.00	1138	79.00	1139	81.00
1140	83.00	1141	84.00	1142	87.00	1143	89.00	1144	92.00
1145	96.00	1146	100.00	1147	105.00	1148	110.00	1149	115.00
1150	122.00	1151	131.00	1152	141.00	1153	153.00	1154	167.00
1155	182.00	1156	197.00	1157	212.00	1158	225.00	1159	236.00
1160	246.00	1161	252.00	1162	257.00	1163	258.00	1164	257.00
1165	252.00	1166	246.00	1167	237.00	1168	226.00	1169	215.00
1170	204.00	1171	193.00	1172	182.00	1173	172.00	1174	163.00
1175	154.00	1176	145.00	1177	137.00	1178	129.00	1179	122.00
1180	116.00	1181	109.00	1182	103.00	1183	98.00	1184	93.00
1185	89.00	1186	86.00	1187	83.00	1188	80.00	1189	78.00
1190	75.00	1191	73.00	1192	70.00	1193	68.00	1194	66.00
1195	64.00	1196	62.00	1197	60.00	1198	58.00	1199	56.00
1200	54.00	1201	53.00	1202	51.00	1203	17.00	1204	32.00
1205	16.00	1206	29.00	1207	17.00	1208	29.00	1209	16.00
1210	28.00	1211	14.00	1212	27.00	1213	13.00	1214	26.00
1215	12.00	1216	26.00	1217	13.00	1218	23.00	1219	13.00
1220	22.00	1221	12.00	1222	22.00	1223	12.00	1224	19.00
1225	13.00	1226	19.00	1227	13.00	1228	17.00	1229	13.00
1230	17.00	1231	12.00	1232	16.00	1233	12.00	1234	16.00
1235	10.00	1236	16.00	1237	10.00	1238	15.00	1239	9.00
1240	15.00	1241	9.00	1242	15.00	1243	9.00	1244	12.00
1245	10.00	1246	12.00	1247	10.00	1248	12.00	1249	8.00
1250	12.00	1251	8.00	1252	12.00	1253	8.00	1254	12.00
1255	7.00	1256	11.00	1257	7.00	1258	11.00	1259	7.00
1260	11.00	1261	5.00	1262	10.00	1263	6.00	1264	10.00
1265	6.00	1266	10.00	1267	6.00	1268	8.00	1269	6.00
1270	8.00	1271	6.00	1272	8.00	1273	6.00	1274	8.00
1275	6.00	1276	8.00	1277	7.00	1278	6.00	1279	6.00
1280	6.00	1281	6.00	1282	6.00	1283	6.00	1284	6.00
1285	6.00	1286	6.00	1287	6.00	1288	6.00	1289	6.00
1290	6.00	1291	6.00	1292	6.00	1293	6.00	1294	6.00
1295	6.00	1296	6.00	1297	6.00	1298	6.00	1299	6.00
1300	6.00	1310	6.00	1320	5.00	1330	5.00	1340	5.00
1350	5.00	1360	5.00	1370	5.00	1380	5.00	1390	5.00
1400	4.00	1420	4.00	1440	4.00	1460	3.00	1500	.00

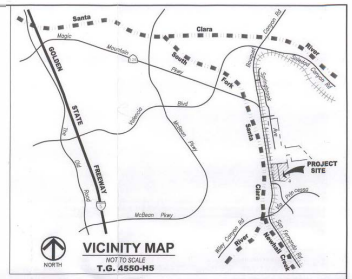
TOTAL VOLUME THIS HYDROGRAPH = 30.83(Ac.Ft)

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., DES. 50-YR BURNED, POST DET., OUTLET HYD
HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	7.70	200	7.85	300	8.97	400	9.33
500	9.51	600	10.86	700	11.33	800	13.82	900	19.00
1000	28.68	1050	39.74	1100	59.32	1110	67.56	1120	77.99
1130	90.57	1131	92.10	1132	93.64	1133	95.33	1134	97.21
1135	99.25	1136	101.34	1137	103.52	1138	105.88	1139	108.38
1140	110.95	1141	113.68	1142	116.65	1143	119.82	1144	123.20
1145	127.09	1146	131.70	1147	137.26	1148	143.67	1149	151.68
1150	162.41	1151	176.21	1152	193.14	1153	213.31	1154	234.81
1155	254.62	1156	271.25	1157	284.61	1158	294.02	1159	299.23
1160	301.15	1161	301.07	1162	299.50	1163	297.03	1164	294.32
1165	291.55	1166	287.77	1167	282.19	1168	274.48	1169	264.72
1170	253.46	1171	241.43	1172	229.42	1173	217.46	1174	205.99
1175	195.03	1176	184.85	1177	175.23	1178	166.01	1179	157.27
1180	149.13	1181	141.61	1182	134.68	1183	128.19	1184	121.75
1185	115.74	1186	110.36	1187	105.63	1188	101.55	1189	98.02
1190	94.88	1191	92.00	1192	89.27	1193	86.60	1194	83.96
1195	81.41	1196	79.04	1197	76.81	1198	74.66	1199	72.53
1200	70.43	1201	68.35	1202	66.36	1203	64.14	1204	60.45
1205	54.44	1206	46.64	1207	39.65	1208	35.61	1209	33.40
1210	32.47	1211	32.06	1212	31.69	1213	31.17	1214	30.50
1215	29.79	1216	29.14	1217	28.59	1218	28.16	1219	27.80
1220	27.49	1221	27.09	1222	26.59	1223	26.08	1224	25.64
1225	25.25	1226	24.86	1227	24.42	1228	24.02	1229	23.74
1230	23.51	1231	23.22	1232	22.88	1233	22.56	1234	22.25
1235	21.92	1236	21.58	1237	21.25	1238	20.91	1239	20.53
1240	20.17	1241	19.85	1242	19.52	1243	19.21	1244	18.99
1245	18.86	1246	18.71	1247	18.46	1248	18.13	1249	17.84
1250	17.66	1251	17.52	1252	17.32	1253	17.04	1254	16.75
1255	16.55	1256	16.44	1257	16.34	1258	16.20	1259	15.97
1260	15.69	1261	15.44	1262	15.26	1263	15.10	1264	14.87
1265	14.52	1266	14.15	1267	13.90	1268	13.80	1269	13.77
1270	13.71	1271	13.56	1272	13.31	1273	13.03	1274	12.81
1275	12.69	1276	12.64	1277	12.61	1278	12.58	1279	12.56
1280	12.55	1281	12.50	1282	12.34	1283	12.06	1284	11.77
1285	11.56	1286	11.44	1287	11.39	1288	11.36	1289	11.33
1290	11.30	1291	11.27	1292	11.25	1293	11.22	1294	11.20
1295	11.18	1296	11.17	1297	11.16	1298	11.14	1299	11.13
1300	11.12	1310	11.01	1320	10.38	1330	9.69	1340	9.61
1350	9.43	1360	9.33	1370	9.28	1380	9.13	1390	9.09
1400	8.55	1420	7.82	1440	7.80	1460	7.59	1500	7.60

TOTAL VOLUME THIS HYDROGRAPH = 45.67(Ac.Ft)





HYDROLOGY CRITERIA

RAINFALL FREQUENCY: 25-YR DEVELOPED AREAS; 50-YR UNDEVE OPED AREAS, &DEVELOPED SUMP & AREAS WITHIN FLOODWAY

RAIN NAME: SANTA CLARA

DPA ZONES: 8 & 9

SOIL TYPE NUMBER: 099 & 097

RUNOFF FACTOR: 1.330 (DPA - 8 FOR AREAS 64 Ac. OR UNDER)

DEBRIS PRODUCTION RATE: 55 CY/Ac (DPA - 8 FOR AREAS 64 Ac. OR UNDER)

% IMPERVIOUSNESS
UNDEVELOPED AREAS 1%
EXISTING GRADED AREAS & SLOPES 10%
EXISTING GRADED AREAS WITH LITTLE IMPROVEMENTS 15%

LEGEND

- DRAINAGE BOUNDARY
- SUB-AREA BOUNDARY
- FLOW LINE
- EXISTING STORM DRAIN
- TRACT BOUNDARY
- EXISTING CONTOUR
- FEMA FLOOD BOUNDARY
- 5.5" — 50 YEAR 24-HOUR ISOHYET
- 099 — SOIL TYPE
- DPA-8 / DPA-9 — DPA ZONE
- LOCATION NAME
- A — AREA IN ACRES
- Q — 50-YR. DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qb — 50-YR. BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- Qbb — 50-YR. BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
- DPV — DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, cy
- T — TIME

DRAINAGE CONCEPT/HYDROLOGY STUDY/SUSMP APPROVED FOR AREA AND Q ONLY
APPROVED BY: [signature] DATE: 2/10/09
PCE NO. 46372

DRAINAGE CONCEPT/HYDROLOGY STUDY/SUSMP RECOMMEND CITY APPROVAL FOR AREA AND Q ONLY
APPROVED BY: [signature] DATE: 4/16/09
CHECKED BY: [signature] DATE: 4/16/09
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

EXISTING CONDITION

DRAINAGE CONCEPT / HYDROLOGY STUDY / SUSMP

TENTATIVE PARCEL MAP NO. 062646

CITY OF SANTA CLARITA, CALIFORNIA

NORTH
SCALE: 1"=200'

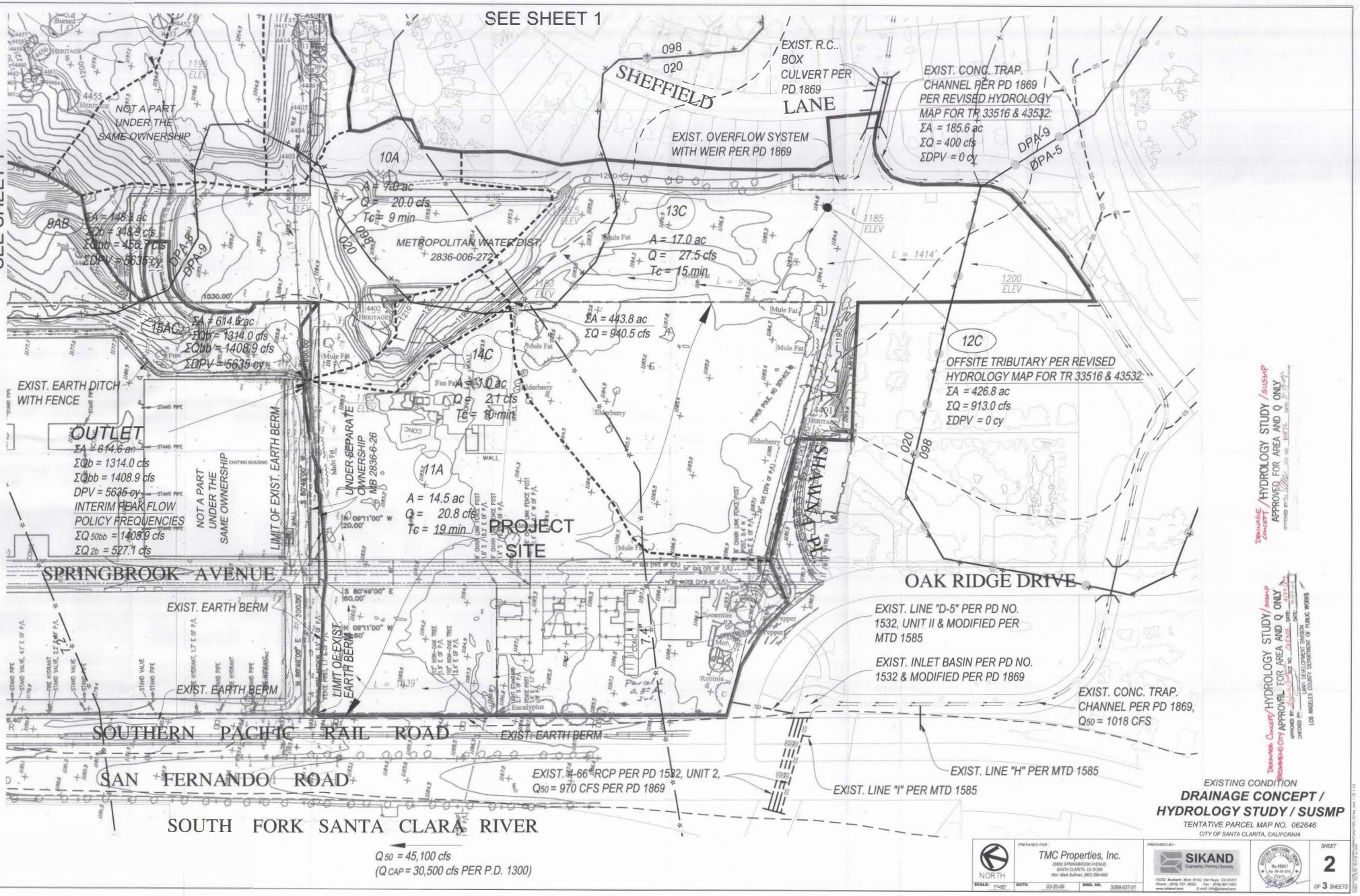
PREPARED FOR:
TMC Properties, Inc.
25855 SPRINGBROOK AVENUE,
SANTA CLARITA, CA 91350
Attn: Mark Sullivan, (661) 259-4400

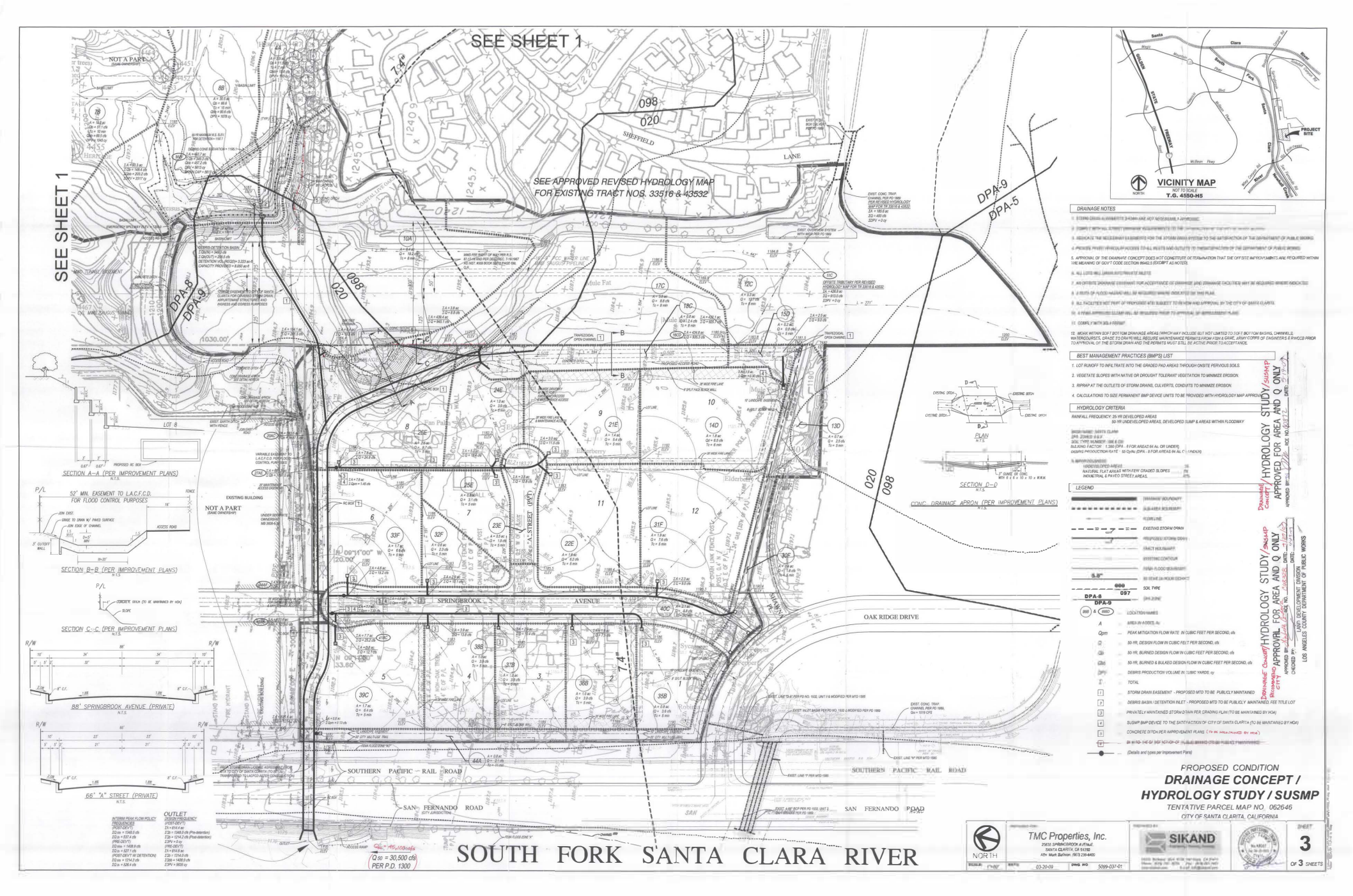
DATE: 8-20-08 DWG. NO. 5099-037-01

PREPARED BY:
SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd. #100, Van Nuys, CA 91411
Phone: (818) 781- 8588, Fax: (818) 901-7401
www.sikand.com, E-mail: info@sikand.com

REGISTERED PROFESSIONAL ENGINEER No. 49041 Exp. 06-30-2010 CIVIL STATE OF CALIFORNIA

SHEET 1 OF 3 SHEETS


SEE SHEET 1
SEE SHEET 1
SHEFFIELD LANE
EXIST. R.C.. BOX CULVERT PER PD 1869
EXIST. CONC. TRAP. CHANNEL PER PD 1869 PER REVISED HYDROLOGY MAP FOR TR 33516 & 43532:
ΣA = 185.6 ac
ΣQ = 400 cfs
ΣDPV = 0 cy
EXIST. OVERFLOW SYSTEM WITH WEIR PER PD 1869
NOT A PART UNDER THE SAME OWNERSHIP
9AB
ΣA = 148.2 ac
ΣQb = 348.9 cfs
ΣQbb = 456.7 cfs
ΣDPV = 5635 cy
10A
A = 7.0 ac
Q = 20.0 cfs
Tc = 9 min
METROPOLITAN WATER DIST. 2836-006-272
13C
A = 17.0 ac
Q = 27.5 cfs
Tc = 15 min
15AC
ΣA = 614.6 ac
ΣQb = 1314.0 cfs
ΣQbb = 1408.9 cfs
ΣDPV = 5635 cy
ΣA = 443.8 ac
ΣQ = 940.5 cfs
14C
A = 3.0 ac
Q = 2.1 cfs
Tc = 10 min
12C
OFFSITE TRIBUTARY PER REVISED HYDROLOGY MAP FOR TR 33516 & 43532:
ΣA = 426.8 ac
ΣQ = 913.0 cfs
ΣDPV = 0 cy
EXIST. EARTH DITCH WITH FENCE
OUTLET
ΣA = 614.6 ac
ΣQb = 1314.0 cfs
ΣQbb = 1408.9 cfs
DPV = 5635 cy
INTERIM PEAK FLOW POLICY FREQUENCIES
ΣQ 50bb = 1408.9 cfs
ΣQ 2b = 527.1 cfs
NOT A PART UNDER THE SAME OWNERSHIP
LIMIT OF EXIST. EARTH BERM
UNDER SEPARATE OWNERSHIP MB 2836-6-26
11A
A = 14.5 ac
Q = 20.8 cfs
Tc = 19 min
PROJECT SITE
SPRINGBROOK AVENUE
EXIST. EARTH BERM
LIMIT OF EXIST. EARTH BERM
SHAWNEE PL.
OAK RIDGE DRIVE
EXIST. LINE "D-5" PER PD NO. 1532, UNIT II & MODIFIED PER MTD 1585
EXIST. INLET BASIN PER PD NO. 1532 & MODIFIED PER PD 1869
EXIST. CONC. TRAP. CHANNEL PER PD 1869, Q50 = 1018 CFS
SOUTHERN PACIFIC RAIL ROAD
SAN FERNANDO ROAD
SOUTH FORK SANTA CLARA RIVER
EXIST. 54-66" RCP PER PD 1532, UNIT 2, Q50 = 970 CFS PER PD 1869
EXIST. LINE "H" PER MTD 1585
EXIST. LINE "I" PER MTD 1585
Q 50 = 45,100 cfs
(Q CAP = 30,500 cfs PER P.D. 1300)
DRAINAGE CONCEPT / HYDROLOGY STUDY / SUSMP
APPROVED FOR AREA AND Q ONLY
DRAINAGE CONCEPT / HYDROLOGY STUDY / SUSMP
APPROVAL FOR AREA AND Q ONLY
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
EXISTING CONDITION
DRAINAGE CONCEPT / HYDROLOGY STUDY / SUSMP
TENTATIVE PARCEL MAP NO. 062646
CITY OF SANTA CLARITA, CALIFORNIA
NORTH
PREPARED FOR: TMC Properties, Inc.
PREPARED BY: SIKAND
SHEET 2 OF 3 SHEETS

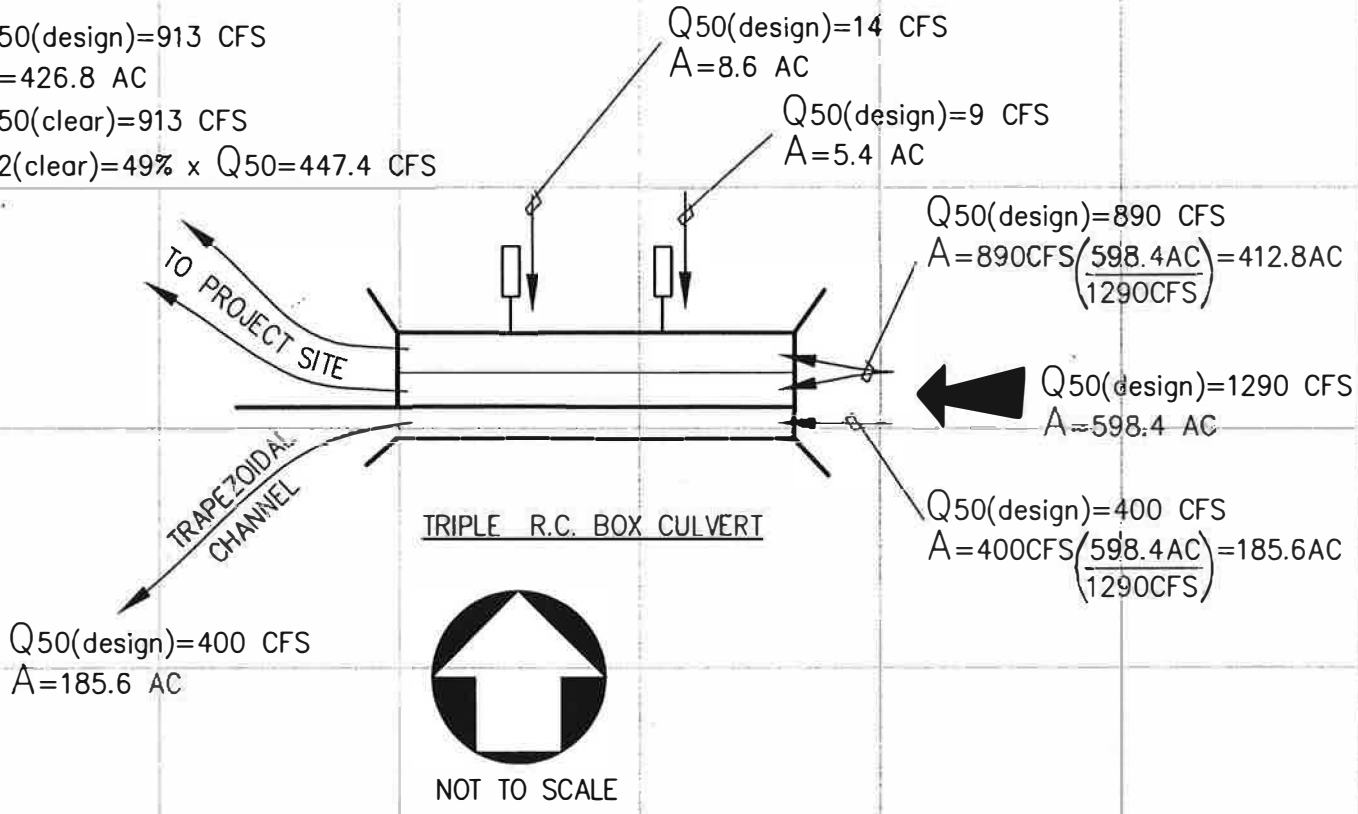

SEE SHEET 1
SEE SHEET 1
SEE APPROVED REVISED HYDROLOGY MAP FOR EXISTING TRACT NOS. 33516 & 43532
SOUTH FORK SANTA CLARA RIVER
SOUTHERN PACIFIC RAIL ROAD
SAN FERNANDO ROAD
SPRINGBROOK AVENUE
OAK RIDGE DRIVE
SHEFFIELD LANE
DPA-8
DPA-9
DPA-5
VICINITY MAP
NOT TO SCALE
T.G. 4550-H5
PROJECT SITE
DRAINAGE NOTES
BEST MANAGEMENT PRACTICES (BMPS) LIST
HYDROLOGY CRITERIA
LEGEND
SECTION A–A (PER IMPROVEMENT PLANS)
SECTION B–B (PER IMPROVEMENT PLANS)
SECTION C–C (PER IMPROVEMENT PLANS)
SECTION D–D
CONC. DRAINAGE APRON (PER IMPROVEMENT PLANS)
88' SPRINGBROOK AVENUE (PRIVATE)
66' "A" STREET (PRIVATE)
INTERIM PEAK FLOW POLICY
OUTLET
Q50 = 30,500 cfs
PER P.D. 1300
PROPOSED CONDITION
DRAINAGE CONCEPT / HYDROLOGY STUDY / SUSMP
TENTATIVE PARCEL MAP NO. 062646
CITY OF SANTA CLARITA, CALIFORNIA
TMC Properties, Inc.
25555 SPRINGBROOK AVENUE,
SANTA CLARITA, CA 91350
Attn: Mark Sullivan, (661) 298-4405
SIKAND
NORTH
SCALE 1"=50'
DATE 03-20-09
DWG NO 5099-037-01
SHEET 3 OF 3 SHEETS

TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita
Proposed Condition, 50-yr Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	50	98	1481	0.091	7.2	9	3.26	0.85	0.85	41.29
62646	2A	29.7	0.01	50	98	2680	0.085	7.3	12	2.89	0.84	0.84	72.1
62646	3A	8.8	0.01	50	98	1596	0.102	7.3	9	3.3	0.85	0.85	24.68
62646	4A	3.5	0.01	50	98	1096	0.103	7.4	7	3.77	0.86	0.86	11.35
62646	5B	22.5	0.01	50	98	2459	0.087	7.1	12	2.81	0.83	0.83	52.48
62646	6B	18.8	0.01	50	98	2157	0.1	7.2	11	2.97	0.84	0.84	46.9
62646	7B	19	0.01	50	98	1932	0.101	7.3	10	3.14	0.85	0.85	50.71
62646	8B	30.5	0.01	50	98	3449	0.069	7.3	15	2.6	0.83	0.83	65.82
62646	10A	6.4	0.1	50	98	791	0.014	7.4	8	3.54	0.86	0.86	19.48
62646	12C	5.3	0.1	50	20	771	0.021	7.5	8	3.59	0.64	0.67	12.75
62646	13D	0.7	0.5	50	20	309	0.032	7.5	5	4.47	0.68	0.79	2.47
62646	14D	1.8	0.91	50	20	483	0.012	7.5	6	4.11	0.67	0.88	6.51
62646	15D	0.2	0.91	50	20	166	0.007	7.5	5	4.47	0.68	0.88	0.79
62646	17C	3.8	0.1	50	20	554	0.007	7.4	8	3.54	0.64	0.67	9.01
62646	18C	0.8	0.91	50	20	594	0.005	7.4	8	3.54	0.64	0.88	2.49
62646	21E	1.4	0.91	50	20	299	0.015	7.4	5	4.42	0.68	0.88	5.45
62646	22E	1.6	0.91	50	20	362	0.015	7.4	5	4.42	0.68	0.88	6.22
62646	23E	0.5	0.91	50	20	358	0.009	7.4	5	4.42	0.68	0.88	1.94
62646	24E	1	0.91	50	20	290	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	25E	0.8	0.91	50	20	226	0.013	7.4	5	4.42	0.68	0.88	3.11
62646	26E	2.5	0.91	50	20	390	0.013	7.4	5	4.42	0.68	0.88	9.72
62646	30F	0.4	0.91	50	20	332	0.005	7.5	5	4.47	0.68	0.88	1.57
62646	31F	1.9	0.91	50	20	366	0.016	7.5	5	4.47	0.68	0.88	7.47
62646	32F	0.6	0.91	50	20	191	0.016	7.4	5	4.42	0.68	0.88	2.33
62646	33F	1.7	0.91	50	20	309	0.016	7.4	5	4.42	0.68	0.88	6.61
62646	35B	0.9	0.91	50	20	264	0.015	7.5	5	4.47	0.68	0.88	3.54
62646	36B	1	0.91	50	20	280	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	37B	1	0.91	50	20	288	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	38B	1	0.91	50	20	289	0.014	7.4	5	4.42	0.68	0.88	3.89
62646	39C	1.7	0.91	50	20	289	0.017	7.3	5	4.36	0.67	0.88	6.52
62646	40C	2.1	0.91	50	20	1048	0.009	7.4	10	3.19	0.62	0.87	5.83
62646	44A	0.8	0.91	50	20	1096	0.007	7.4	11	3.05	0.61	0.87	2.12

OFFSITE EXISTING DRAINAGE
TRACTS 33516 & 43532



NOTE:
1. THERE IS NO DEBRIS FLOWING IN THIS CULVERT; A NUMBER OF DEBRIS BASINS ARE LOCATED UPSTREAM TO CONTROL ALL DEBRIS.
2. SEE SECTION 2: LACoFCD, PERCENT OF CAPITAL FLOOD PEAK Q VERSUS RAINFALL FREQUENCY, WHERE Q2YR = 49% x Q50YR.

SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd., #100 Van Nuys, CA 91411
Phone: (818) 787-8550; Fax: (818) 901-7451
www.sikand.com; E-mail: info@sikand.com

BY:	E.R.
W.O. NO.:	5099-037-01
DATE:	01/21/08
SCALE:	NTS

CLIENT: **TMC Properties, Inc.**
25655 SPRINGBROOK AVENUE,
SANTA CLARITA, CA 91350

PROJECT: **TPM 62646 Hydrology**
City of Santa Clarita

SHT. 1 OF 1

```
6     1    1A 298  114.9 9A362 1362 05700                    G1
6     1    2A 298  129.712A36
6     1    3A 298  1 8.8 9A362  939 02700
6     1    4A 298  1 3.5 7A37
6     1    5B 298  122.512A36
6     1    6B 298  118.811A362  860 03500
6     1    7B 298  119.010A362  395 02000
6     1    8B 298  130.515A36
6     1    9AB 98          A364  369 02100                  2
6     1   10A  98 10 6.4 8A374  164 02100
6     1   11C  20       99A372  286 00400
6     1   12C  20 10 5.3 8A38
6     1   13D  20 50 0.7 5A385   39 01200150  20
6     1   14D  20 91 1.8 6A385  126 00500150  20
6     1   15D  20 91 0.2 5A38
6     1   16CD 20         A385  594 00500150  20
6     1   17C  20 10 3.8 8A37
6     1   18C  20 91 0.8 8A375  420 00500
6     1   19C  20       99A37
6     1   20AC 20         A375   87 00500
6     1   21E  20 91 1.4 5A374   32 00200
6     1   22E  20 91 1.6 5A374   81 00200
6     1   23E  20 91 0.5 5A374   30 00200
6     1   24E  20 91 1.0 5A37
6     1   25E  20 91 0.8 5A374  364 00200
6     1   26E  20 91 2.5 5A374   41 00200
6     1   27AE 20         A375  308 00500
6     1   28A  20       99A37
6     1   29A  20       99A37
6     1   30F  20 91 0.4 5A384  193 01000
6     1   31F  20 91 1.9 5A384  546 01000
6     1   32F  20 91 0.6 5A374  189 01000
6     1   33F  20 91 1.7 5A374   47 01000
6     1   34AF 20         A375   43 00600
6     1   35B  20 91 0.9 5A384  190 01000
6     1   36B  20 91 1.0 5A374  176 01000
6     1   37B  20 91 1.0 5A374  169 01000
6     1   38B  20 91 1.0 5A374  228 01000
6     1   39C  20 91 1.7 5A364   42 01000
6     1   40C  20 91 2.110A374   21 01000
6     1   41BC 20         A374   16 01000
6     1   42AB 20         A375  297 00600
6     1   43A  20       99A37
6     1   44A  20 91 0.811A375  234 00600                  2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 50yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, PROP. COND., 50-YR BURNED

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	14.9	42.03	14.9	42.03	2	1362.	.05700	.00	.00	0.	298	9	A36	.01
1	2A	29.7	72.27	44.6	108.99	0	0.	.00000	.00	.00	0.	298	12	A36	.01
1	3A	8.8	24.82	53.4	132.76	2	939.	.02700	.00	.00	0.	298	9	A36	.01
1	4A	3.5	11.46	56.9	136.14	0	0.	.00000	.00	.00	0.	298	7	A37	.01
1	5B	22.5	54.75	22.5	54.75	0	0.	.00000	.00	.00	0.	298	12	A36	.01
1	6B	18.8	47.99	41.3	102.74	2	860.	.03500	.00	.00	0.	298	11	A36	.01
1	7B	19.0	51.12	60.3	149.41	2	395.	.02000	.00	.00	0.	298	10	A36	.01
1	8B	30.5	66.55	90.8	213.58	0	0.	.00000	.00	.00	0.	298	15	A36	.01
1	9AB	90.8	213.58	147.7	349.29	4	369.	.02100	4.75	.00	0.	98	0	A36	.00
1	10A	6.4	19.24	154.1	361.44	4	164.	.02100	5.00	.00	0.	98	8	A37	.10
1	11C	426.8	913.0	426.8	913.0	2	286.	.00400	.00	.00	0.	20	99	A37	.00
1	12C	5.3	12.74	5.3	12.74	0	0.	.00000	.00	.00	0.	20	8	A38	.10
1	13D	.7	2.52	.7	2.52	5	39.	.01200	.20	1.50	0.	20	5	A38	.50
1	14D	1.8	6.52	2.5	8.98	5	126.	.00500	.20	1.50	0.	20	6	A38	.91
1	15D	.2	.80	2.7	9.56	0	0.	.00000	.00	.00	0.	20	5	A38	.91
1	16CD	2.7	9.56	8.0	22.27	5	594.	.00500	.20	1.50	0.	20	0	A38	.00
1	17C	3.8	8.82	11.8	29.74	0	0.	.00000	.00	.00	0.	20	8	A37	.10
1	18C	.8	2.45	12.6	32.09	5	420.	.00500	3.00	.00	0.	20	8	A37	.91
1	19C	.0	.00	12.6	31.36	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	20AC	12.6	31.36	166.7	391.81	5	87.	.00500	9.00	.00	0.	20	0	A37	.00
1	21E	1.4	5.44	1.4	5.44	4	32.	.00200	2.00	.00	0.	20	5	A37	.91
1	22E	1.6	6.22	3.0	11.50	4	81.	.00200	2.25	.00	0.	20	5	A37	.91
1	23E	.5	1.94	3.5	12.76	4	30.	.00200	2.25	.00	0.	20	5	A37	.91
1	24E	1.0	3.89	4.5	16.24	0	0.	.00000	.00	.00	0.	20	5	A37	.91
1	25E	.8	3.11	5.3	19.35	4	364.	.00200	2.50	.00	0.	20	5	A37	.91
1	26E	2.5	9.72	7.8	24.79	4	41.	.00200	2.75	.00	0.	20	5	A37	.91
1	27AE	7.8	24.69	174.5	410.27	5	308.	.00500	9.00	.00	0.	20	0	A37	.00
1	28A	.0	.00	174.5	408.91	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	29A	.0	.00	174.5	408.91	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	30F	.4	1.60	.4	1.60	4	193.	.01000	2.00	.00	0.	20	5	A38	.91
1	31F	1.9	7.59	2.3	8.98	4	546.	.01000	2.00	.00	0.	20	5	A38	.91
1	32F	.6	2.33	2.9	10.11	4	189.	.01000	2.00	.00	0.	20	5	A37	.91
1	33F	1.7	6.61	4.6	15.15	4	47.	.01000	2.00	.00	0.	20	5	A37	.91
1	34AF	4.6	15.12	179.1	419.02	5	43.	.00600	9.00	.00	0.	20	0	A37	.00
1	35B	.9	3.60	.9	3.60	4	190.	.01000	2.00	.00	0.	20	5	A38	.91
1	36B	1.0	3.89	1.9	7.12	4	176.	.01000	2.00	.00	0.	20	5	A37	.91
1	37B	1.0	3.89	2.9	10.41	4	169.	.01000	2.00	.00	0.	20	5	A37	.91
1	38B	1.0	3.89	3.9	13.79	4	228.	.01000	2.00	.00	0.	20	5	A37	.91
1	39C	1.7	6.43	1.7	6.43	4	42.	.01000	2.00	.00	0.	20	5	A36	.91
1	40C	2.1	5.85	3.8	12.07	4	21.	.01000	2.00	.00	0.	20	10	A37	.91
1	41BC	3.8	11.97	7.7	25.19	4	16.	.01000	2.25	.00	0.	20	0	A37	.00
1	42AB	7.7	25.16	186.8	435.39	5	297.	.00600	9.00	.00	0.	20	0	A37	.00
1	43A	.0	.00	186.8	433.05	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	44A	.8	2.12	187.6	435.02	5	234.	.00600	9.00	.00	0.	20	11	A37	.91

$\Sigma Q_{50B} = 435.0 + 913.0 = 1348.0$ cfs

$\Sigma A = 187.6 + 426.8 = 614.4$ ac

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 50-YR BURNED, BASIN HYD.
HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	4.16	200	4.33	300	4.55	400	4.81
500	5.14	600	5.52	700	6.02	800	7.64	900	12.08
1000	19.65	1050	29.37	1100	45.34	1110	56.23	1120	71.06
1130	86.94	1131	88.79	1132	90.56	1133	92.69	1134	94.80
1135	97.15	1136	99.28	1137	101.80	1138	104.43	1139	107.33
1140	110.46	1141	114.44	1142	118.74	1143	123.53	1144	128.49
1145	134.86	1146	141.57	1147	149.01	1148	156.75	1149	171.19
1150	188.95	1151	212.07	1152	240.06	1153	272.31	1154	300.83
1155	325.35	1156	340.31	1157	347.90	1158	349.29	1159	344.63
1160	332.75	1161	317.39	1162	298.19	1163	273.82	1164	242.04
1165	210.76	1166	181.11	1167	152.95	1168	128.07	1169	111.66
1170	99.10	1171	89.41	1172	81.70	1173	75.42	1174	70.12
1175	65.64	1176	61.96	1177	58.42	1178	55.63	1179	52.97
1180	50.61	1181	48.46	1182	46.36	1183	44.64	1184	42.98
1185	41.48	1186	40.00	1187	38.67	1188	37.45	1189	36.25
1190	35.09	1191	33.98	1192	33.05	1193	31.97	1194	31.12
1195	30.31	1196	29.48	1197	28.79	1198	28.16	1199	27.56
1200	26.88	1201	26.31	1202	25.72	1203	25.13	1204	24.58
1205	24.03	1206	23.49	1207	22.93	1208	22.55	1209	21.99
1210	21.52	1211	21.06	1212	20.70	1213	20.27	1214	19.84
1215	19.42	1216	19.14	1217	18.74	1218	18.46	1219	18.09
1220	17.73	1221	17.36	1222	17.01	1223	16.75	1224	16.48
1225	16.09	1226	15.88	1227	15.57	1228	15.25	1229	15.05
1230	14.82	1231	14.42	1232	14.23	1233	13.93	1234	13.70
1235	13.44	1236	13.09	1237	12.90	1238	12.61	1239	12.41
1240	12.12	1241	11.91	1242	11.68	1243	11.54	1244	11.27
1245	11.11	1246	11.04	1247	10.77	1248	10.58	1249	10.44
1250	10.19	1251	10.13	1252	9.90	1253	9.65	1254	9.54
1255	9.39	1256	9.18	1257	9.13	1258	8.89	1259	8.77
1260	8.57	1261	8.34	1262	8.33	1263	8.17	1264	7.95
1265	7.85	1266	7.64	1267	7.52	1268	7.42	1269	7.23
1270	7.12	1271	7.02	1272	6.93	1273	6.82	1274	6.73
1275	6.66	1276	6.59	1277	6.52	1278	6.47	1279	6.42
1280	6.38	1281	6.34	1282	6.32	1283	6.29	1284	6.25
1285	6.23	1286	6.21	1287	6.20	1288	6.17	1289	6.13
1290	6.12	1291	6.10	1292	6.05	1293	6.03	1294	6.00
1295	5.99	1296	5.94	1297	5.93	1298	5.90	1299	5.88
1300	5.86	1310	5.66	1320	5.47	1330	5.31	1340	5.20
1350	5.06	1360	4.92	1370	4.76	1380	4.66	1390	4.62
1400	4.50	1420	4.33	1440	4.20	1460	3.20	1500	3.20

TOTAL VOLUME THIS HYDROGRAPH = 30.89(AC.Ft)

Program Package Serial Number: 2083

03/17/09 FILE: 50yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 50-YR BURNED, OUTLET HYD.

HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	7.86	200	8.16	300	8.60	400	9.07
500	9.68	600	10.39	700	11.31	800	13.50	900	19.01
1000	28.38	1050	39.96	1100	59.70	1110	70.84	1120	89.11
1130	108.04	1131	110.17	1132	112.35	1133	114.64	1134	117.08
1135	119.73	1136	122.56	1137	125.58	1138	128.79	1139	132.19
1140	135.78	1141	139.71	1142	144.09	1143	149.03	1144	154.49
1145	160.64	1146	167.63	1147	175.54	1148	184.69	1149	196.32
1150	211.99	1151	233.20	1152	260.91	1153	295.37	1154	334.42
1155	372.36	1156	403.34	1157	424.70	1158	435.02	1159	434.91
1160	426.72	1161	412.12	1162	391.83	1163	367.57	1164	340.90
1165	312.19	1166	281.06	1167	248.79	1168	217.65	1169	189.51
1170	166.58	1171	146.49	1172	130.11	1173	117.39	1174	107.42
1175	99.34	1176	92.66	1177	87.02	1178	82.18	1179	77.95
1180	74.22	1181	70.99	1182	68.20	1183	65.46	1184	62.91
1185	60.59	1186	58.62	1187	56.81	1188	55.04	1189	53.35
1190	51.76	1191	50.27	1192	48.86	1193	47.52	1194	46.22
1195	44.99	1196	43.82	1197	42.71	1198	41.68	1199	40.72
1200	39.89	1201	39.15	1202	38.39	1203	37.64	1204	36.90
1205	36.17	1206	35.45	1207	34.75	1208	34.07	1209	33.42
1210	32.79	1211	32.19	1212	31.61	1213	31.05	1214	30.51
1215	29.99	1216	29.48	1217	28.99	1218	28.52	1219	28.10
1220	27.70	1221	27.28	1222	26.87	1223	26.46	1224	26.05
1225	25.64	1226	25.24	1227	24.85	1228	24.47	1229	24.09
1230	23.73	1231	23.38	1232	23.05	1233	22.74	1234	22.43
1235	22.11	1236	21.78	1237	21.44	1238	21.12	1239	20.79
1240	20.46	1241	20.13	1242	19.83	1243	19.53	1244	19.24
1245	18.98	1246	18.75	1247	18.52	1248	18.30	1249	18.06
1250	17.83	1251	17.61	1252	17.38	1253	17.15	1254	16.94
1255	16.73	1256	16.52	1257	16.31	1258	16.11	1259	15.91
1260	15.71	1261	15.52	1262	15.32	1263	15.11	1264	14.90
1265	14.67	1266	14.46	1267	14.26	1268	14.07	1269	13.88
1270	13.69	1271	13.51	1272	13.34	1273	13.17	1274	13.01
1275	12.87	1276	12.74	1277	12.62	1278	12.49	1279	12.37
1280	12.26	1281	12.16	1282	12.07	1283	11.98	1284	11.90
1285	11.84	1286	11.77	1287	11.72	1288	11.67	1289	11.62
1290	11.56	1291	11.51	1292	11.46	1293	11.41	1294	11.36
1295	11.32	1296	11.29	1297	11.24	1298	11.20	1299	11.16
1300	11.13	1310	10.79	1320	10.40	1330	10.10	1340	9.87
1350	9.57	1360	9.35	1370	9.12	1380	8.87	1390	8.73
1400	8.53	1420	8.24	1440	8.00	1460	7.75	1500	7.76

TOTAL VOLUME THIS HYDROGRAPH = 45.64(Ac.Ft)

TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita
Proposed Condition, 2-yr Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	2	98	1481	0.091	2.79	20	0.87	0.63	0.63	8.17
62646	2A	29.7	0.01	2	98	2680	0.085	2.83	30	0.73	0.58	0.58	12.57
62646	3A	8.8	0.01	2	98	1596	0.102	2.83	20	0.88	0.63	0.63	4.88
62646	4A	3.5	0.01	2	98	1096	0.103	2.86	15	1.02	0.67	0.67	2.39
62646	5B	22.5	0.01	2	98	2459	0.087	2.75	30	0.71	0.57	0.57	9.11
62646	6B	18.8	0.01	2	98	2157	0.1	2.79	26	0.77	0.6	0.6	8.69
62646	7B	19	0.01	2	98	1932	0.101	2.83	23	0.82	0.61	0.61	9.5
62646	8B	30.5	0.01	2	98	3449	0.069	2.83	30	0.73	0.58	0.58	12.91
62646	10A	6.4	0.1	2	98	791	0.014	2.86	17	0.96	0.66	0.68	4.18
62646	12C	5.3	0.1	2	20	771	0.021	2.9	25	0.81	0.29	0.35	1.5
62646	13D	0.7	0.5	2	20	309	0.032	2.9	8	1.39	0.42	0.66	0.64
62646	14D	1.8	0.91	2	20	483	0.012	2.9	11	1.19	0.38	0.85	1.82
62646	15D	0.2	0.91	2	20	166	0.007	2.9	6	1.59	0.46	0.86	0.27
62646	17C	3.8	0.1	2	20	554	0.007	2.86	25	0.8	0.28	0.34	1.03
62646	18C	0.8	0.91	2	20	594	0.005	2.86	15	1.02	0.35	0.85	0.69
62646	21E	1.4	0.91	2	20	299	0.015	2.86	8	1.37	0.42	0.86	1.65
62646	22E	1.6	0.91	2	20	362	0.015	2.86	9	1.29	0.4	0.86	1.78
62646	23E	0.5	0.91	2	20	358	0.009	2.86	10	1.23	0.39	0.85	0.52
62646	24E	1	0.91	2	20	290	0.014	2.86	8	1.37	0.42	0.86	1.18
62646	25E	0.8	0.91	2	20	226	0.013	2.86	7	1.46	0.44	0.86	1
62646	26E	2.5	0.91	2	20	390	0.013	2.86	10	1.23	0.39	0.85	2.61
62646	30F	0.4	0.91	2	20	332	0.005	2.9	10	1.25	0.4	0.86	0.43
62646	31F	1.9	0.91	2	20	366	0.016	2.9	9	1.31	0.41	0.86	2.14
62646	32F	0.6	0.91	2	20	191	0.016	2.86	6	1.57	0.46	0.86	0.81
62646	33F	1.7	0.91	2	20	309	0.016	2.86	8	1.37	0.42	0.86	2
62646	35B	0.9	0.91	2	20	264	0.015	2.9	7	1.48	0.44	0.86	1.15
62646	36B	1	0.91	2	20	280	0.014	2.86	8	1.37	0.42	0.86	1.18
62646	37B	1	0.91	2	20	288	0.014	2.86	8	1.37	0.42	0.86	1.18
62646	38B	1	0.91	2	20	289	0.014	2.86	8	1.37	0.42	0.86	1.18
62646	39C	1.7	0.91	2	20	289	0.017	2.83	8	1.35	0.42	0.86	1.97
62646	40C	2.1	0.91	2	20	1048	0.009	2.86	19	0.91	0.32	0.85	1.62
62646	44A	0.8	0.91	2	20	1096	0.007	2.86	21	0.87	0.31	0.85	0.59

```
6     1    1A 298  114.920A142 1362 05700                      G1
6     1    2A 298  129.730A14
6     1    3A 298  1 8.820A142  939 02700
6     1    4A 298  1 3.515A14
6     1    5B 298  122.530A14
6     1    6B 298  118.826A142  860 03500
6     1    7B 298  119.023A142  395 02000
6     1    8B 298  130.530A14
6     1    9AB 98         A144  369 02100                   2
6     1   10A  98 10 6.417A144  164 02100
6     1   11C  20       99A142  286 00400
6     1   12C  20 10 5.325A14
6     1   13D  20 50 0.7 8A145   39 01200150  20
6     1   14D  20 91 1.811A145  126 00500150  20
6     1   15D  20 91 0.2 6A14
6     1   16CD 20         A145  594 00500150  20
6     1   17C  20 10 3.825A14
6     1   18C  20 91 0.815A145  420 00500
6     1   19C  20       99A14
6     1   20AC 20         A145   87 00500
6     1   21E  20 91 1.4 8A144   32 00200
6     1   22E  20 91 1.6 9A144   81 00200
6     1   23E  20 91 0.510A144   30 00200
6     1   24E  20 91 1.0 8A14
6     1   25E  20 91 0.8 7A144  364 00200
6     1   26E  20 91 2.510A144   41 00200
6     1   27AE 20         A145  308 00500
6     1   28A  20       99A14
6     1   29A  20       99A14
6     1   30F  20 91 0.410A144  193 01000
6     1   31F  20 91 1.9 9A144  546 01000
6     1   32F  20 91 0.6 6A144  189 01000
6     1   33F  20 91 1.7 8A144   47 01000
6     1   34AF 20         A145   43 00600
6     1   35B  20 91 0.9 7A144  190 01000
6     1   36B  20 91 1.0 8A144  176 01000
6     1   37B  20 91 1.0 8A144  169 01000
6     1   38B  20 91 1.0 8A144  228 01000
6     1   39C  20 91 1.7 8A144   42 01000
6     1   40C  20 91 2.119A144   21 01000
6     1   41BC 20         A144   16 01000
6     1   42AB 20         A145  297 00600
6     1   43A  20       99A14
6     1   44A  20 91 0.821A145  234 00600                   2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 2yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, PROP. COND., 2-YR BURNED

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
1	1A	14.9	8.76	14.9	8.76	2	1362.	.05700	.00	.00	0.	298	20	A14	.01
1	2A	29.7	13.29	44.6	21.37	0	0.	.00000	.00	.00	0.	298	30	A14	.01
1	3A	8.8	5.18	53.4	26.27	2	939.	.02700	.00	.00	0.	298	20	A14	.01
1	4A	3.5	2.47	56.9	27.50	0	0.	.00000	.00	.00	0.	298	15	A14	.01
1	5B	22.5	10.07	22.5	10.07	0	0.	.00000	.00	.00	0.	298	30	A14	.01
1	6B	18.8	9.29	41.3	19.35	2	860.	.03500	.00	.00	0.	298	26	A14	.01
1	7B	19.0	10.19	60.3	28.96	2	395.	.02000	.00	.00	0.	298	23	A14	.01
1	8B	30.5	13.65	90.8	42.26	0	0.	.00000	.00	.00	0.	298	30	A14	.01
1	9AB	90.8	42.26	147.7	69.70	4	369.	.02100	2.75	.00	0.	98	0	A14	.00
1	10A	6.4	4.08	154.1	72.90	4	164.	.02100	2.75	.00	0.	98	17	A14	.10
1	11C	~~426.8~~ .0	~~447.4~~ .00	~~426.8~~ .0	~~447.4~~ .00	2	286.	.00400	.00	.00	0.	20	99	A14	.00
1	12C	5.3	1.51	5.3	1.51	0	0.	.00000	.00	.00	0.	20	25	A14	.10
1	13D	.7	.61	.7	.61	5	39.	.01200	.20	1.50	0.	20	8	A14	.50
1	14D	1.8	1.77	2.5	2.37	5	126.	.00500	.20	1.50	0.	20	11	A14	.91
1	15D	.2	.26	2.7	2.59	0	0.	.00000	.00	.00	0.	20	6	A14	.91
1	16CD	2.7	2.59	8.0	4.09	5	594.	.00500	.20	1.50	0.	20	0	A14	.00
1	17C	3.8	1.08	11.8	4.93	0	0.	.00000	.00	.00	0.	20	25	A14	.10
1	18C	.8	.68	12.6	5.57	5	420.	.00500	2.00	.00	0.	20	15	A14	.91
1	19C	.0	.00	12.6	5.50	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	20AC	12.6	5.50	166.7	78.27	5	87.	.00500	5.00	.00	0.	20	0	A14	.00
1	21E	1.4	1.58	1.4	1.58	4	32.	.00200	2.00	.00	0.	20	8	A14	.91
1	22E	1.6	1.73	3.0	3.30	4	81.	.00200	2.00	.00	0.	20	9	A14	.91
1	23E	.5	.52	3.5	3.79	4	30.	.00200	2.00	.00	0.	20	10	A14	.91
1	24E	1.0	1.13	4.5	4.91	0	0.	.00000	.00	.00	0.	20	8	A14	.91
1	25E	.8	.96	5.3	5.86	4	364.	.00200	2.00	.00	0.	20	7	A14	.91
1	26E	2.5	2.58	7.8	8.02	4	41.	.00200	2.00	.00	0.	20	10	A14	.91
1	27AE	7.8	7.98	174.5	82.95	5	308.	.00500	5.00	.00	0.	20	0	A14	.00
1	28A	.0	.00	174.5	82.82	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	29A	.0	.00	174.5	82.82	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	30F	.4	.41	.4	.41	4	193.	.01000	2.00	.00	0.	20	10	A14	.91
1	31F	1.9	2.05	2.3	2.41	4	546.	.01000	2.00	.00	0.	20	9	A14	.91
1	32F	.6	.78	2.9	2.86	4	189.	.01000	2.00	.00	0.	20	6	A14	.91
1	33F	1.7	1.92	4.6	4.66	4	47.	.01000	2.00	.00	0.	20	8	A14	.91
1	34AF	4.6	4.65	179.1	85.37	5	43.	.00600	5.00	.00	0.	20	0	A14	.00
1	35B	.9	1.09	.9	1.09	4	190.	.01000	2.00	.00	0.	20	7	A14	.91
1	36B	1.0	1.13	1.9	2.20	4	176.	.01000	2.00	.00	0.	20	8	A14	.91
1	37B	1.0	1.13	2.9	3.28	4	169.	.01000	2.00	.00	0.	20	8	A14	.91
1	38B	1.0	1.13	3.9	4.35	4	228.	.01000	2.00	.00	0.	20	8	A14	.91
1	39C	1.7	1.92	1.7	1.92	4	42.	.01000	2.00	.00	0.	20	8	A14	.91
1	40C	2.1	1.59	3.8	3.49	4	21.	.01000	2.00	.00	0.	20	19	A14	.91
1	41BC	3.8	3.49	7.7	7.73	4	16.	.01000	2.00	.00	0.	20	0	A14	.00
1	42AB	7.7	7.73	186.8	89.64	5	297.	.00600	5.00	.00	0.	20	0	A14	.00
1	43A	.0	.00	186.8	89.51	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	44A	.8	.58	187.6	90.05	5	234.	.00600	5.00	.00	0.	20	21	A14	.91

$\Sigma Q_{2B} = 90.0 + 447.4 = 537.4$ cfs

$\Sigma A = 187.6 + 426.8 = 614.4$ ac

Program Package Serial Number: 2083

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 2-YR BURNED, BASIN HYD.

HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	1.56	200	1.62	300	1.72	400	1.81
500	1.94	600	2.09	700	2.29	800	2.54	900	2.91
1000	3.53	1050	4.32	1100	5.55	1110	5.99	1120	7.95
1130	12.18	1131	12.68	1132	13.20	1133	13.74	1134	14.30
1135	14.94	1136	15.52	1137	16.17	1138	16.85	1139	17.55
1140	18.34	1141	19.14	1142	20.03	1143	20.98	1144	21.93
1145	23.16	1146	24.38	1147	25.69	1148	27.15	1149	29.64
1150	32.55	1151	35.93	1152	39.89	1153	44.54	1154	48.74
1155	53.12	1156	57.20	1157	60.76	1158	63.73	1159	66.02
1160	67.69	1161	68.77	1162	69.42	1163	69.70	1164	69.48
1165	68.86	1166	68.16	1167	67.13	1168	65.99	1169	64.86
1170	63.51	1171	62.01	1172	60.17	1173	58.02	1174	55.44
1175	52.48	1176	49.46	1177	46.41	1178	43.46	1179	39.86
1180	36.38	1181	32.87	1182	29.26	1183	25.59	1184	22.73
1185	20.05	1186	17.62	1187	15.53	1188	13.69	1189	12.13
1190	10.83	1191	9.77	1192	8.88	1193	8.11	1194	7.50
1195	7.01	1196	6.61	1197	6.26	1198	5.98	1199	5.72
1200	5.52	1201	5.33	1202	5.17	1203	5.04	1204	4.91
1205	4.79	1206	4.69	1207	4.60	1208	4.50	1209	4.41
1210	4.35	1211	4.28	1212	4.21	1213	4.15	1214	4.09
1215	4.03	1216	3.99	1217	3.93	1218	3.88	1219	3.84
1220	3.80	1221	3.76	1222	3.71	1223	3.68	1224	3.64
1225	3.61	1226	3.57	1227	3.53	1228	3.49	1229	3.47
1230	3.43	1231	3.41	1232	3.38	1233	3.35	1234	3.32
1235	3.30	1236	3.25	1237	3.23	1238	3.21	1239	3.19
1240	3.16	1241	3.14	1242	3.11	1243	3.10	1244	3.08
1245	3.06	1246	3.03	1247	3.01	1248	2.99	1249	2.96
1250	2.94	1251	2.93	1252	2.91	1253	2.89	1254	2.87
1255	2.86	1256	2.83	1257	2.83	1258	2.81	1259	2.78
1260	2.77	1261	2.76	1262	2.74	1263	2.73	1264	2.70
1265	2.69	1266	2.69	1267	2.67	1268	2.66	1269	2.64
1270	2.62	1271	2.62	1272	2.60	1273	2.59	1274	2.57
1275	2.56	1276	2.55	1277	2.54	1278	2.52	1279	2.51
1280	2.50	1281	2.49	1282	2.47	1283	2.47	1284	2.45
1285	2.45	1286	2.43	1287	2.43	1288	2.41	1289	2.41
1290	2.39	1291	2.39	1292	2.38	1293	2.37	1294	2.36
1295	2.34	1296	2.34	1297	2.33	1298	2.32	1299	2.31
1300	2.31	1310	2.22	1320	2.15	1330	2.07	1340	2.02
1350	1.96	1360	1.89	1370	1.83	1380	1.81	1390	1.77
1400	1.72	1420	1.66	1440	1.60	1460	1.29	1500	1.20

TOTAL VOLUME THIS HYDROGRAPH = 7.92(Ac.Ft)

Program Package Serial Number: 2083
03/17/09 FILE: 2yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 2-YR BURNED, OUTLET HYD.
HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	1.91	200	2.20	300	2.68	400	2.99
500	3.26	600	3.57	700	3.95	800	4.44	900	5.03
1000	6.56	1050	7.96	1100	10.20	1110	11.18	1120	13.42
1130	17.91	1131	18.48	1132	19.04	1133	19.63	1134	20.25
1135	20.91	1136	21.63	1137	22.43	1138	23.26	1139	24.14
1140	25.06	1141	26.01	1142	27.02	1143	28.09	1144	29.24
1145	30.48	1146	31.84	1147	33.37	1148	35.13	1149	37.16
1150	39.70	1151	42.94	1152	47.05	1153	52.06	1154	57.76
1155	63.79	1156	69.77	1157	75.32	1158	80.12	1159	84.01
1160	86.94	1161	88.87	1162	89.85	1163	90.05	1164	89.68
1165	88.86	1166	87.74	1167	86.38	1168	84.68	1169	82.67
1170	80.45	1171	78.16	1172	75.85	1173	73.58	1174	71.33
1175	69.01	1176	66.47	1177	63.64	1178	60.55	1179	57.32
1180	54.01	1181	50.62	1182	47.14	1183	43.59	1184	40.01
1185	36.51	1186	33.24	1187	30.39	1188	27.64	1189	25.06
1190	22.76	1191	20.80	1192	19.09	1193	17.50	1194	16.09
1195	14.86	1196	13.81	1197	12.93	1198	12.20	1199	11.57
1200	11.05	1201	10.60	1202	10.18	1203	9.81	1204	9.48
1205	9.20	1206	8.95	1207	8.73	1208	8.54	1209	8.36
1210	8.20	1211	8.05	1212	7.92	1213	7.79	1214	7.68
1215	7.56	1216	7.45	1217	7.35	1218	7.26	1219	7.16
1220	7.07	1221	7.00	1222	6.93	1223	6.86	1224	6.80
1225	6.74	1226	6.68	1227	6.62	1228	6.56	1229	6.49
1230	6.42	1231	6.36	1232	6.30	1233	6.24	1234	6.19
1235	6.14	1236	6.09	1237	6.05	1238	6.01	1239	5.95
1240	5.89	1241	5.83	1242	5.77	1243	5.72	1244	5.66
1245	5.62	1246	5.59	1247	5.55	1248	5.51	1249	5.46
1250	5.40	1251	5.35	1252	5.31	1253	5.27	1254	5.23
1255	5.19	1256	5.15	1257	5.10	1258	5.05	1259	5.00
1260	4.97	1261	4.94	1262	4.91	1263	4.89	1264	4.86
1265	4.83	1266	4.80	1267	4.78	1268	4.72	1269	4.65
1270	4.61	1271	4.59	1272	4.56	1273	4.55	1274	4.53
1275	4.51	1276	4.48	1277	4.46	1278	4.44	1279	4.42
1280	4.40	1281	4.38	1282	4.36	1283	4.34	1284	4.32
1285	4.31	1286	4.28	1287	4.26	1288	4.25	1289	4.23
1290	4.21	1291	4.20	1292	4.18	1293	4.17	1294	4.15
1295	4.14	1296	4.12	1297	4.10	1298	4.09	1299	4.07
1300	4.06	1310	3.90	1320	3.77	1330	3.63	1340	3.48
1350	3.36	1360	3.18	1370	3.12	1380	3.10	1390	2.97
1400	2.76	1420	2.44	1440	2.27	1460	2.01	1500	1.96

TOTAL VOLUME THIS HYDROGRAPH = 12.29(Ac.Ft)

TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita
Existing Condition, 50-yr Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	50	98	1481	0.091	7.2	9	3.26	0.85	0.85	41.29
62646	2A	29.7	0.01	50	98	2680	0.085	7.3	12	2.89	0.84	0.84	72.1
62646	3A	8.8	0.01	50	98	1596	0.102	7.3	9	3.3	0.85	0.85	24.68
62646	4A	4.1	0.01	50	98	1187	0.095	7.4	7	3.77	0.86	0.86	13.29
62646	5B	22.5	0.01	50	98	2459	0.087	7.1	12	2.81	0.83	0.83	52.48
62646	6B	18.8	0.01	50	98	2157	0.1	7.2	11	2.97	0.84	0.84	46.9
62646	7B	19	0.01	50	98	1932	0.101	7.3	10	3.14	0.85	0.85	50.71
62646	8B	30.5	0.01	50	98	3462	0.069	7.3	15	2.6	0.83	0.83	65.82
62646	10A	7	0.1	50	98	938	0.014	7.4	9	3.35	0.85	0.86	20.17
62646	11A	14.5	0.15	50	20	1639	0.005	7.4	19	2.36	0.55	0.6	20.53
62646	13C	17	0.1	50	20	1414	0.012	7.4	15	2.63	0.57	0.6	26.83
62647	14C	1	0.1	50	20	527	0.002	7.4	10	3.19	0.62	0.65	2.07

```
6     0    1A 298  114.9 9A362 1362 05700                        G1
6     0    2A 298  129.712A36
6     0    3A 298  1 8.8 9A362 1017 02500
6     0    4A 298  1 4.1 7A37
6     0    5B 298  122.512A36
6     0    6B 298  118.811A362  860 03500
6     0    7B 298  119.010A362  422 01900
6     0    8B 298  130.515A36
6     0    9AB 98         A362  471 01100
6     0   10A  98 10 7.0 9A37
6     0   11A  20 1514.519A37
6     0   12C  20       99A372  900 00200
6     0   13C  20 1017.015A372  527 00200
6     0   14C  20 10 1.010A37
6     0   15AC 20         A37                              2  2
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Program Package Serial Number: 2083
03/17/09 FILE: 50yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, EXIST. COND., 50-YR BURNED STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
0	1A	14.9	42.03	14.9	42.03	2	1362.	.05700	.00	.00	0.	298	9	A36	.01
0	2A	29.7	72.27	44.6	108.99	0	0.	.00000	.00	.00	0.	298	12	A36	.01
0	3A	8.8	24.82	53.4	132.76	2	1017.	.02500	.00	.00	0.	298	9	A36	.01
0	4A	4.1	13.43	57.5	135.78	0	0.	.00000	.00	.00	0.	298	7	A37	.01
0	5B	22.5	54.75	22.5	54.75	0	0.	.00000	.00	.00	0.	298	12	A36	.01
0	6B	18.8	47.99	41.3	102.74	2	860.	.03500	.00	.00	0.	298	11	A36	.01
0	7B	19.0	51.12	60.3	149.41	2	422.	.01900	.00	.00	0.	298	10	A36	.01
0	8B	30.5	66.55	90.8	213.20	0	0.	.00000	.00	.00	0.	298	15	A36	.01
0	9AB	90.8	213.20	148.3	348.92	2	471.	.01100	.00	.00	0.	98	0	A36	.00
0	10A	7.0	19.95	155.3	359.92	0	0.	.00000	.00	.00	0.	98	9	A37	.10
0	11A	14.5	20.79	169.8	380.23	0	0.	.00000	.00	.00	0.	20	19	A37	.15
0	12C	4268 ~~.0~~	913.0 ~~.00~~	426.8+ .0	913.0+ .00	2	900.	.00200	.00	.00	0.	20	99	A37	.00
0	13C	17.0	27.50	" 17.0	" 27.50	2	527.	.00200	.00	.00	0.	20	15	A37	.10
0	14C	1.0	2.06	" 18.0	" 24.48	0	0.	.00000	.00	.00	0.	20	10	A37	.10
0	15AC	18.0	24.48	" 187.8	" 401.04	0	0.	.00000	.00	.00	0.	20	0	A37	.00

$\Sigma Q_{50B} = 401.0 + 913.0 = 1314.0$ cfs

$\Sigma A_{bb} = 148.3$ ac

$\Sigma Q_{50BB} = 495.9 + 913.0 = 1408.9$ cfs

$\Sigma A = 187.8 + 426.8 = 614.6$ ac

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, EXIST. COND., 50-YR BURNED, OUTLET HYD.
HYDROGRAPH AT 0 15A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	5.46	200	5.67	300	5.97	400	6.29
500	6.72	600	7.22	700	7.86	800	9.69	900	14.53
1000	23.20	1050	34.02	1100	52.61	1110	63.01	1120	79.51
1130	98.18	1131	100.11	1132	102.04	1133	104.29	1134	106.57
1135	109.00	1136	111.55	1137	114.42	1138	117.40	1139	120.48
1140	123.67	1141	127.43	1142	131.44	1143	136.11	1144	141.18
1145	147.29	1146	153.92	1147	161.50	1148	169.78	1149	182.07
1150	197.27	1151	217.00	1152	241.43	1153	271.42	1154	302.40
1155	334.17	1156	362.51	1157	384.60	1158	396.72	1159	401.04
1160	398.42	1161	389.09	1162	374.31	1163	357.38	1164	336.02
1165	309.51	1166	279.80	1167	250.28	1168	220.36	1169	191.83
1170	167.44	1171	147.70	1172	131.53	1173	119.03	1174	108.77
1175	100.21	1176	92.79	1177	86.40	1178	81.13	1179	76.34
1180	72.14	1181	68.39	1182	65.12	1183	62.10	1184	59.36
1185	56.83	1186	54.60	1187	52.56	1188	50.71	1189	48.92
1190	47.24	1191	45.66	1192	44.17	1193	42.75	1194	41.39
1195	40.12	1196	38.98	1197	37.82	1198	36.82	1199	35.84
1200	35.00	1201	34.20	1202	33.41	1203	32.68	1204	31.95
1205	31.20	1206	30.54	1207	29.83	1208	29.19	1209	28.54
1210	27.95	1211	27.38	1212	26.75	1213	26.23	1214	25.72
1215	25.18	1216	24.71	1217	24.17	1218	23.75	1219	23.28
1220	22.92	1221	22.54	1222	22.11	1223	21.73	1224	21.33
1225	20.92	1226	20.57	1227	20.18	1228	19.82	1229	19.50
1230	19.16	1231	18.86	1232	18.53	1233	18.20	1234	17.90
1235	17.53	1236	17.25	1237	16.95	1238	16.62	1239	16.31
1240	16.04	1241	15.71	1242	15.43	1243	15.17	1244	14.90
1245	14.67	1246	14.45	1247	14.19	1248	14.00	1249	13.77
1250	13.60	1251	13.36	1252	13.16	1253	12.96	1254	12.80
1255	12.55	1256	12.39	1257	12.17	1258	11.98	1259	11.81
1260	11.65	1261	11.43	1262	11.30	1263	11.08	1264	10.90
1265	10.71	1266	10.60	1267	10.43	1268	10.23	1269	10.06
1270	9.91	1271	9.73	1272	9.62	1273	9.48	1274	9.36
1275	9.21	1276	9.10	1277	8.99	1278	8.89	1279	8.80
1280	8.71	1281	8.62	1282	8.55	1283	8.49	1284	8.43
1285	8.38	1286	8.33	1287	8.29	1288	8.24	1289	8.20
1290	8.17	1291	8.13	1292	8.10	1293	8.07	1294	8.02
1295	7.99	1296	7.96	1297	7.94	1298	7.91	1299	7.86
1300	7.83	1310	7.56	1320	7.29	1330	7.07	1340	6.90
1350	6.71	1360	6.55	1370	6.35	1380	6.19	1390	6.09
1400	5.97	1420	5.75	1440	5.55	1460	4.69	1500	4.69

TOTAL VOLUME THIS HYDROGRAPH = 37.90(Ac.Ft)

TC Calculator Results

Tentative Parcel Map 062646, City of Santa Clarita
Existing Condition, 2-yr Frequency

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)
62646	1A	14.9	0.01	2	98	1481	0.091	2.79	20	0.87	0.63	0.63	8.17
62646	2A	29.7	0.01	2	98	2680	0.085	2.83	30	0.73	0.58	0.58	12.57
62646	3A	8.8	0.01	2	98	1596	0.102	2.83	20	0.88	0.63	0.63	4.88
62646	4A	4.1	0.01	2	98	1187	0.095	2.86	16	0.99	0.67	0.67	2.72
62646	5B	22.5	0.01	2	98	2459	0.087	2.75	30	0.71	0.57	0.57	9.11
62646	6B	18.8	0.01	2	98	2157	0.1	2.79	26	0.77	0.6	0.6	8.69
62646	7B	19	0.01	2	98	1932	0.101	2.83	23	0.82	0.61	0.61	9.5
62646	8B	30.5	0.01	2	98	3462	0.069	2.83	30	0.73	0.58	0.58	12.91
62646	10A	7	0.1	2	98	938	0.014	2.86	20	0.89	0.64	0.67	4.17
62646	11A	14.5	0.15	2	20	1639	0.005	2.86	30	0.74	0.27	0.36	3.86
62646	13C	17	0.1	2	20	1414	0.012	2.86	30	0.74	0.27	0.33	4.15
62647	14C	1	0.1	2	20	527	0.002	2.86	30	0.74	0.27	0.33	0.24

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6     0    1A 298  114.920A142 1362 05700                    G1
6     0    2A 298  129.730A14
6     0    3A 298  1 8.820A142 1017 02500
6     0    4A 298  1 4.116A14
6     0    5B 298  122.530A14
6     0    6B 298  118.826A142  860 03500
6     0    7B 298  119.023A142  422 01900
6     0    8B 298  130.530A14
6     0    9AB 98         A142  471 01100
6     0   10A  98 10 7.020A14
6     0   11A  20 1514.530A14
6     0   12C  20       99A142  900 00200
6     0   13C  20 1017.030A142  527 00200
6     0   14C  20 10 1.030A14
6     0   15AC 20         A14                          2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 2yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, EXIST. COND., 2-YR BURNED STORM DAY 4

LOCATION		SUBAREA AREA(AC)	SUBAREA Q(CFS)	TOTAL AREA(AC)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
0	1A	14.9	8.76	14.9	8.76	2	1362.	.05700	.00	.00	0.	298	20	A14	.01
0	2A	29.7	13.29	44.6	21.37	0	0.	.00000	.00	.00	0.	298	30	A14	.01
0	3A	8.8	5.18	53.4	26.27	2	1017.	.02500	.00	.00	0.	298	20	A14	.01
0	4A	4.1	2.78	57.5	27.70	0	0.	.00000	.00	.00	0.	298	16	A14	.01
0	5B	22.5	10.07	22.5	10.07	0	0.	.00000	.00	.00	0.	298	30	A14	.01
0	6B	18.8	9.29	41.3	19.35	2	860.	.03500	.00	.00	0.	298	26	A14	.01
0	7B	19.0	10.19	60.3	28.96	2	422.	.01900	.00	.00	0.	298	23	A14	.01
0	8B	30.5	13.65	90.8	42.21	0	0.	.00000	.00	.00	0.	298	30	A14	.01
0	9AB	90.8	42.21	148.3	69.73	2	471.	.01100	.00	.00	0.	98	0	A14	.00
0	10A	7.0	4.03	155.3	72.61	0	0.	.00000	.00	.00	0.	98	20	A14	.10
0	11A	14.5	3.94	169.8	76.32	0	0.	.00000	.00	.00	0.	20	30	A14	.15
0	12C	~~426.8~~ .0	~~447.4~~ .00	~~426.8~~ + .0	~~447.4~~ + .00	2	900.	.00200	.00	.00	0.	20	99	A14	.00
0	13C	17.0	4.24	" 17.0	" 4.24	2	527.	.00200	.00	.00	0.	20	30	A14	.10
0	14C	1.0	.25	" 18.0	" 3.94	0	0.	.00000	.00	.00	0.	20	30	A14	.10
0	15AC	18.0	3.94	" 187.8	" 79.73	0	0.	.00000	.00	.00	0.	20	0	A14	.00

$\Sigma Q_{23} = 79.7 + 447.4 = 527.1$ cfs

$\Sigma A = 187.8 + 426.8 = 614.6$ ac

Program Package Serial Number: 2083

03/17/09 FILE: 2yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 2

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:

TPM 62646, EXIST. COND., 2-YR BURNED, OUTLET HYD.

HYDROGRAPH AT 0 15A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	2.05	200	2.13	300	2.26	400	2.37
500	2.53	600	2.73	700	2.98	800	3.30	900	3.78
1000	4.57	1050	5.53	1100	7.09	1110	7.58	1120	9.19
1130	12.93	1131	13.44	1132	13.94	1133	14.46	1134	15.01
1135	15.64	1136	16.25	1137	16.94	1138	17.64	1139	18.37
1140	19.16	1141	19.96	1142	20.83	1143	21.75	1144	22.70
1145	23.82	1146	24.98	1147	26.25	1148	27.67	1149	29.66
1150	31.96	1151	34.69	1152	37.96	1153	41.77	1154	45.60
1155	49.82	1156	54.23	1157	58.71	1158	63.15	1159	67.28
1160	70.91	1161	73.89	1162	76.19	1163	77.86	1164	79.00
1165	79.56	1166	79.73	1167	79.42	1168	78.75	1169	77.55
1170	76.08	1171	74.47	1172	72.72	1173	70.84	1174	68.97
1175	66.82	1176	64.34	1177	61.58	1178	58.65	1179	55.41
1180	52.12	1181	48.65	1182	45.08	1183	41.49	1184	38.10
1185	34.78	1186	31.67	1187	28.82	1188	26.19	1189	23.77
1190	21.55	1191	19.55	1192	17.76	1193	16.16	1194	14.79
1195	13.62	1196	12.58	1197	11.65	1198	10.86	1199	10.16
1200	9.57	1201	9.08	1202	8.64	1203	8.26	1204	7.92
1205	7.62	1206	7.37	1207	7.14	1208	6.92	1209	6.73
1210	6.57	1211	6.41	1212	6.26	1213	6.12	1214	6.00
1215	5.88	1216	5.78	1217	5.67	1218	5.58	1219	5.50
1220	5.42	1221	5.34	1222	5.27	1223	5.20	1224	5.13
1225	5.07	1226	5.01	1227	4.94	1228	4.89	1229	4.84
1230	4.78	1231	4.73	1232	4.68	1233	4.63	1234	4.59
1235	4.56	1236	4.50	1237	4.47	1238	4.43	1239	4.39
1240	4.34	1241	4.31	1242	4.27	1243	4.24	1244	4.21
1245	4.18	1246	4.14	1247	4.11	1248	4.09	1249	4.05
1250	4.02	1251	3.99	1252	3.96	1253	3.93	1254	3.90
1255	3.88	1256	3.85	1257	3.83	1258	3.81	1259	3.78
1260	3.76	1261	3.74	1262	3.71	1263	3.69	1264	3.66
1265	3.64	1266	3.64	1267	3.61	1268	3.59	1269	3.56
1270	3.55	1271	3.53	1272	3.51	1273	3.50	1274	3.47
1275	3.45	1276	3.44	1277	3.42	1278	3.40	1279	3.39
1280	3.37	1281	3.35	1282	3.33	1283	3.32	1284	3.30
1285	3.29	1286	3.27	1287	3.26	1288	3.24	1289	3.24
1290	3.21	1291	3.20	1292	3.19	1293	3.18	1294	3.17
1295	3.14	1296	3.14	1297	3.12	1298	3.11	1299	3.10
1300	3.09	1310	2.97	1320	2.87	1330	2.77	1340	2.70
1350	2.61	1360	2.53	1370	2.45	1380	2.40	1390	2.35
1400	2.30	1420	2.21	1440	2.13	1460	1.83	1500	1.76

TOTAL VOLUME THIS HYDROGRAPH = 9.95(AC.FT)

```
6     1    1A  98        99A36                                    G1
6     1    2A  98        99A36
6     1    3A  98        99A36
6     1    4A  98        99A36
6     1    5B  98        99A36
6     1    6B  98        99A36
6     1    7B  98        99A36
6     1    8B  98        99A36
6     1    9A  98        00A364  369 02100                  2   A
6     1   10A  98 10 6.4 8A374  164 02100
6     1   11C  20        99A372  286 00400
6     1   12C  20 10 5.3 8A38
6     1   13D  20 50 0.7 5A385   39 01200150  20
6     1   14D  20 91 1.8 6A385  126 00500150  20
6     1   15D  20 91 0.2 5A38
6     1   16CD 20          A385  594 00500150  20
6     1   17C  20 10 3.8 8A37
6     1   18C  20 91 0.8 8A375  420 00500
6     1   19C  20        99A37
6     1   20AC 20          A375   87 00500
6     1   21E  20 91 1.4 5A374   32 00200
6     1   22E  20 91 1.6 5A374   81 00200
6     1   23E  20 91 0.5 5A374   30 00200
6     1   24E  20 91 1.0 5A37
6     1   25E  20 91 0.8 5A374  364 00200
6     1   26E  20 91 2.5 5A374   41 00200
6     1   27AE 20          A375  308 00500
6     1   28A  20        99A37
6     1   29A  20        99A37
6     1   30F  20 91 0.4 5A384  193 01000
6     1   31F  20 91 1.9 5A384  546 01000
6     1   32F  20 91 0.6 5A374  189 01000
6     1   33F  20 91 1.7 5A374   47 01000
6     1   34AF 20          A375   43 00600
6     1   35B  20 91 0.9 5A384  190 01000
6     1   36B  20 91 1.0 5A374  176 01000
6     1   37B  20 91 1.0 5A374  169 01000
6     1   38B  20 91 1.0 5A374  228 01000
6     1   39C  20 91 1.7 5A364   42 01000
6     1   40C  20 91 2.110A374   21 01000
6     1   41BC 20          A374   16 01000
6     1   42AB 20          A375  297 00600
6     1   43A  20        99A37
6     1   44A  20 91 0.811A375  234 00600                  2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 50yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, PROP. COND., 50-YR BURNED, POST DETENTION

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
1	1A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	2A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	3A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	4A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	5B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	6B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	7B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	8B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A36	.00
1	9A	147.7	258.00	147.7	258.00	4	369.	.02100	4.25	.00	0.	98	0	A36	.00
1	10A	6.4	19.24	154.1	261.50	4	164.	.02100	4.25	.00	0.	98	8	A37	.10
1	11C	~~426.8~~ .0	~~913.0~~ .00	~~426.8~~ .0	~~913.0~~ .00	2	286.	.00400	.00	.00	0.	20	99	A37	.00
1	12C	5.3	12.74	5.3	12.74	0	0.	.00000	.00	.00	0.	20	8	A38	.10
1	13D	.7	2.52	.7	2.52	5	39.	.01200	.20	1.50	0.	20	5	A38	.50
1	14D	1.8	6.52	2.5	8.98	5	126.	.00500	.20	1.50	0.	20	6	A38	.91
1	15D	.2	.80	2.7	9.56	0	0.	.00000	.00	.00	0.	20	5	A38	.91
1	16CD	2.7	9.56	8.0	22.27	5	594.	.00500	.20	1.50	0.	20	0	A38	.00
1	17C	3.8	8.82	11.8	29.74	0	0.	.00000	.00	.00	0.	20	8	A37	.10
1	18C	.8	2.45	12.6	32.09	5	420.	.00500	3.00	.00	0.	20	8	A37	.91
1	19C	.0	.00	12.6	31.36	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	20AC	12.6	31.36	166.7	274.73	5	87.	.00500	7.00	.00	0.	20	0	A37	.00
1	21E	1.4	5.44	1.4	5.44	4	32.	.00200	2.00	.00	0.	20	5	A37	.91
1	22E	1.6	6.22	3.0	11.50	4	81.	.00200	2.25	.00	0.	20	5	A37	.91
1	23E	.5	1.94	3.5	12.76	4	30.	.00200	2.25	.00	0.	20	5	A37	.91
1	24E	1.0	3.89	4.5	16.24	0	0.	.00000	.00	.00	0.	20	5	A37	.91
1	25E	.8	3.11	5.3	19.35	4	364.	.00200	2.50	.00	0.	20	5	A37	.91
1	26E	2.5	9.72	7.8	24.79	4	41.	.00200	2.75	.00	0.	20	5	A37	.91
1	27AE	7.8	24.69	174.5	283.97	5	308.	.00500	8.00	.00	0.	20	0	A37	.00
1	28A	.0	.00	174.5	283.70	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	29A	.0	.00	174.5	283.70	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	30F	.4	1.60	.4	1.60	4	193.	.01000	2.00	.00	0.	20	5	A38	.91
1	31F	1.9	7.59	2.3	8.98	4	546.	.01000	2.00	.00	0.	20	5	A38	.91
1	32F	.6	2.33	2.9	10.11	4	189.	.01000	2.00	.00	0.	20	5	A37	.91
1	33F	1.7	6.61	4.6	15.15	4	47.	.01000	2.00	.00	0.	20	5	A37	.91
1	34AF	4.6	15.12	179.1	289.48	5	43.	.00600	7.00	.00	0.	20	0	A37	.00
1	35B	.9	3.60	.9	3.60	4	190.	.01000	2.00	.00	0.	20	5	A38	.91
1	36B	1.0	3.89	1.9	7.12	4	176.	.01000	2.00	.00	0.	20	5	A37	.91
1	37B	1.0	3.89	2.9	10.41	4	169.	.01000	2.00	.00	0.	20	5	A37	.91
1	38B	1.0	3.89	3.9	13.79	4	228.	.01000	2.00	.00	0.	20	5	A37	.91
1	39C	1.7	6.43	1.7	6.43	4	42.	.01000	2.00	.00	0.	20	5	A36	.91
1	40C	2.1	5.85	3.8	12.07	4	21.	.01000	2.00	.00	0.	20	10	A37	.91
1	41BC	3.8	11.97	7.7	25.19	4	16.	.01000	2.25	.00	0.	20	0	A37	.00
1	42AB	7.7	25.16	186.8	300.04	5	297.	.00600	7.00	.00	0.	20	0	A37	.00
1	43A	.0	.00	186.8	299.62	0	0.	.00000	.00	.00	0.	20	99	A37	.00
1	44A	.8	2.12	187.6	301.15	5	234.	.00600	7.00	.00	0.	20	11	A37	.91

$\Sigma Q_{50B} = 301.2 + 913.0 = 1214.2$ cfs

$\Sigma A = 187.6 + 426.8 = 614.4$ ac

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 50-YR BURNED, POST DETENTION, BASIN HYD.
HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	4.00	200	4.00	300	5.00	400	5.00
500	5.00	600	6.00	700	6.00	800	8.00	900	12.00
1000	20.00	1050	29.00	1100	45.00	1110	51.00	1120	58.00
1130	68.00	1131	69.00	1132	71.00	1133	72.00	1134	73.00
1135	75.00	1136	76.00	1137	78.00	1138	79.00	1139	81.00
1140	83.00	1141	84.00	1142	87.00	1143	89.00	1144	92.00
1145	96.00	1146	100.00	1147	105.00	1148	110.00	1149	115.00
1150	122.00	1151	131.00	1152	141.00	1153	153.00	1154	167.00
1155	182.00	1156	197.00	1157	212.00	1158	225.00	1159	236.00
1160	246.00	1161	252.00	1162	257.00	1163	258.00	1164	257.00
1165	252.00	1166	246.00	1167	237.00	1168	226.00	1169	215.00
1170	204.00	1171	193.00	1172	182.00	1173	172.00	1174	163.00
1175	154.00	1176	145.00	1177	137.00	1178	129.00	1179	122.00
1180	116.00	1181	109.00	1182	103.00	1183	98.00	1184	93.00
1185	89.00	1186	86.00	1187	83.00	1188	80.00	1189	78.00
1190	75.00	1191	73.00	1192	70.00	1193	68.00	1194	66.00
1195	64.00	1196	62.00	1197	60.00	1198	58.00	1199	56.00
1200	54.00	1201	53.00	1202	51.00	1203	17.00	1204	32.00
1205	16.00	1206	29.00	1207	17.00	1208	29.00	1209	16.00
1210	28.00	1211	14.00	1212	27.00	1213	13.00	1214	26.00
1215	12.00	1216	26.00	1217	13.00	1218	23.00	1219	13.00
1220	22.00	1221	12.00	1222	22.00	1223	12.00	1224	19.00
1225	13.00	1226	19.00	1227	13.00	1228	17.00	1229	13.00
1230	17.00	1231	12.00	1232	16.00	1233	12.00	1234	16.00
1235	10.00	1236	16.00	1237	10.00	1238	15.00	1239	9.00
1240	15.00	1241	9.00	1242	15.00	1243	9.00	1244	12.00
1245	10.00	1246	12.00	1247	10.00	1248	12.00	1249	8.00
1250	12.00	1251	8.00	1252	12.00	1253	8.00	1254	12.00
1255	7.00	1256	11.00	1257	7.00	1258	11.00	1259	7.00
1260	11.00	1261	5.00	1262	10.00	1263	6.00	1264	10.00
1265	6.00	1266	10.00	1267	6.00	1268	8.00	1269	6.00
1270	8.00	1271	6.00	1272	8.00	1273	6.00	1274	8.00
1275	6.00	1276	8.00	1277	7.00	1278	6.00	1279	6.00
1280	6.00	1281	6.00	1282	6.00	1283	6.00	1284	6.00
1285	6.00	1286	6.00	1287	6.00	1288	6.00	1289	6.00
1290	6.00	1291	6.00	1292	6.00	1293	6.00	1294	6.00
1295	6.00	1296	6.00	1297	6.00	1298	6.00	1299	6.00
1300	6.00	1310	6.00	1320	5.00	1330	5.00	1340	5.00
1350	5.00	1360	5.00	1370	5.00	1380	5.00	1390	5.00
1400	4.00	1420	4.00	1440	4.00	1460	3.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 30.83(Ac.Ft)

Program Package Serial Number: 2083
03/17/09 FILE: 50yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 3
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 50-YR BURNED, POST DETENTION, OUTLET HYD
HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	7.70	200	7.85	300	8.97	400	9.33
500	9.51	600	10.86	700	11.33	800	13.82	900	19.00
1000	28.68	1050	39.74	1100	59.32	1110	67.56	1120	77.99
1130	90.57	1131	92.10	1132	93.64	1133	95.33	1134	97.21
1135	99.25	1136	101.34	1137	103.52	1138	105.88	1139	108.38
1140	110.95	1141	113.68	1142	116.65	1143	119.82	1144	123.20
1145	127.09	1146	131.70	1147	137.26	1148	143.67	1149	151.68
1150	162.41	1151	176.21	1152	193.14	1153	213.31	1154	234.81
1155	254.62	1156	271.25	1157	284.61	1158	294.02	1159	299.23
1160	301.15	1161	301.07	1162	299.50	1163	297.03	1164	294.32
1165	291.55	1166	287.77	1167	282.19	1168	274.48	1169	264.72
1170	253.46	1171	241.43	1172	229.42	1173	217.46	1174	205.99
1175	195.03	1176	184.85	1177	175.23	1178	166.01	1179	157.27
1180	149.13	1181	141.61	1182	134.68	1183	128.19	1184	121.75
1185	115.74	1186	110.36	1187	105.63	1188	101.55	1189	98.02
1190	94.88	1191	92.00	1192	89.27	1193	86.60	1194	83.96
1195	81.41	1196	79.04	1197	76.81	1198	74.66	1199	72.53
1200	70.43	1201	68.35	1202	66.36	1203	64.14	1204	60.45
1205	54.44	1206	46.64	1207	39.65	1208	35.61	1209	33.40
1210	32.47	1211	32.06	1212	31.69	1213	31.17	1214	30.50
1215	29.79	1216	29.14	1217	28.59	1218	28.16	1219	27.80
1220	27.49	1221	27.09	1222	26.59	1223	26.08	1224	25.64
1225	25.25	1226	24.86	1227	24.42	1228	24.02	1229	23.74
1230	23.51	1231	23.22	1232	22.88	1233	22.56	1234	22.25
1235	21.92	1236	21.58	1237	21.25	1238	20.91	1239	20.53
1240	20.17	1241	19.85	1242	19.52	1243	19.21	1244	18.99
1245	18.86	1246	18.71	1247	18.46	1248	18.13	1249	17.84
1250	17.66	1251	17.52	1252	17.32	1253	17.04	1254	16.75
1255	16.55	1256	16.44	1257	16.34	1258	16.20	1259	15.97
1260	15.69	1261	15.44	1262	15.26	1263	15.10	1264	14.87
1265	14.52	1266	14.15	1267	13.90	1268	13.80	1269	13.77
1270	13.71	1271	13.56	1272	13.31	1273	13.03	1274	12.81
1275	12.69	1276	12.64	1277	12.61	1278	12.58	1279	12.56
1280	12.55	1281	12.50	1282	12.34	1283	12.06	1284	11.77
1285	11.56	1286	11.44	1287	11.39	1288	11.36	1289	11.33
1290	11.30	1291	11.27	1292	11.25	1293	11.22	1294	11.20
1295	11.18	1296	11.17	1297	11.16	1298	11.14	1299	11.13
1300	11.12	1310	11.01	1320	10.38	1330	9.69	1340	9.61
1350	9.43	1360	9.33	1370	9.28	1380	9.13	1390	9.09
1400	8.55	1420	7.82	1440	7.80	1460	7.59	1500	7.60

TOTAL VOLUME THIS HYDROGRAPH = 45.67(Ac.Ft)

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6     1    1A  98        99A14                                    G1
6     1    2A  98        99A14
6     1    3A  98        99A14
6     1    4A  98        99A14
6     1    5B  98        99A14
6     1    6B  98        99A14
6     1    7B  98        99A14
6     1    8B  98        99A14
6     1    9A  98          A144  369 02100                  2   A
6     1   10A  98 10 6.417A144  164 02100
6     1   11C  20       99A142  286 00400
6     1   12C  20 10 5.325A14
6     1   13D  20 50 0.7 8A145   39 01200150  20
6     1   14D  20 91 1.811A145  126 00500150  20
6     1   15D  20 91 0.2 6A14
6     1   16CD 20          A145  594 00500150  20
6     1   17C  20 10 3.825A14
6     1   18C  20 91 0.815A145  420 00500
6     1   19C  20       99A14
6     1   20AC 20          A145   87 00500
6     1   21E  20 91 1.4 8A144   32 00200
6     1   22E  20 91 1.6 9A144   81 00200
6     1   23E  20 91 0.510A144   30 00200
6     1   24E  20 91 1.0 8A14
6     1   25E  20 91 0.8 7A144  364 00200
6     1   26E  20 91 2.510A144   41 00200
6     1   27AE 20          A145  308 00500
6     1   28A  20       99A14
6     1   29A  20       99A14
6     1   30F  20 91 0.410A144  193 01000
6     1   31F  20 91 1.9 9A144  546 01000
6     1   32F  20 91 0.6 6A144  189 01000
6     1   33F  20 91 1.7 8A144   47 01000
6     1   34AF 20          A145   43 00600
6     1   35B  20 91 0.9 7A144  190 01000
6     1   36B  20 91 1.0 8A144  176 01000
6     1   37B  20 91 1.0 8A144  169 01000
6     1   38B  20 91 1.0 8A144  228 01000
6     1   39C  20 91 1.7 8A144   42 01000
6     1   40C  20 91 2.119A144   21 01000
6     1   41BC 20          A144   16 01000
6     1   42AB 20          A145  297 00600
6     1   43A  20       99A14
6     1   44A  20 91 0.821A145  234 00600                  2  2
```

Program Package Serial Number: 2083
03/17/09 FILE: 2yr INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild_MORA\scr_soilx_34.dat

TPM 62646, PROP. COND., 2-YR BURNED, POST DETENTION

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM RAIN ZONE	DAY 4 PCT IMPV
1	1A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	2A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	3A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	4A	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	5B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	6B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	7B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	8B	.0	.00	.0	.00	0	0.	.00000	.00	.00	0.	98	99	A14	.00
1	9A	147.7	60.00	147.7	60.00	4	369.	.02100	2.50	.00	0.	98	0	A14	.00
1	10A	6.4	4.08	154.1	61.06	4	164.	.02100	2.50	.00	0.	98	17	A14	.10
1	11C	~~426.8~~ .0	~~447.4~~ .00	~~426.8~~ .0	~~447.4~~ .00	2	286.	.00400	.00	.00	0.	20	99	A14	.00
1	12C	5.3	1.51	" 5.3	" 1.51	0	0.	.00000	.00	.00	0.	20	25	A14	.10
1	13D	.7	.61	.7	.61	5	39.	.01200	.20	1.50	0.	20	8	A14	.50
1	14D	1.8	1.77	2.5	2.37	5	126.	.00500	.20	1.50	0.	20	11	A14	.91
1	15D	.2	.26	2.7	2.59	0	0.	.00000	.00	.00	0.	20	6	A14	.91
1	16CD	2.7	2.59	" 8.0	" 4.09	5	594.	.00500	.20	1.50	0.	20	0	A14	.00
1	17C	3.8	1.08	" 11.8	" 4.93	0	0.	.00000	.00	.00	0.	20	25	A14	.10
1	18C	.8	.68	" 12.6	" 5.57	5	420.	.00500	2.00	.00	0.	20	15	A14	.91
1	19C	.0	.00	" 12.6	" 5.50	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	20AC	12.6	5.50	" 166.7	" 65.68	5	87.	.00500	5.00	.00	0.	20	0	A14	.00
1	21E	1.4	1.58	1.4	1.58	4	32.	.00200	2.00	.00	0.	20	8	A14	.91
1	22E	1.6	1.73	3.0	3.30	4	81.	.00200	2.00	.00	0.	20	9	A14	.91
1	23E	.5	.52	3.5	3.79	4	30.	.00200	2.00	.00	0.	20	10	A14	.91
1	24E	1.0	1.13	4.5	4.91	0	0.	.00000	.00	.00	0.	20	8	A14	.91
1	25E	.8	.96	5.3	5.86	4	364.	.00200	2.00	.00	0.	20	7	A14	.91
1	26E	2.5	2.58	7.8	8.02	4	41.	.00200	2.00	.00	0.	20	10	A14	.91
1	27AE	7.8	7.98	" 174.5	" 69.21	5	308.	.00500	5.00	.00	0.	20	0	A14	.00
1	28A	.0	.00	" 174.5	" 69.17	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	29A	.0	.00	" 174.5	" 69.17	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	30F	.4	.41	.4	.41	4	193.	.01000	2.00	.00	0.	20	10	A14	.91
1	31F	1.9	2.05	2.3	2.41	4	546.	.01000	2.00	.00	0.	20	9	A14	.91
1	32F	.6	.78	2.9	2.86	4	189.	.01000	2.00	.00	0.	20	6	A14	.91
1	33F	1.7	1.92	4.6	4.66	4	47.	.01000	2.00	.00	0.	20	8	A14	.91
1	34AF	4.6	4.65	" 179.1	" 72.18	5	43.	.00600	5.00	.00	0.	20	0	A14	.00
1	35B	.9	1.09	.9	1.09	4	190.	.01000	2.00	.00	0.	20	7	A14	.91
1	36B	1.0	1.13	1.9	2.20	4	176.	.01000	2.00	.00	0.	20	8	A14	.91
1	37B	1.0	1.13	2.9	3.28	4	169.	.01000	2.00	.00	0.	20	8	A14	.91
1	38B	1.0	1.13	3.9	4.35	4	228.	.01000	2.00	.00	0.	20	8	A14	.91
1	39C	1.7	1.92	1.7	1.92	4	42.	.01000	2.00	.00	0.	20	8	A14	.91
1	40C	2.1	1.59	3.8	3.49	4	21.	.01000	2.00	.00	0.	20	19	A14	.91
1	41BC	3.8	3.49	7.7	7.73	4	16.	.01000	2.00	.00	0.	20	0	A14	.00
1	42AB	7.7	7.73	" 186.8	" 78.59	5	297.	.00600	5.00	.00	0.	20	0	A14	.00
1	43A	.0	.00	" 186.8	" 78.41	0	0.	.00000	.00	.00	0.	20	99	A14	.00
1	44A	.8	.58	" 187.6	" 78.97	5	234.	.00600	5.00	.00	0.	20	21	A14	.91

$\Sigma Q_{2B} = 79.0 + 447.4 = 526.4$ cfs

$\Sigma A = 187.6 + 426.8 = 614.4$ ac

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 2-YR BURNED, POST DETENTION, BASIN HYD.
HYDROGRAPH AT 1 9A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	2.00	200	2.00	300	2.00	400	2.00
500	2.00	600	2.00	700	2.00	800	3.00	900	3.00
1000	4.00	1050	4.00	1100	6.00	1110	6.00	1120	8.00
1130	12.00	1131	14.00	1132	12.00	1133	16.00	1134	12.00
1135	17.00	1136	15.00	1137	17.00	1138	17.00	1139	19.00
1140	17.00	1141	21.00	1142	19.00	1143	23.00	1144	21.00
1145	25.00	1146	23.00	1147	29.00	1148	26.00	1149	34.00
1150	32.00	1151	40.00	1152	40.00	1153	50.00	1154	48.00
1155	51.00	1156	51.00	1157	52.00	1158	52.00	1159	53.00
1160	54.00	1161	55.00	1162	56.00	1163	57.00	1164	57.00
1165	58.00	1166	59.00	1167	59.00	1168	60.00	1169	60.00
1170	60.00	1171	60.00	1172	60.00	1173	60.00	1174	60.00
1175	59.00	1176	59.00	1177	58.00	1178	57.00	1179	56.00
1180	55.00	1181	54.00	1182	52.00	1183	51.00	1184	.00
1185	41.00	1186	.00	1187	35.00	1188	.00	1189	28.00
1190	.00	1191	25.00	1192	.00	1193	21.00	1194	.00
1195	18.00	1196	.00	1197	14.00	1198	.00	1199	14.00
1200	.00	1201	11.00	1202	.00	1203	10.00	1204	.00
1205	10.00	1206	1.00	1207	9.00	1208	.00	1209	9.00
1210	.00	1211	8.00	1212	.00	1213	8.00	1214	1.00
1215	7.00	1216	1.00	1217	7.00	1218	1.00	1219	7.00
1220	2.00	1221	6.00	1222	2.00	1223	6.00	1224	2.00
1225	6.00	1226	2.00	1227	6.00	1228	1.00	1229	5.00
1230	1.00	1231	5.00	1232	1.00	1233	5.00	1234	1.00
1235	5.00	1236	1.00	1237	4.00	1238	2.00	1239	4.00
1240	2.00	1241	4.00	1242	2.00	1243	4.00	1244	2.00
1245	4.00	1246	2.00	1247	4.00	1248	2.00	1249	4.00
1250	2.00	1251	4.00	1252	2.00	1253	4.00	1254	2.00
1255	4.00	1256	3.00	1257	3.00	1258	3.00	1259	3.00
1260	3.00	1261	3.00	1262	3.00	1263	3.00	1264	3.00
1265	3.00	1266	3.00	1267	3.00	1268	3.00	1269	3.00
1270	3.00	1271	3.00	1272	3.00	1273	3.00	1274	3.00
1275	3.00	1276	3.00	1277	3.00	1278	3.00	1279	3.00
1280	3.00	1281	1.00	1282	3.00	1283	1.00	1284	3.00
1285	1.00	1286	3.00	1287	1.00	1288	3.00	1289	1.00
1290	2.00	1291	2.00	1292	2.00	1293	2.00	1294	2.00
1295	2.00	1296	2.00	1297	2.00	1298	2.00	1299	2.00
1300	2.00	1310	2.00	1320	2.00	1330	2.00	1340	2.00
1350	2.00	1360	2.00	1370	2.00	1380	2.00	1390	2.00
1400	2.00	1420	2.00	1440	2.00	1460	1.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 8.20(Ac.Ft)

Program Package Serial Number: 2083

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
TPM 62646, PROP. COND., 2-YR BURNED, POST DETENTION, OUTLET HYD.
HYDROGRAPH AT 1 44A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	2.35	200	2.59	300	2.96	400	3.18
500	3.33	600	3.50	700	3.68	800	4.81	900	5.21
1000	6.92	1050	7.84	1100	10.39	1110	11.49	1120	13.42
1130	17.85	1131	18.43	1132	19.00	1133	19.64	1134	20.35
1135	21.12	1136	21.90	1137	22.67	1138	23.48	1139	24.40
1140	25.42	1141	26.45	1142	27.48	1143	28.51	1144	29.60
1145	30.85	1146	32.28	1147	33.87	1148	35.64	1149	37.78
1150	40.55	1151	44.14	1152	48.56	1153	53.80	1154	59.66
1155	65.77	1156	71.35	1157	75.51	1158	77.89	1159	78.88
1160	78.97	1161	78.45	1162	77.64	1163	76.86	1164	76.17
1165	75.50	1166	74.83	1167	74.19	1168	73.53	1169	72.85
1170	72.11	1171	71.35	1172	70.56	1173	69.79	1174	69.11
1175	68.57	1176	68.07	1177	67.50	1178	66.79	1179	65.92
1180	64.92	1181	63.77	1182	62.51	1183	61.18	1184	59.44
1185	55.92	1186	48.93	1187	39.31	1188	30.73	1189	25.45
1190	22.44	1191	20.77	1192	19.36	1193	18.00	1194	16.82
1195	15.84	1196	14.97	1197	14.12	1198	13.29	1199	12.53
1200	11.81	1201	11.16	1202	10.59	1203	10.11	1204	9.72
1205	9.32	1206	8.89	1207	8.49	1208	8.18	1209	7.99
1210	7.87	1211	7.74	1212	7.57	1213	7.38	1214	7.23
1215	7.09	1216	6.94	1217	6.83	1218	6.76	1219	6.70
1220	6.61	1221	6.51	1222	6.45	1223	6.43	1224	6.48
1225	6.59	1226	6.69	1227	6.72	1228	6.71	1229	6.68
1230	6.64	1231	6.57	1232	6.43	1233	6.17	1234	5.88
1235	5.62	1236	5.46	1237	5.37	1238	5.31	1239	5.27
1240	5.23	1241	5.18	1242	5.13	1243	5.12	1244	5.16
1245	5.23	1246	5.29	1247	5.33	1248	5.33	1249	5.30
1250	5.27	1251	5.24	1252	5.22	1253	5.20	1254	5.18
1255	5.16	1256	5.14	1257	5.12	1258	5.08	1259	5.07
1260	5.10	1261	5.14	1262	5.15	1263	5.12	1264	5.08
1265	5.04	1266	5.02	1267	5.01	1268	4.97	1269	4.91
1270	4.89	1271	4.87	1272	4.86	1273	4.86	1274	4.86
1275	4.85	1276	4.84	1277	4.83	1278	4.83	1279	4.82
1280	4.81	1281	4.80	1282	4.79	1283	4.78	1284	4.75
1285	4.68	1286	4.53	1287	4.32	1288	4.11	1289	3.95
1290	3.84	1291	3.78	1292	3.75	1293	3.74	1294	3.72
1295	3.72	1296	3.71	1297	3.70	1298	3.70	1299	3.69
1300	3.69	1310	3.62	1320	3.55	1330	3.49	1340	3.41
1350	3.35	1360	3.23	1370	3.23	1380	3.26	1390	3.17
1400	3.00	1420	2.75	1440	2.65	1460	2.44	1500	2.41

TOTAL VOLUME THIS HYDROGRAPH = 12.61(Ac.Ft)

TC Calculator Results for SUSMP

Tentative Parcel Map 062646, City of Santa Clarita
Proposed Condition

Project	Subarea	Area (acres)	%imp	Frequency	Soil Type	Length (ft)	Slope (ft/ft)	Isohyet (in.)	Tc-calculated (min.)	Intensity (in./hr)	Cu	Cd	Flowrate (cfs)	Volume (ft^3)
62646	14D	1.8	0.91	SUSMP	20	483	0.012	0.75	28	0.2	0.1	0.83	0.3	4,058
	A_{TOTAL} =	**1.8**									Q_{PM}TOTAL =		**0.30**	
62646	21E	1.4	0.91	SUSMP	20	299	0.015	0.75	20	0.23	0.1	0.83	0.27	3,156
62646	22E	1.6	0.91	SUSMP	20	362	0.015	0.75	23	0.22	0.1	0.83	0.29	3,607
62646	23E	0.5	0.91	SUSMP	20	358	0.009	0.75	25	0.21	0.1	0.83	0.09	1,127
62646	24E	1	0.91	SUSMP	20	290	0.014	0.75	20	0.23	0.1	0.83	0.19	2,254
62646	25E	0.8	0.91	SUSMP	20	226	0.013	0.75	17	0.25	0.1	0.83	0.17	1,803
62646	26E	2.5	0.91	SUSMP	20	390	0.013	0.75	25	0.21	0.1	0.83	0.44	5,636
	A_{TOTAL} =	**7.8**									Q_{PM}TOTAL =		**1.45**	
62646	30F	0.4	0.91	SUSMP	20	332	0.005	0.75	26	0.21	0.1	0.83	0.07	902
62646	31F	1.9	0.91	SUSMP	20	366	0.016	0.75	23	0.22	0.1	0.83	0.35	4,283
62646	32F	0.6	0.91	SUSMP	20	191	0.016	0.75	15	0.27	0.1	0.83	0.13	1,353
62646	33F	1.7	0.91	SUSMP	20	309	0.016	0.75	21	0.23	0.1	0.83	0.32	3,832
	A_{TOTAL} =	**4.6**									Q_{PM}TOTAL =		**0.87**	
62646	35B	0.9	0.91	SUSMP	20	264	0.015	0.75	19	0.24	0.1	0.83	0.18	2,029
62646	36B	1	0.91	SUSMP	20	280	0.014	0.75	19	0.24	0.1	0.83	0.2	2,254
62646	37B	1	0.91	SUSMP	20	288	0.014	0.75	20	0.23	0.1	0.83	0.19	2,254
62646	38B	1	0.91	SUSMP	20	289	0.014	0.75	20	0.23	0.1	0.83	0.19	2,254
62646	39C	1.7	0.91	SUSMP	20	289	0.017	0.75	19	0.24	0.1	0.83	0.34	3,832
62646	40C	2.1	0.91	SUSMP	20	1048	0.009	0.75	30	0.19	0.1	0.83	0.33	4,734
	A_{TOTAL} =	**7.7**									Q_{PM}TOTAL =		**1.43**	
62646	44A	0.8	0.91	SUSMP	20	1096	0.007	0.75	30	0.19	0.1	0.83	0.13	1,803
	A_{TOTAL} =	**0.8**									Q_{PM}TOTAL =		**0.13**	

DPV & Bulking Calculations (Subarea & Outlet)

Tentative Parcel Map 062646, City of Santa Clarita
Proposed Condition, Design Frequency (50-yr)

Node Number	Basin Type	DP Tributary Area (ac)	DP Rate (cy/ac)	Subarea DPV (cy)	Bulking Rate	Qb (cfs)	Qbb (cfs)
1A	None	14.9	55	820	1.360	42.0	57.1
2A	None	29.7	55	1634	1.360	72.3	98.3
3A	None	8.8	55	484	1.360	24.8	33.7
4A	None	3.5	55	193	1.360	11.5	15.6
5B	None	22.5	55	1238	1.360	54.8	74.5
6B	None	18.8	55	1034	1.360	48.0	65.3
7B	None	19	55	1045	1.360	51.1	69.5
8B	None	30.5	55	1678	1.360	66.6	90.6
9AB	Total / Debris Basin	147.7	38	5613	1.309	349.3	457.2

Bulking Calculations (Junction & Outlet)

Tentative Parcel Map 062646, City of Santa Clarita
Proposed Condition, Design Frequency (50-yr)

Junction Number	ΣQ_{BURN} (cfs)	ΣA		Au		Ad		$BF1_A$	$BF1_{Au}$	ΣQbb (cfs)
		(ac)	(mi^2)	(ac)	(mi^2)	(ac)	(mi^2)			
3A / Junction	132.8	53.4	0.083	53.4	0.083	0.0	0.000	1.360	1.360	180.6
6B / Junction	102.7	41.3	0.065	41.3	0.065	0.0	0.000	1.360	1.360	139.7
7B / Junction	149.4	60.3	0.094	60.3	0.094	0.0	0.000	1.360	1.360	203.2
9AB / Junction	349.3	147.7	0.231	147.7	0.231	0.0	0.000	1.309	1.309	457.2

Legend:

ΣQ_{BURN}	---	Burned Flow Rate, cfs
A	---	Total Area, ac
Au	---	Undeveloped Area, ac
Ad	---	Developed Area, ac
$BF1_A$	---	Bulking Factor for A (See Chart P-5)
$BF1_{Au}$	---	Bulking Factor for Au (See Chart P-5)
Qbb	---	Burned & Bulked Flow Rate, cfs (for DPA Zone 8)
		$Qbb = BF1_A \times [QaxAu/A][Au/A)] + BF1_{Au} \times [QaxAu/A)][Ad/A] + [QaxAd/A]$

DPV & Bulking Calculations (Subarea & Outlet)

Tentative Parcel Map 062646, City of Santa Clarita
Existing Condition, Design Frequency (50-yr)

Line A

Node Number	Basin Type	DP Tributary Area (ac)	DP Rate (cy/ac)	Subarea DPV (cy)	Bulking Rate	Qb (cfs)	Qbb (cfs)
1A	None	14.9	55	820	1.360	42.0	57.1
2A	None	29.7	55	1634	1.360	72.3	98.3
3A	None	8.8	55	484	1.360	24.8	33.7
4A	None	4.1	55	226	1.360	13.4	18.2
5B	None	22.5	55	1238	1.360	54.8	74.5
6B	None	18.8	55	1034	1.360	48.0	65.3
7B	None	19	55	1045	1.360	51.1	69.5
8B	None	30.5	55	1678	1.360	66.6	90.6
9AB	Total	148.3	38	5635	1.309	348.9	456.7
Outlet	Total	148.3	38	5635	1.299 & 1.309	401.0	495.9

Bulking Calculations (Junction & Outlet)

Tentative Parcel Map 062646, City of Santa Clarita
Existing Condition, Design Frequency (50-yr)

Junction Number	ΣQ_{BURN} (cfs)	ΣA (ac)	ΣA (mi^2)	Au (ac)	Au (mi^2)	Ad (ac)	Ad (mi^2)	$BF1_A$	$BF1_{Au}$	ΣQbb (cfs)
3A / Junction	132.8	53.4	0.083	53.4	0.083	0.0	0.000	1.360	1.360	180.6
6B / Junction	102.7	41.3	0.065	41.3	0.065	0.0	0.000	1.360	1.360	139.7
7B / Junction	149.4	60.3	0.094	60.3	0.094	0.0	0.000	1.360	1.360	203.2
9AB / Junction	348.9	148.3	0.232	148.3	0.232	0.0	0.000	1.309	1.309	456.7
14AC / Outlet	401.0	188.8	0.295	148.3	0.232	40.5	0.063	1.299	1.309	495.9

Legend:

ΣQ_{BURN}	---	Burned Flow Rate, cfs
A	---	Total Area, ac
Au	---	Undeveloped Area, ac
Ad	---	Developed Area, ac
$BF1_A$	---	Bulking Factor for A (See Chart P-5)
$BF1_{Au}$	---	Bulking Factor for Au (See Chart P-5)
Qbb	---	Burned & Bulked Flow Rate, cfs (for DPA Zone 8)

$Qbb = BF1_A \times [QaxAu/A][Au/A)] + BF1_{Au} \times [QaxAu/A)][Ad/A] + [QaxAd/A]$

DEBRIS BASIN CALCULATION

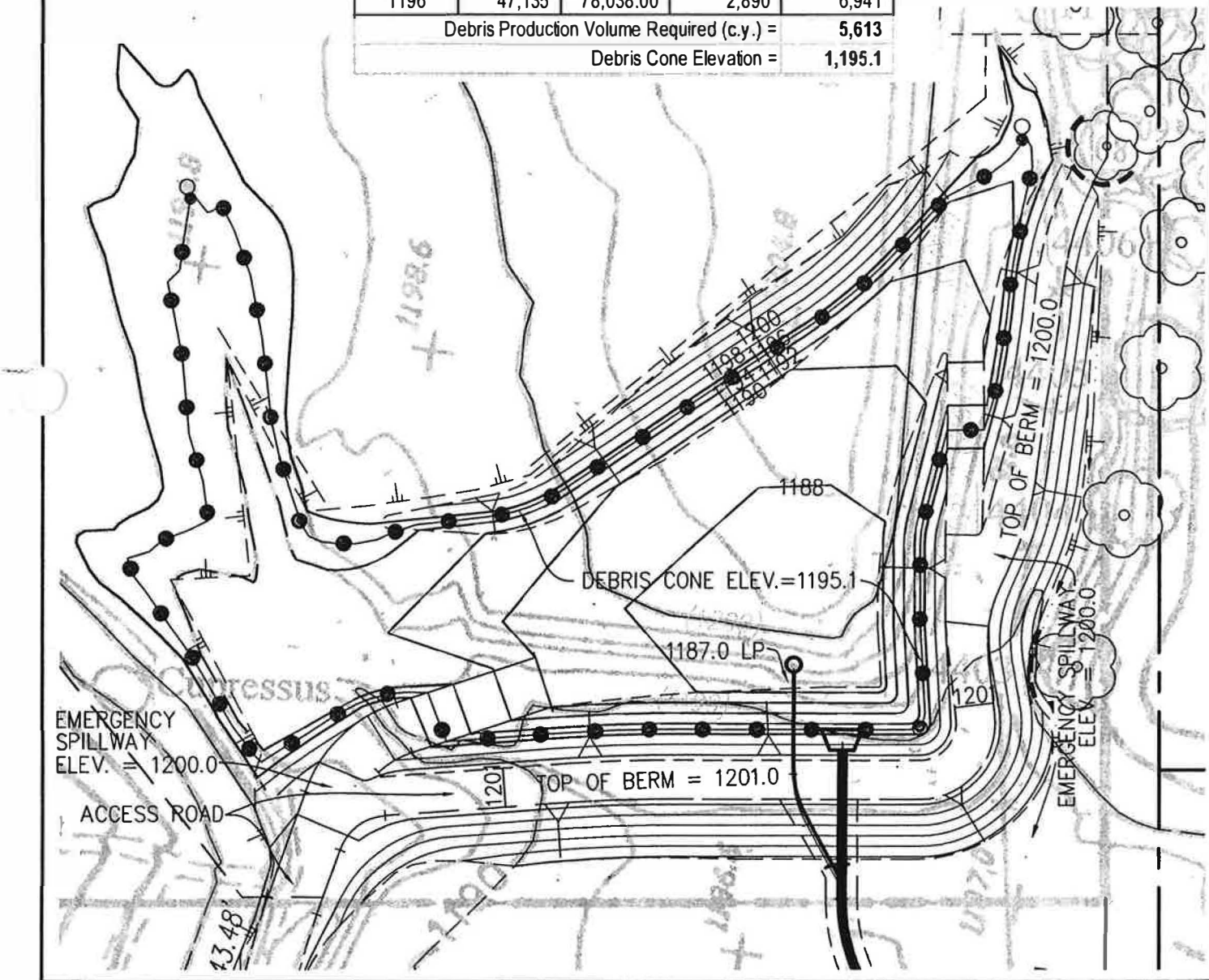
NORTH

PLAN

SCALE: 1" = 60'

DEBRIS BASIN (NODE 9AB)

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1187	-	-	-	-
1188	6,055	2,018.33	75	75
1190	14,555	20,610.00	763	838
1192	20,639	35,194.00	1,303	2,142
1194	30,903	51,542.00	1,909	4,051
1196	47,135	78,038.00	2,890	6,941
Debris Production Volume Required (c.y.) =				**5,613**
Debris Cone Elevation =				**1,195.1**



SIKAND
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BY:	E.R.
W.O. NO.:	5099-037-01
DATE:	03/20/09
SCALE:	

CLIENT: **TMC Properties, Inc.**
25655 SPRINGBROOK AVENUE,
SANTA CLARITA, CA 91350

PROJECT: **TPM 62646 Hydrology**
City of Santa Clarita

SHT. 1 OF 1

DETENTION BASIN CALCULATION

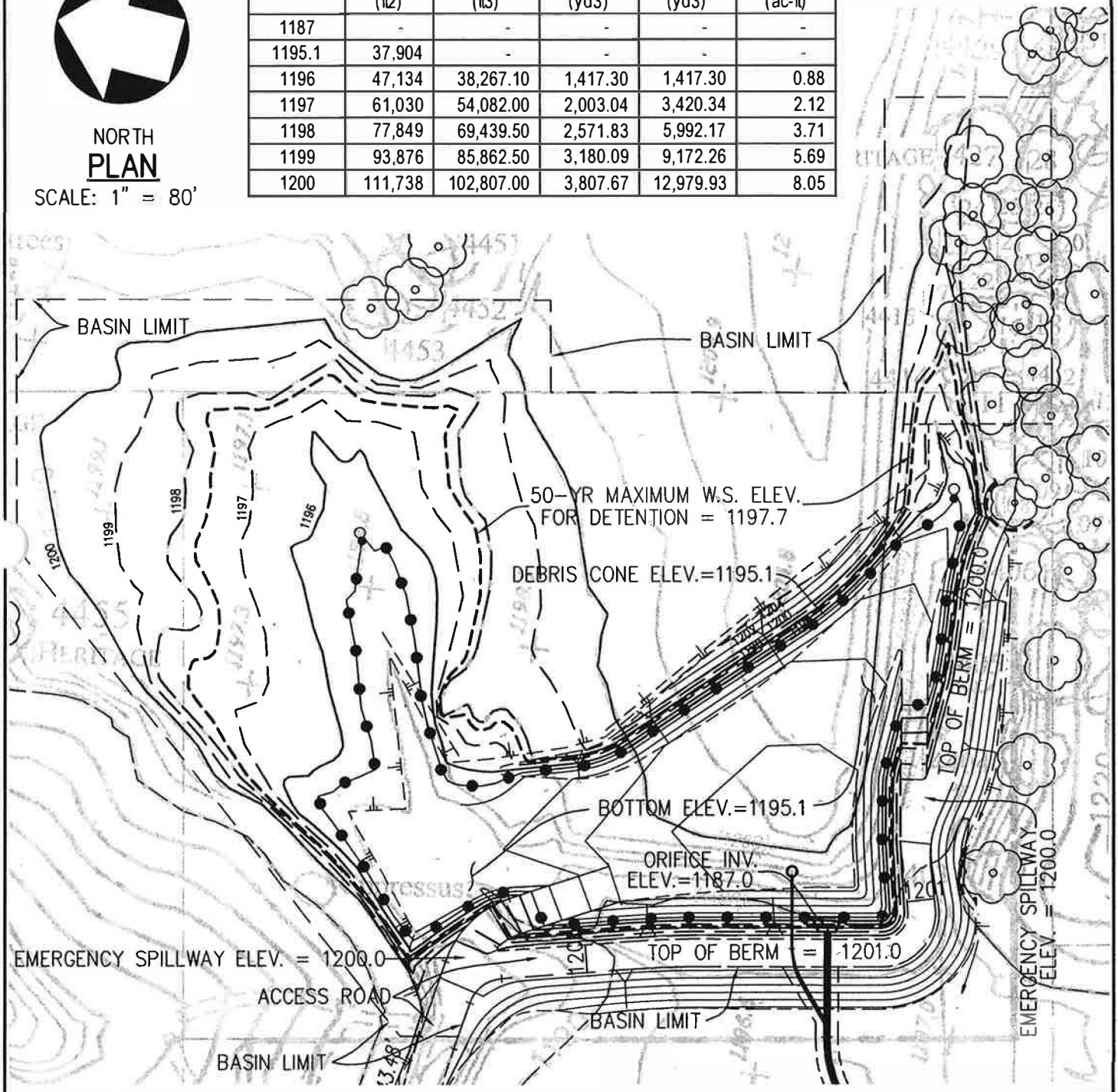
DETENTION AFTER DEBRIS SETTLES

Elevation	Area (ft2)	Volume (ft3)	Volume (yd3)	Capacity (yd3)	Capacity (ac-ft)
1187	-	-	-	-	-
1195.1	37,904	-	-	-	-
1196	47,134	38,267.10	1,417.30	1,417.30	0.88
1197	61,030	54,082.00	2,003.04	3,420.34	2.12
1198	77,849	69,439.50	2,571.83	5,992.17	3.71
1199	93,876	85,862.50	3,180.09	9,172.26	5.69
1200	111,738	102,807.00	3,807.67	12,979.93	8.05

NORTH

PLAN

SCALE: 1" = 80'



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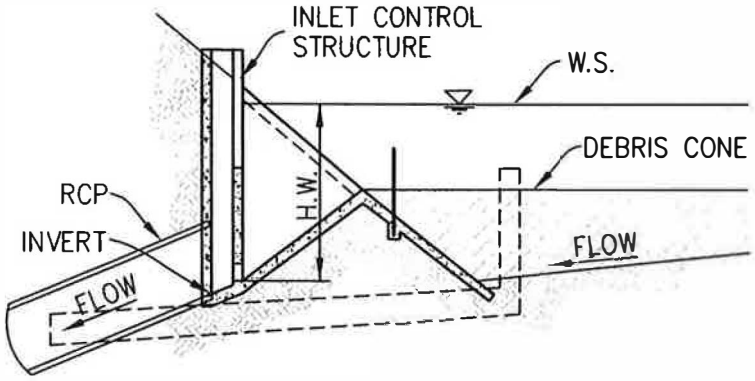
DETENTION BASIN CALCULATION



DEBRIS-DETENTION BASIN SECTION

NTS

50-YR FREQUENCY
DETENTION BASIN SUMMARY
(FOR BOTH DESIGN & INTERIM PEAK FLOW POLICY)

Q_{IN} = 349.3 CFS
$D_{OPENING}$ = 27 INCHES
L_{WEIR} = 15 FT
Q_{OUT} = 258.5 CFS
$D_{PONDING}$ = 10.7 FT
BOTTOM OF BASIN ELEV. = 1187.0
TOP OF BASIN ELEV. = 1201.0
DEBRIS CONE ELEV. = 1195.1
WATER SURFACE ELEV. = 1197.7
OPENING INVERT ELEV. = 1187.0
WEIR CREST ELEV. = 1195.2
EMERGENCY SPILLWAY CREST ELEV. = 1200.0
FREEBOARD = 2.3 FT

2-YR FREQUENCY
DETENTION BASIN SUMMARY

Q_{IN} = 69.7 CFS
$D_{OPENING}$ = 27 INCHES
L_{WEIR} = 15 FT
Q_{OUT} = 60.2 CFS
$D_{PONDING}$ = 8.3 FT
BOTTOM OF BASIN ELEV. = 1187.0
TOP OF BASIN ELEV. = 1201.0
DEBRIS CONE ELEV. = 1195.1
WATER SURFACE ELEV. = 1195.3
OPENING INVERT ELEV. = 1187.0
WEIR CREST ELEV. = 1195.2
EMERGENCY SPILLWAY CREST ELEV. = 1200.0
FREEBOARD = 4.7 FT

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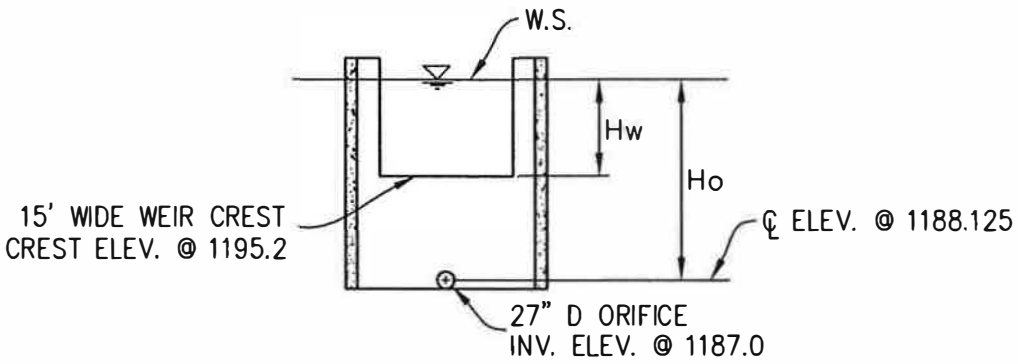
PROJECT: **TPM 62646 Hydrology**
City of Santa Clarita

DETENTION BASIN CALCULATION



INLET CONTROL
FRONT VIEW
NTS

$$Q_{orifice} = CA_o\sqrt{2gH_o} = 0.60\,\frac{\pi}{4}\left(\frac{27"}{12"}\right)^2\sqrt{2(32.2)}\,H_o = 19.1447\sqrt{H_o}$$

$$Q_{weir} = CL(H_w)^{\frac{3}{2}} = 3.33(15')(H_w)^{\frac{3}{2}} = 49.95(H_w)^{\frac{3}{2}}$$

$$Q_{total} = Q_{orifice} + Q_{weir}$$

INLET CONTROL DISCHARGE SUMMARY

Weir at Elev. 1195.2, Width = 15'			
Elevation (ft)	$Q_{orifice}$ (cfs)	Q_{weir} (cfs)	Q_{total} (cfs)
1187	0.00	0.00	0.00
1195.1	50.56	0.00	50.56
1196	53.72	35.74	89.47
1197	57.03	120.63	177.66
1198	60.16	234.03	294.19
1199	63.13	370.01	433.14
1200	65.97	525.29	591.26

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SANTA CLARITA, CA 91350

PROJECT: **TPM 62646 Hydrology**
City of Santa Clarita

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2004 Version 6.4
-------------------------------------------------------------------------
Study Date : 11/03/08 Input hydrograph file name : D50YR.RTD
Output hydrograph file name: D50YR.hin
TPM 62646, CITY OF SANTA CLARITA
SIKAND ENGINEERING
DETENTION BASIN, DESIGN 50-YR FREQUENCY, BURNED
27"D ORIFICE AND 15' WEIR CREST
-------------------------------------------------------------------------


User entry of depth-outflow-storage data
-------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
-------------------------------------------------------------------------
-------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
-------------------------------------------------------------------------
-------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
-------------------------------------------------------------------------
  0.000       0.000      0.000      0.000        0.000
  8.100       0.001     50.560     -0.034        0.036
  9.000       0.880     89.470      0.818        0.942
 10.000       2.120    177.660      1.998        2.242
 11.000       3.710    294.190      3.507        3.913
 12.000       5.690    433.140      5.392        5.988
 13.000       8.050    591.260      7.643        8.457
-------------------------------------------------------------------------
                  Hydrograph Detention Basin Routing
Hydrograph at 1 9 A Storm Day: 4 Drainage Area =  147.70
Total flood hydrograph volume this storm day =   30.95 Ac. Ft.
-------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-------------------------------------------------------------------------
Time   Inflow  Outflow    Storage                                    Depth
(Min)  (CFS)   (CFS)     (Ac.Ft) .0      87.3    174.5   261.8   349.0 (Ft.)
   0     0.0     0.0      0.000  O        |       |       |       |      0.0
 100     4.0     4.0      0.000  O        |       |       |       |      0.6
 200     4.0     4.0      0.000  O        |       |       |       |      0.6
 300     5.0     5.0      0.000  O        |       |       |       |      0.8
 400     5.0     5.0      0.000  O        |       |       |       |      0.8
 500     5.0     5.0      0.000  O        |       |       |       |      0.8
 600     6.0     6.0      0.000  O        |       |       |       |      1.0
 700     6.0     6.0      0.000  O        |       |       |       |      1.0
 800     8.0     8.0      0.000  O        |       |       |       |      1.3
 900    12.0    12.0      0.000  |O       |       |       |       |      1.9
1000    20.0    20.0      0.000  |O       |       |       |       |      3.2
1050    29.0    29.1      0.001  | O      |       |       |       |      4.7
1100    45.0    45.2      0.001  |   O    |       |       |       |      7.2
1110    56.0    51.5      0.021  |   OI   |       |       |       |      8.1
1120    71.0    57.6      0.161  |    OI  |       |       |       |      8.3
1130    87.0    68.1      0.398  |     OI |       |       |       |      8.5
1131    89.0    69.4      0.426  |     O I|       |       |       |      8.5
1132    91.0    70.6      0.455  |     O I|       |       |       |      8.6
1133    93.0    72.0      0.485  |     O I|       |       |       |      8.6
1134    95.0    73.3      0.515  |     O I|       |       |       |      8.6
1135    97.0    74.7      0.547  |     O I|       |       |       |      8.7
1136    99.0    76.2      0.579  |     O |I       |       |       |      8.7
1137   102.0    77.7      0.614  |      O|I       |       |       |      8.7
1138   104.0    79.2      0.649  |      O|I       |       |       |      8.8
1139   107.0    80.9      0.686  |      O|I       |       |       |      8.8
1140   110.0    82.6      0.725  |      O| I      |       |       |      8.8
1141   114.0    84.5      0.767  |      O| I      |       |       |      8.9
1142   119.0    86.5      0.813  |      O| I      |       |       |      8.9
1143   124.0    88.7      0.863  |       O  I     |       |       |      9.0
1144   128.0    92.0      0.915  |       O  I     |       |       |      9.0
1145   135.0    96.0      0.972  |       O   I    |       |       |      9.1
1146   142.0   100.3      1.032  |       |O   I   |       |       |      9.1
1147   149.0   104.8      1.096  |       |O   I   |       |       |      9.2
1148   157.0   109.7      1.165  |       | O   I  |       |       |      9.2
```

1149	171.0	115.4	1.245		9.3
1150	189.0	122.3	1.342		9.4
1151	212.0	130.7	1.459		9.5
1152	240.0	140.9	1.603		9.6
1153	272.0	153.1	1.775		9.7
1154	301.0	166.9	1.969		9.9
1155	325.0	181.8	2.177		10.0
1156	340.0	197.0	2.384		10.2
1157	348.0	211.5	2.582		10.3
1158	349.0	224.7	2.762		10.4
1159	345.0	236.3	2.920		10.5
1160	333.0	245.6	3.047		10.6
1161	317.0	252.5	3.141		10.6
1162	298.0	256.8	3.200		10.7
1163	274.0	258.5	3.223		10.7
1164	242.0	256.9	3.201		10.7
1165	211.0	252.5	3.141		10.6
1166	181.0	245.6	3.047		10.6
1167	153.0	236.7	2.926		10.5
1168	128.0	226.3	2.783		10.4
1169	112.0	215.3	2.633		10.3
1170	99.0	204.1	2.481		10.2
1171	89.0	193.0	2.330		10.1
1172	82.0	182.4	2.184		10.0
1173	75.0	172.2	2.043		9.9
1174	70.0	162.7	1.909		9.8
1175	66.0	153.6	1.782		9.7
1176	62.0	145.1	1.662		9.6
1177	58.0	137.0	1.548		9.5
1178	56.0	129.4	1.441		9.5
1179	53.0	122.3	1.341		9.4
1180	51.0	115.6	1.247		9.3
1181	48.0	109.3	1.159		9.2
1182	46.0	103.4	1.076		9.2
1183	45.0	97.9	0.999		9.1
1184	43.0	92.8	0.927		9.0
1185	41.0	88.5	0.858		9.0
1186	40.0	85.6	0.794		8.9
1187	39.0	82.9	0.731		8.8
1188	37.0	80.2	0.670		8.8
1189	36.0	77.6	0.611		8.7
1190	35.0	75.0	0.554		8.7
1191	34.0	72.6	0.499		8.6
1192	33.0	70.3	0.446		8.6
1193	32.0	68.0	0.395		8.5
1194	31.0	65.8	0.346		8.5
1195	30.0	63.7	0.298		8.4
1196	29.0	61.6	0.251		8.4
1197	29.0	59.7	0.208		8.3
1198	28.0	57.8	0.165		8.3
1199	28.0	56.1	0.125		8.2
1200	27.0	54.3	0.087		8.2
1201	26.0	52.7	0.049		8.1
1202	26.0	51.1	0.013		8.1
1203	25.0	17.3	0.000		2.8
1204	25.0	32.2	0.001		5.2
1205	24.0	16.2	0.000		2.6
1206	23.0	29.4	0.001		4.7
1207	23.0	16.9	0.000		2.7
1208	23.0	28.7	0.001		4.6
1209	22.0	15.7	0.000		2.5
1210	22.0	28.0	0.001		4.5
1211	21.0	14.4	0.000		2.3
1212	21.0	27.2	0.001		4.4
1213	20.0	13.2	0.000		2.1
1214	20.0	26.4	0.001		4.2
1215	19.0	12.0	0.000		1.9
1216	19.0	25.6	0.001		4.1
1217	19.0	12.7	0.000		2.0
1218	18.0	23.0	0.000		3.7
1219	18.0	13.3	0.000		2.1
1220	18.0	22.4	0.000		3.6
1221	17.0	11.9	0.000		1.9
1222	17.0	21.8	0.000		3.5
1223	17.0	12.4	0.000		2.0
1224	16.0	19.4	0.000		3.1
1225	16.0	12.8	0.000		2.1
1226	16.0	19.0	0.000		3.0
1227	16.0	13.2	0.000		2.1

1228	15.0	16.7	0.000	|o	|	|	|	2.7
1229	15.0	13.4	0.000	|o	|	|	|	2.1
1230	15.0	16.5	0.000	|o	|	|	|	2.7
1231	14.0	11.6	0.000	|o	|	|	|	1.9
1232	14.0	16.3	0.000	|o	|	|	|	2.6
1233	14.0	11.9	0.000	|o	|	|	|	1.9
1234	14.0	16.0	0.000	|o	|	|	|	2.6
1235	13.0	10.1	0.000	oI	|	|	|	1.6
1236	13.0	15.7	0.000	|o	|	|	|	2.5
1237	13.0	10.5	0.000	oI	|	|	|	1.7
1238	13.0	15.4	0.000	|o	|	|	|	2.5
1239	12.0	8.8	0.000	oI	|	|	|	1.4
1240	12.0	15.0	0.000	|o	|	|	|	2.4
1241	12.0	9.1	0.000	oI	|	|	|	1.5
1242	12.0	14.7	0.000	|o	|	|	|	2.4
1243	12.0	9.4	0.000	oI	|	|	|	1.5
1244	11.0	12.5	0.000	|o	|	|	|	2.0
1245	11.0	9.6	0.000	oI	|	|	|	1.5
1246	11.0	12.3	0.000	|o	|	|	|	2.0
1247	11.0	9.8	0.000	oI	|	|	|	1.6
1248	11.0	12.2	0.000	|o	|	|	|	1.9
1249	10.0	8.0	0.000	o	|	|	|	1.3
1250	10.0	11.9	0.000	Io	|	|	|	1.9
1251	10.0	8.2	0.000	o	|	|	|	1.3
1252	10.0	11.7	0.000	Io	|	|	|	1.9
1253	10.0	8.4	0.000	o	|	|	|	1.3
1254	10.0	11.5	0.000	Io	|	|	|	1.8
1255	9.0	6.6	0.000	o	|	|	|	1.1
1256	9.0	11.3	0.000	Io	|	|	|	1.8
1257	9.0	6.9	0.000	o	|	|	|	1.1
1258	9.0	11.0	0.000	Io	|	|	|	1.8
1259	9.0	7.1	0.000	o	|	|	|	1.1
1260	9.0	10.8	0.000	o	|	|	|	1.7
1261	8.0	5.4	0.000	o	|	|	|	0.9
1262	8.0	10.5	0.000	o	|	|	|	1.7
1263	8.0	5.6	0.000	o	|	|	|	0.9
1264	8.0	10.2	0.000	o	|	|	|	1.6
1265	8.0	5.9	0.000	o	|	|	|	0.9
1266	8.0	10.0	0.000	o	|	|	|	1.6
1267	8.0	6.1	0.000	o	|	|	|	1.0
1268	7.0	7.8	0.000	o	|	|	|	1.3
1269	7.0	6.2	0.000	o	|	|	|	1.0
1270	7.0	7.7	0.000	o	|	|	|	1.2
1271	7.0	6.3	0.000	o	|	|	|	1.0
1272	7.0	7.7	0.000	o	|	|	|	1.2
1273	7.0	6.4	0.000	o	|	|	|	1.0
1274	7.0	7.6	0.000	o	|	|	|	1.2
1275	7.0	6.5	0.000	o	|	|	|	1.0
1276	7.0	7.5	0.000	o	|	|	|	1.2
1277	7.0	6.5	0.000	o	|	|	|	1.0
1278	6.0	5.5	0.000	o	|	|	|	0.9
1279	6.0	6.5	0.000	o	|	|	|	1.0
1280	6.0	5.6	0.000	o	|	|	|	0.9
1281	6.0	6.4	0.000	o	|	|	|	1.0
1282	6.0	5.6	0.000	o	|	|	|	0.9
1283	6.0	6.4	0.000	o	|	|	|	1.0
1284	6.0	5.7	0.000	o	|	|	|	0.9
1285	6.0	6.3	0.000	o	|	|	|	1.0
1286	6.0	5.7	0.000	o	|	|	|	0.9
1287	6.0	6.3	0.000	o	|	|	|	1.0
1288	6.0	5.7	0.000	o	|	|	|	0.9
1289	6.0	6.3	0.000	o	|	|	|	1.0
1290	6.0	5.8	0.000	o	|	|	|	0.9
1291	6.0	6.2	0.000	o	|	|	|	1.0
1292	6.0	5.8	0.000	o	|	|	|	0.9
1293	6.0	6.2	0.000	o	|	|	|	1.0
1294	6.0	5.8	0.000	o	|	|	|	0.9
1295	6.0	6.2	0.000	o	|	|	|	1.0
1296	6.0	5.8	0.000	o	|	|	|	0.9
1297	6.0	6.2	0.000	o	|	|	|	1.0
1298	6.0	5.8	0.000	o	|	|	|	0.9
1299	6.0	6.1	0.000	o	|	|	|	1.0
1300	6.0	5.9	0.000	o	|	|	|	0.9
1310	6.0	5.9	0.000	o	|	|	|	0.9
1320	5.0	4.9	0.000	o	|	|	|	0.8
1330	5.0	5.0	0.000	o	|	|	|	0.8
1340	5.0	5.0	0.000	o	|	|	|	0.8
1350	5.0	5.0	0.000	o	|	|	|	0.8
1360	5.0	5.0	0.000	o	|	|	|	0.8

1370	5.0	5.0	0.000	O	|	|	|	0.8
1380	5.0	5.0	0.000	O	|	|	|	0.8
1390	5.0	5.0	0.000	O	|	|	|	0.8
1400	4.0	4.0	0.000	O	|	|	|	0.6
1420	4.0	4.0	0.000	O	|	|	|	0.6
1440	4.0	4.0	0.000	O	|	|	|	0.6
1460	3.0	3.0	0.000	O	|	|	|	0.5
1500	3.0	0.0	0.000	O	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 258.48(CFS)
Peak flow time = 1163 Min., time interval # = 49
Maximum depth in basin = 10.69(Ft.)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 11/03/08 Input hydrograph file name : 50YR.RTD
Output hydrograph file name: 50YR.hin
TPM 62646, CITY OF SANTA CLARITA
SIKAND ENGINEERING
DETENTION BASIN, 50-YR FREQUENCY, BURNED
27"D ORIFICE AND 15' WEIR CREST

User entry of depth-outflow-storage data

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

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

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
8.100	0.001	50.560	-0.034	0.036
9.000	0.880	89.470	0.818	0.942
10.000	2.120	177.660	1.998	2.242
11.000	3.710	294.190	3.507	3.913
12.000	5.690	433.140	5.392	5.988
13.000	8.050	591.260	7.643	8.457

Hydrograph Detention Basin Routing
Hydrograph at 1 9 A Storm Day: 4 Drainage Area = 147.70
Total flood hydrograph volume this storm day = 30.95 Ac. Ft.

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

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 87.3 174.5 261.8 349.0	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	4.0	4.0	0.000	O	0.6
200	4.0	4.0	0.000	O	0.6
300	5.0	5.0	0.000	O	0.8
400	5.0	5.0	0.000	O	0.8
500	5.0	5.0	0.000	O	0.8
600	6.0	6.0	0.000	O	1.0
700	6.0	6.0	0.000	O	1.0
800	8.0	8.0	0.000	O	1.3
900	12.0	12.0	0.000	O	1.9
1000	20.0	20.0	0.000	O	3.2
1050	29.0	29.1	0.001	O	4.7
1100	45.0	45.2	0.001	O	7.2
1110	56.0	51.5	0.021	OI	8.1
1120	71.0	57.6	0.161	OI	8.3
1130	87.0	68.1	0.398	OI	8.5
1131	89.0	69.4	0.426	O I	8.5
1132	91.0	70.6	0.455	O I	8.6
1133	93.0	72.0	0.485	O I	8.6
1134	95.0	73.3	0.515	O I	8.6
1135	97.0	74.7	0.547	O I	8.7
1136	99.0	76.2	0.579	O I	8.7
1137	102.0	77.7	0.614	O I	8.7
1138	104.0	79.2	0.649	O I	8.8
1139	107.0	80.9	0.686	O I	8.8
1140	110.0	82.6	0.725	O I	8.8
1141	114.0	84.5	0.767	O I	8.9
1142	119.0	86.5	0.813	O I	8.9
1143	124.0	88.7	0.863	O I	9.0
1144	128.0	92.0	0.915	O I	9.0
1145	135.0	96.0	0.972	O I	9.1
1146	142.0	100.3	1.032	O I	9.1
1147	149.0	104.8	1.096	O I	9.2
1148	157.0	109.7	1.165	O I	9.2

1149	171.0	115.4	1.245		9.3
1150	189.0	122.3	1.342		9.4
1151	212.0	130.7	1.459		9.5
1152	240.0	140.9	1.603		9.6
1153	272.0	153.1	1.775		9.7
1154	301.0	166.9	1.969		9.9
1155	325.0	181.8	2.177		10.0
1156	340.0	197.0	2.384		10.2
1157	348.0	211.5	2.582		10.3
1158	349.0	224.7	2.762		10.4
1159	345.0	236.3	2.920		10.5
1160	333.0	245.6	3.047		10.6
1161	317.0	252.5	3.141		10.6
1162	298.0	256.8	3.200		10.7
1163	274.0	258.5	3.223		10.7
1164	242.0	256.9	3.201		10.7
1165	211.0	252.5	3.141		10.6
1166	181.0	245.6	3.047		10.6
1167	153.0	236.7	2.926		10.5
1168	128.0	226.3	2.783		10.4
1169	112.0	215.3	2.633		10.3
1170	99.0	204.1	2.481		10.2
1171	89.0	193.0	2.330		10.1
1172	82.0	182.4	2.184		10.0
1173	75.0	172.2	2.043		9.9
1174	70.0	162.7	1.909		9.8
1175	66.0	153.6	1.782		9.7
1176	62.0	145.1	1.662		9.6
1177	58.0	137.0	1.548		9.5
1178	56.0	129.4	1.441		9.5
1179	53.0	122.3	1.341		9.4
1180	51.0	115.6	1.247		9.3
1181	48.0	109.3	1.159		9.2
1182	46.0	103.4	1.076		9.2
1183	45.0	97.9	0.999		9.1
1184	43.0	92.8	0.927		9.0
1185	41.0	88.5	0.858		9.0
1186	40.0	85.6	0.794		8.9
1187	39.0	82.9	0.731		8.8
1188	37.0	80.2	0.670		8.8
1189	36.0	77.6	0.611		8.7
1190	35.0	75.0	0.554		8.7
1191	34.0	72.6	0.499		8.6
1192	33.0	70.3	0.446		8.6
1193	32.0	68.0	0.395		8.5
1194	31.0	65.8	0.346		8.5
1195	30.0	63.7	0.298		8.4
1196	29.0	61.6	0.251		8.4
1197	29.0	59.7	0.208		8.3
1198	28.0	57.8	0.165		8.3
1199	28.0	56.1	0.125		8.2
1200	27.0	54.3	0.087		8.2
1201	26.0	52.7	0.049		8.1
1202	26.0	51.1	0.013		8.1
1203	25.0	17.3	0.000		2.8
1204	25.0	32.2	0.001		5.2
1205	24.0	16.2	0.000		2.6
1206	23.0	29.4	0.001		4.7
1207	23.0	16.9	0.000		2.7
1208	23.0	28.7	0.001		4.6
1209	22.0	15.7	0.000		2.5
1210	22.0	28.0	0.001		4.5
1211	21.0	14.4	0.000		2.3
1212	21.0	27.2	0.001		4.4
1213	20.0	13.2	0.000		2.1
1214	20.0	26.4	0.001		4.2
1215	19.0	12.0	0.000		1.9
1216	19.0	25.6	0.001		4.1
1217	19.0	12.7	0.000		2.0
1218	18.0	23.0	0.000		3.7
1219	18.0	13.3	0.000		2.1
1220	18.0	22.4	0.000		3.6
1221	17.0	11.9	0.000		1.9
1222	17.0	21.8	0.000		3.5
1223	17.0	12.4	0.000		2.0
1224	16.0	19.4	0.000		3.1
1225	16.0	12.8	0.000		2.1
1226	16.0	19.0	0.000		3.0
1227	16.0	13.2	0.000		2.1

1228	15.0	16.7	0.000	|o				2.7
1229	15.0	13.4	0.000	|o				2.1
1230	15.0	16.5	0.000	|o				2.7
1231	14.0	11.6	0.000	|o				1.9
1232	14.0	16.3	0.000	|o				2.6
1233	14.0	11.9	0.000	|o				1.9
1234	14.0	16.0	0.000	|o				2.6
1235	13.0	10.1	0.000	oI				1.6
1236	13.0	15.7	0.000	|o				2.5
1237	13.0	10.5	0.000	oI				1.7
1238	13.0	15.4	0.000	|o				2.5
1239	12.0	8.8	0.000	oI				1.4
1240	12.0	15.0	0.000	|o				2.4
1241	12.0	9.1	0.000	oI				1.5
1242	12.0	14.7	0.000	|o				2.4
1243	12.0	9.4	0.000	oI				1.5
1244	11.0	12.5	0.000	|o				2.0
1245	11.0	9.6	0.000	oI				1.5
1246	11.0	12.3	0.000	|o				2.0
1247	11.0	9.8	0.000	oI				1.6
1248	11.0	12.2	0.000	|o				1.9
1249	10.0	8.0	0.000	o				1.3
1250	10.0	11.9	0.000	Io				1.9
1251	10.0	8.2	0.000	o				1.3
1252	10.0	11.7	0.000	Io				1.9
1253	10.0	8.4	0.000	o				1.3
1254	10.0	11.5	0.000	Io				1.8
1255	9.0	6.6	0.000	o				1.1
1256	9.0	11.3	0.000	Io				1.8
1257	9.0	6.9	0.000	o				1.1
1258	9.0	11.0	0.000	Io				1.8
1259	9.0	7.1	0.000	o				1.1
1260	9.0	10.8	0.000	o				1.7
1261	8.0	5.4	0.000	o				0.9
1262	8.0	10.5	0.000	o				1.7
1263	8.0	5.6	0.000	o				0.9
1264	8.0	10.2	0.000	o				1.6
1265	8.0	5.9	0.000	o				0.9
1266	8.0	10.0	0.000	o				1.6
1267	8.0	6.1	0.000	o				1.0
1268	7.0	7.8	0.000	o				1.3
1269	7.0	6.2	0.000	o				1.0
1270	7.0	7.7	0.000	o				1.2
1271	7.0	6.3	0.000	o				1.0
1272	7.0	7.7	0.000	o				1.2
1273	7.0	6.4	0.000	o				1.0
1274	7.0	7.6	0.000	o				1.2
1275	7.0	6.5	0.000	o				1.0
1276	7.0	7.5	0.000	o				1.2
1277	7.0	6.5	0.000	o				1.0
1278	6.0	5.5	0.000	o				0.9
1279	6.0	6.5	0.000	o				1.0
1280	6.0	5.6	0.000	o				0.9
1281	6.0	6.4	0.000	o				1.0
1282	6.0	5.6	0.000	o				0.9
1283	6.0	6.4	0.000	o				1.0
1284	6.0	5.7	0.000	o				0.9
1285	6.0	6.3	0.000	o				1.0
1286	6.0	5.7	0.000	o				0.9
1287	6.0	6.3	0.000	o				1.0
1288	6.0	5.7	0.000	o				0.9
1289	6.0	6.3	0.000	o				1.0
1290	6.0	5.8	0.000	o				0.9
1291	6.0	6.2	0.000	o				1.0
1292	6.0	5.8	0.000	o				0.9
1293	6.0	6.2	0.000	o				1.0
1294	6.0	5.8	0.000	o				0.9
1295	6.0	6.2	0.000	o				1.0
1296	6.0	5.8	0.000	o				0.9
1297	6.0	6.2	0.000	o				1.0
1298	6.0	5.8	0.000	o				0.9
1299	6.0	6.1	0.000	o				1.0
1300	6.0	5.9	0.000	o				0.9
1310	6.0	5.9	0.000	o				0.9
1320	5.0	4.9	0.000	o				0.8
1330	5.0	5.0	0.000	o				0.8
1340	5.0	5.0	0.000	o				0.8
1350	5.0	5.0	0.000	o				0.8
1360	5.0	5.0	0.000	o				0.8

1370	5.0	5.0	0.000	o				0.8
1380	5.0	5.0	0.000	o				0.8
1390	5.0	5.0	0.000	o				0.8
1400	4.0	4.0	0.000	o				0.6
1420	4.0	4.0	0.000	o				0.6
1440	4.0	4.0	0.000	o				0.6
1460	3.0	3.0	0.000	o				0.5
1500	3.0	0.0	0.000	o				0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 258.48(CFS)
Peak flow time = 1163 Min., time interval # = 49
Maximum depth in basin = 10.69(Ft.)

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2004 Version 6.4
------------------------------------------------------------------------
Study Date : 11/03/08 Input hydrograph file name : 2YR.RTD
Output hydrograph file name: 2YR.hin
TPM 62646, CITY OF SANTA CLARITA
SIKAND ENGINEERING
DETENTION BASIN, 2-YR FREQUENCY, BURNED
27"D ORIFICE AND 15' WEIR CREST
------------------------------------------------------------------------


User entry of depth-outflow-storage data
------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
  0.000       0.000       0.000      0.000        0.000
  8.100       0.001      50.560     -0.034        0.036
  9.000       0.880      89.470      0.818        0.942
 10.000       2.120     177.660      1.998        2.242
 11.000       3.710     294.190      3.507        3.913
 12.000       5.690     433.140      5.392        5.988
 13.000       8.050     591.260      7.643        8.457
------------------------------------------------------------------------
                Hydrograph Detention Basin Routing
Hydrograph at 1 9 A Storm Day: 4 Drainage Area =  147.70
Total flood hydrograph volume this storm day =    8.18 Ac. Ft.
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
Time   Inflow  Outflow    Storage                                    Depth
(Min)  (CFS)   (CFS)     (Ac.Ft) .0      17.5     35.0     52.5    70.0 (Ft.)
   0     0.0     0.0      0.000  O          |        |        |       |     0.0
 100     2.0     2.0      0.000  O          |        |        |       |     0.3
 200     2.0     2.0      0.000  O          |        |        |       |     0.3
 300     2.0     2.0      0.000  O          |        |        |       |     0.3
 400     2.0     2.0      0.000  O          |        |        |       |     0.3
 500     2.0     2.0      0.000  O          |        |        |       |     0.3
 600     2.0     2.0      0.000  O          |        |        |       |     0.3
 700     2.0     2.0      0.000  O          |        |        |       |     0.3
 800     3.0     3.0      0.000  |O         |        |        |       |     0.5
 900     3.0     3.0      0.000  |O         |        |        |       |     0.5
1000     4.0     4.0      0.000  |O         |        |        |       |     0.6
1050     4.0     4.0      0.000  |O         |        |        |       |     0.6
1100     6.0     6.0      0.000  | O        |        |        |       |     1.0
1110     6.0     6.0      0.000  | O        |        |        |       |     1.0
1120     8.0     8.0      0.000  |  O       |        |        |       |     1.3
1130    12.0    12.1      0.000  |    O     |        |        |       |     1.9
1131    13.0    13.8      0.000  |    IO    |        |        |       |     2.2
1132    13.0    12.2      0.000  |    O     |        |        |       |     2.0
1133    14.0    15.7      0.000  |     IO   |        |        |       |     2.5
1134    14.0    12.4      0.000  |    OI    |        |        |       |     2.0
1135    15.0    17.5      0.000  |     IO   |        |        |       |     2.8
1136    16.0    14.6      0.000  |     OI   |        |        |       |     2.3
1137    16.0    17.3      0.000  |      O   |        |        |       |     2.8
1138    17.0    16.7      0.000  |      O   |        |        |       |     2.7
1139    18.0    19.2      0.000  |       O  |        |        |       |     3.1
1140    18.0    16.9      0.000  |       OI |        |        |       |     2.7
1141    19.0    21.0      0.000  |        IO|        |        |       |     3.4
1142    20.0    19.0      0.000  |        OI|        |        |       |     3.0
1143    21.0    22.9      0.000  |        |IO       |        |       |     3.7
1144    22.0    21.2      0.000  |        |OI       |        |       |     3.4
1145    23.0    24.7      0.000  |        | IO      |        |       |     4.0
1146    24.0    23.3      0.000  |        | O       |        |       |     3.7
1147    26.0    28.5      0.001  |        |  I O    |        |       |     4.6
1148    27.0    25.6      0.001  |        |  OI     |        |       |     4.1
```

1149	30.0	34.2	0.001		5.5
1150	33.0	31.9	0.001		5.1
1151	36.0	39.9	0.001		6.4
1152	40.0	40.1	0.001		6.4
1153	45.0	49.6	0.001		7.9
1154	49.0	48.4	0.001		7.8
1155	53.0	50.8	0.006		8.1
1156	57.0	51.1	0.014		8.1
1157	61.0	51.7	0.027		8.1
1158	64.0	52.4	0.044		8.1
1159	66.0	53.2	0.062		8.2
1160	68.0	54.1	0.081		8.2
1161	69.0	55.0	0.101		8.2
1162	69.0	55.8	0.120		8.2
1163	70.0	56.7	0.139		8.2
1164	69.0	57.4	0.155		8.3
1165	69.0	58.1	0.171		8.3
1166	68.0	58.7	0.184		8.3
1167	67.0	59.2	0.195		8.3
1168	66.0	59.6	0.204		8.3
1169	65.0	59.9	0.212		8.3
1170	64.0	60.1	0.217		8.3
1171	62.0	60.2	0.220		8.3
1172	60.0	60.2	0.219		8.3
1173	58.0	60.1	0.216		8.3
1174	55.0	59.8	0.210		8.3
1175	52.0	59.3	0.199		8.3
1176	49.0	58.7	0.185		8.3
1177	46.0	58.0	0.168		8.3
1178	43.0	57.1	0.148		8.3
1179	40.0	56.1	0.126		8.2
1180	36.0	54.9	0.099		8.2
1181	33.0	53.6	0.069		8.2
1182	29.0	52.1	0.037		8.1
1183	26.0	50.6	0.002		8.1
1184	23.0	0.0	0.000		0.0
1185	20.0	40.9	0.001		6.6
1186	18.0	0.0	0.000		0.0
1187	16.0	34.5	0.001		5.5
1188	14.0	0.0	0.000		0.0
1189	12.0	28.4	0.001		4.5
1190	11.0	0.0	0.000		0.0
1191	10.0	24.6	0.000		3.9
1192	9.0	0.0	0.000		0.0
1193	8.0	20.9	0.000		3.4
1194	8.0	0.0	0.000		0.0
1195	7.0	17.6	0.000		2.8
1196	7.0	0.0	0.000		0.0
1197	6.0	14.5	0.000		2.3
1198	6.0	0.0	0.000		0.0
1199	6.0	13.6	0.000		2.2
1200	6.0	0.0	0.000		0.0
1201	5.0	10.8	0.000		1.7
1202	5.0	0.0	0.000		0.0
1203	5.0	10.2	0.000		1.6
1204	5.0	0.1	0.000		0.0
1205	5.0	9.6	0.000		1.5
1206	5.0	0.6	0.000		0.1
1207	5.0	9.1	0.000		1.5
1208	4.0	0.0	0.000		0.0
1209	4.0	8.6	0.000		1.4
1210	4.0	0.0	0.000		0.0
1211	4.0	8.1	0.000		1.3
1212	4.0	0.2	0.000		0.0
1213	4.0	7.6	0.000		1.2
1214	4.0	0.6	0.000		0.1
1215	4.0	7.2	0.000		1.2
1216	4.0	1.0	0.000		0.2
1217	4.0	6.9	0.000		1.1
1218	4.0	1.3	0.000		0.2
1219	4.0	6.6	0.000		1.1
1220	4.0	1.6	0.000		0.3
1221	4.0	6.3	0.000		1.0
1222	4.0	1.8	0.000		0.3
1223	4.0	6.0	0.000		1.0
1224	4.0	2.1	0.000		0.3
1225	4.0	5.8	0.000		0.9
1226	4.0	2.3	0.000		0.4
1227	4.0	5.6	0.000		0.9

1228	3.0	0.5	0.000	OI				0.1
1229	3.0	5.3	0.000	|IO				0.9
1230	3.0	0.8	0.000	OI				0.1
1231	3.0	5.1	0.000	|IO				0.8
1232	3.0	1.0	0.000	OI				0.2
1233	3.0	4.9	0.000	|IO				0.8
1234	3.0	1.2	0.000	OI				0.2
1235	3.0	4.7	0.000	|IO				0.7
1236	3.0	1.4	0.000	OI				0.2
1237	3.0	4.5	0.000	|IO				0.7
1238	3.0	1.6	0.000	OI				0.3
1239	3.0	4.3	0.000	|O				0.7
1240	3.0	1.8	0.000	OI				0.3
1241	3.0	4.2	0.000	|O				0.7
1242	3.0	1.9	0.000	OI				0.3
1243	3.0	4.0	0.000	|O				0.6
1244	3.0	2.0	0.000	OI				0.3
1245	3.0	3.9	0.000	|O				0.6
1246	3.0	2.1	0.000	OI				0.3
1247	3.0	3.8	0.000	|O				0.6
1248	3.0	2.2	0.000	|O				0.4
1249	3.0	3.7	0.000	|O				0.6
1250	3.0	2.3	0.000	|O				0.4
1251	3.0	3.7	0.000	|O				0.6
1252	3.0	2.4	0.000	|O				0.4
1253	3.0	3.6	0.000	|O				0.6
1254	3.0	2.4	0.000	|O				0.4
1255	3.0	3.5	0.000	|O				0.6
1256	3.0	2.5	0.000	|O				0.4
1257	3.0	3.5	0.000	|O				0.6
1258	3.0	2.6	0.000	|O				0.4
1259	3.0	3.4	0.000	|O				0.5
1260	3.0	2.6	0.000	|O				0.4
1261	3.0	3.4	0.000	|O				0.5
1262	3.0	2.6	0.000	|O				0.4
1263	3.0	3.3	0.000	|O				0.5
1264	3.0	2.7	0.000	|O				0.4
1265	3.0	3.3	0.000	|O				0.5
1266	3.0	2.7	0.000	|O				0.4
1267	3.0	3.3	0.000	|O				0.5
1268	3.0	2.8	0.000	|O				0.4
1269	3.0	3.2	0.000	|O				0.5
1270	3.0	2.8	0.000	|O				0.4
1271	3.0	3.2	0.000	|O				0.5
1272	3.0	2.8	0.000	|O				0.4
1273	3.0	3.2	0.000	|O				0.5
1274	3.0	2.8	0.000	|O				0.5
1275	3.0	3.2	0.000	|O				0.5
1276	3.0	2.8	0.000	|O				0.5
1277	3.0	3.1	0.000	|O				0.5
1278	3.0	2.9	0.000	|O				0.5
1279	3.0	3.1	0.000	|O				0.5
1280	3.0	2.9	0.000	|O				0.5
1281	2.0	1.2	0.000	O				0.2
1282	2.0	2.8	0.000	IO				0.4
1283	2.0	1.3	0.000	O				0.2
1284	2.0	2.7	0.000	IO				0.4
1285	2.0	1.3	0.000	O				0.2
1286	2.0	2.6	0.000	IO				0.4
1287	2.0	1.4	0.000	O				0.2
1288	2.0	2.6	0.000	IO				0.4
1289	2.0	1.5	0.000	O				0.2
1290	2.0	2.5	0.000	IO				0.4
1291	2.0	1.5	0.000	O				0.2
1292	2.0	2.4	0.000	IO				0.4
1293	2.0	1.6	0.000	O				0.3
1294	2.0	2.4	0.000	IO				0.4
1295	2.0	1.6	0.000	O				0.3
1296	2.0	2.3	0.000	IO				0.4
1297	2.0	1.7	0.000	O				0.3
1298	2.0	2.3	0.000	IO				0.4
1299	2.0	1.7	0.000	O				0.3
1300	2.0	2.3	0.000	IO				0.4
1310	2.0	2.2	0.000	O				0.3
1320	2.0	2.1	0.000	O				0.3
1330	2.0	2.0	0.000	O				0.3
1340	2.0	2.0	0.000	O				0.3
1350	2.0	2.0	0.000	O				0.3
1360	2.0	2.0	0.000	O				0.3

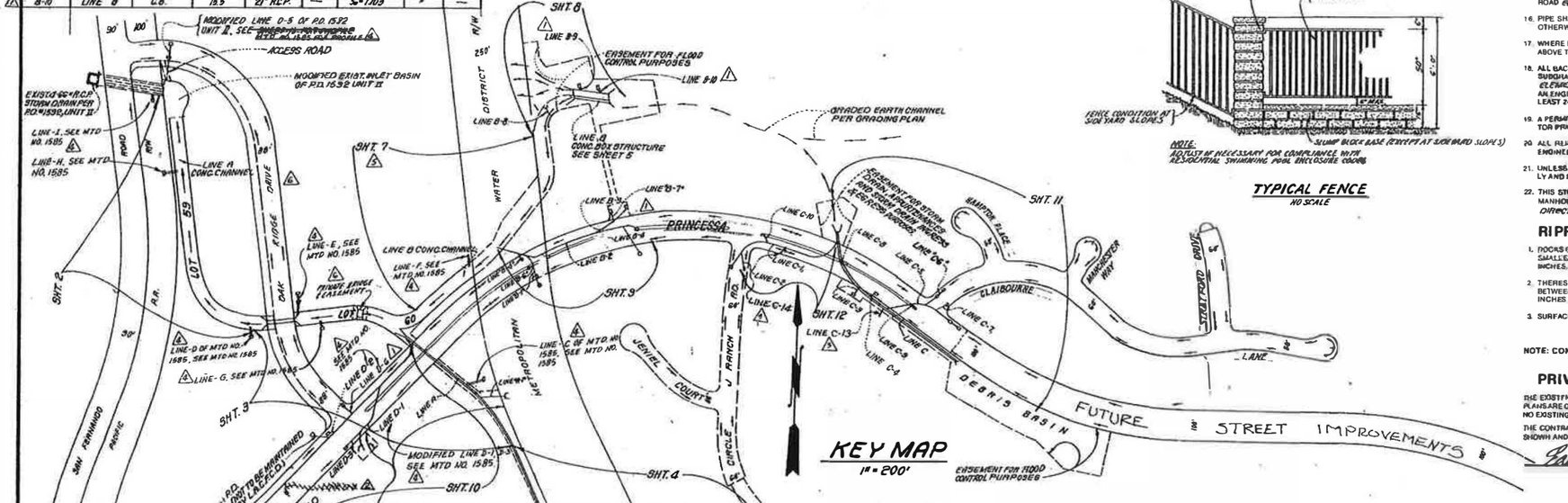
1370	2.0	2.0	0.000	O	|	|	|	0.3
1380	2.0	2.0	0.000	O	|	|	|	0.3
1390	2.0	2.0	0.000	O	|	|	|	0.3
1400	2.0	2.0	0.000	O	|	|	|	0.3
1420	2.0	2.0	0.000	O	|	|	|	0.3
1440	2.0	2.0	0.000	O	|	|	|	0.3
1460	1.0	1.0	0.000	O	|	|	|	0.2
1500	1.0	0.0	0.000	O	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 60.24(CFS)
Peak flow time = 1171 Min., time interval # = 57
Maximum depth in basin = 8.32(Ft.)

HYDRAULIC ELEMENTS

LINE	STATION FROM	STATION TO	Q_{50} (C.F.S.)	PIPE SIZE	V (F.P.S.)	Sf OR S_o	FLOW CONDITION	NORMAL DEPTH (FT.)
A	10+00.00	16+65.38	1038	OPEN CHANNEL	11.3	S_o = 0.0018	SUBCRITICAL	6.32
	16+65.38	17+92.00	1009	" "	10.9	"	"	6.38
	17+92.00	18+36.00	1009	R.C. BOX CULVERT	10.8	"	"	6.31
	18+36.00	20+60.00	1006	OPEN CHANNEL	11.0	"	"	6.36
	20+60.00	21+38.59	995	" "	10.5	"	"	7.00
	21+38.59	21+88.72	614	JUNCTION STRUCTURE	—	"	—	—
	21+88.72	22+43.35	614	78" R.C.P.	18.5	S_f = 0.0157	FULL	—
	22+43.35	26+15.63	565	75" R.C.P.	18.4	S_f = 0.0149	FULL	—
	26+15.39	31+90.00	550	" "	17.9	S_f = 0.0136	"	—
	31+90.00	37+76.81	525	" "	17.1	S_f = 0.0124	"	—
	37+76.81	39+32.00	485	" "	15.8	S_f = 0.0105	"	—
	39+32.00	39+44.00	485	T.S.	—	—	"	—
	39+44.00	39+56.00	485	R.C. BOX	7.4	S_f = 0.0016	"	—
	39+56.00	40+32.00	485	SPILLWAY STRUCTURE	26.8 TO 28.5	—	SUPER CRITICAL	1.18 TO 1.27
A-1	M.L.	INLET	15	36" R.C.P.	2.1	S_f = 0.0005	FULL	—
A-2	M.L.	INLET	25	48" R.C.P.	2.0	S_f = 0.0003	"	—
A-3	M.L.	94+85.00	773	36" R.C.P.	10.9	S_f = 0.0135	"	—
	94+85.00	143+72.22	648	" "	19.8	S_o = 0.0300	PART FULL	1.59
B	LINE A	3+87.94	412	OPEN CHANNEL	4.2	S_o = 0.0018	SUB-CRITICAL	1.68
	3+87.94	4+21.94	"	R.C. BOX CULVERT	8.1	"	"	6.37
	4+21.94	6+92.63	"	OPEN CHANNEL	4.55	"	"	2.07
	8+82.63	11+02.88	400	" "	5.31	"	"	1.67
	11+02.88	12+13.04	"	R.C.BOX CULVERT	12.36	S_o = 0.00425	"	1.20
B-1	LINE B	0+96.07	20	33" R.C.P.	9.9	S_o = 0.016	PART FULL	1.03
	0+96.07	1+26.78	17.9	" "	8.7	"	"	0.80
	1+26.78	C.B.	10.4	" "	8.4	"	"	0.76
B-2	LINE B-1	2+78.93	7.1	24" R.C.P.	7.4	S_f 0.005	"	0.68
	2+78.93	3+40.00	4.8	" "	6.5	"	"	0.56
	3+40.00	C.B.	1.3	" "	4.4	"	"	0.20
B-3	LINE B-2	0+37.01	2.6	" "	8.1	S_f 0.050	"	0.30
	0+37.01	C.B.	1.3	" "	6.4	"	"	0.22
B-4	LINE B-1	C.B.	LOW FLOW	18" R.C.P.	—	S_f 0.291	"	—
B-5	LINE B-2	C.B.	LOW FLOW	" "	—	S_f 0.1324	"	—
B-6	LINE B-1	C.B.	2.6	" "	17.6	S_f 0.4378	"	0.20
B-7	LINE B-3	C.B.	1.3	" "	8.2	S_f 0.0957	"	0.13
B-8	LINE B	INLET	LOW FLOW	" "	—	S_f 0.0105	—	—
B-9	LINE B	C.B.	24.7	21" R.C.P.	—	S_f 0.2216	PART FULL	—
B-10	LINE B	C.B.	13.5	21" R.C.P.	—	S_f 0.1109	"	—

LINE	STATION FROM	STATION TO	Q_{50} (C.F.S.)	PIPE SIZE	V (F.P.S.)	Sf OR S_o	FLOW CONDITION	NORMAL DEPTH (FT.)
C	11+00.00	11+55.00	Q_{50} = 684	87" R.C.P.	16.6	S_f = 0.0056	FULL	
	11+55.00	31+31.96	660	" "	16.0	S_f = 0.0049	"	
	31+31.96	31+89.62	629	" "	15.2	S_f = 0.0280	"	
	31+89.62	41+81.32	628	" "	15.1	S_f = 0.0039	"	
	41+81.32	71+06.00	538	" "	13.0	S_f = 0.0025	FULL	
	71+06.00	71+63.50	Q above	SPILLWAY				
C-1	M.L.	11+87.00	Q_{50} = 382	30" R.C.P.	7.5	S_f = 0.0181	FULL	
	11+87.00	31+53.22	35.2	" "	7.2	S_f = 0.0076	"	
	31+53.22	41+06.21	25.4	" "	5.2	S_f = 0.0038	"	
C-2	LINE C-1	C.B.	9.8	18" R.C.P.	5.6	S_f = 0.0087	"	
C-3	M.L.	C.B.	0.8	30" R.C.P.	9.0	S_o = 0.1393	PART FULL	
C-4	M.L.	C.B.	5	18" R.C.P.	2.8	S_f = 0.0065	"	
C-5	M.L.	11+44.62	Q_{50} = 382	36" R.C.P.	5.4	S_f = 0.0039	"	
	11+44.62	11+88.48	Q_{50} = 236	" "	3.3	S_f = 0.0012	"	
	11+88.48	C.B.	Q_{50} = 128	" "	2.0	S_f = 0.0004	"	
	C.B.	C.B.	Q_{50} = 9.0	24" R.C.P.	2.9	S_f = 0.0018	"	
C-13	4+35.14	PVT. DRAIN	Q_{50} = 20.2	24" R.C.P.	6.5	S_o = 0.050	PART FULL	
C-6	LINE C-5	C.B.	Q_{50} = 16.7	24" R.C.P.	6.7	S_f = 0.0142	FULL	
	C.B.	C.B.	Q_{50} = 8.4	18" R.C.P.	4.7	S_f = 0.0044	"	
C-7	LINE C-5	C.B.	Q_{50} = 9.7	18" R.C.P.	5.5	S_f = 0.0055	"	
C-8	M.L.	C.B.	LOW FLOW	18" R.C.P.	—	S_f = 0.4392	PART FULL	
C-9	LINE C-5	C.B.	LOW FLOW	" "	—	S_f = 0.1238	"	
C-14	LINE C-1	PVT. DRAIN BOX	Q_{50} = 11	18" R.C.P.	0.6	S_o = 0.060	PART FULL	
D	LINE A	2+08.62	98	48" R.C.P.	7.8	S_f = 0.0045	FULL	
	2+08.62	3+93.70	40	39" R.C.P.	4.8	S_f = 0.0027	"	
	3+93.70	4+25.00	35	36" R.C.P.	4.9	S_f = 0.0027	"	
	4+25.00	6+97.89	25	" "	8.7	S_o = 0.010	PART FULL	1.27
	6+97.89	9+50.00	25	" "	8.7	"	"	1.27
	9+50.00	INLET	25	" "	28.2	S_f = 0.3439	"	0.69
D-1	LINE D	1+72.51	58	39" R.C.P.	7.0	S_f = 0.0049	FULL	
	1+72.51	INLET	29	" "	16.5	S_o = 0.034	PART FULL	1.27
D-2	LINE D	C.B.	5	24" R.C.P.	15.4	S_o = 0.069	" "	0.82
D-3	LINE D-1	C.B.	9	18" R.C.P.	11.8	S_o = 0.0946	" "	0.68
D-4	LINE D	C.B.			7.6	S_f = 0.1440	" "	0.47
D-5	LINE D	C.B.			8.6	S_f = 0.660	" "	0.53
D-6	LINE D	C.B.	LOW FLOW	" "	—	S_o = 0.1246	" "	—



NOTE:

SEE SHEET 19 FOR STRUCTURAL NOTES AND STRUCTURAL DESIGN CRITERIA EXCEPT STRUCTURAL DESIGN CRITERIA FOR R.C. CULVERT, LINE "B" SHOWN ON SHEET 9.

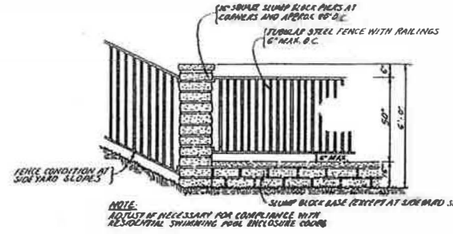
BENCH MARK:
CL 2911 NEWHALL 1978
FC MON CONC HDWL 6' E 78.6' S 7.20 FT W C/L SAN FERNANDO RD & 0.8 MI S OF SAUGUS RR STA MND (BM 128 00910 1963)
ELEV. = 1180.388

STORM DRAIN PLANS IN TRACT No. 43532 P.D. No. 1869

337-F126.1-19

GENERAL NOTES (Cont'd)

23. A SOILS ENGINEER SHALL CERTIFY THAT ALL FILLS AND BACKFILLS OVER UNDERGROUND STORM DRAINS OUTSIDE OF ST. R/W HAVE BEEN COMPACTED OR CONSOLIDATED TO A 90% DENSITY. THIS CERTIFICATION SHALL BE SUBMITTED TO THE DIRECTOR OF PUBLIC WORKS PRIOR TO ACCEPTANCE OF THE WORK BY THE COUNTY.
24. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION IN REGARD TO SAFETY ORDERS.
25. THE CONTRACTOR SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENTS" AS SHOWN ON LOS ANGELES COUNTY ENGINEER STANDARD S-2.
26. ALL PIPES SHALL BE PLACED IN A TRENCH IN NATURAL GROUND AND/OR COMPACTED FILL. THE GROUND LEVEL BEFORE THE TRENCHING SHALL BE AT LEAST 3 FEET ABOVE TOP OF PIPE ELEVATION, OR AT FINISH SURFACE ELEVATION, WHICHEVER IS LESS. ALL BACKFILL IN EASEMENTS SHALL BE COMPACTED TO THE DENSITY REQUIRED BY THE GRADING PLAN.
27. THE INSPECTOR MAY HAVE THE OPTION TO REQUIRE CONCRETE BACKFILL DURING CONSTRUCTION WHEN THE PIPE HAS LESS THAN ONE FOOT OF COVER AND IS SUBJECTED TO HEAVY EQUIPMENT TRAFFIC. THE CONCRETE BACKFILL SHALL CONSIST OF 1-1/2 SACK MIX CEMENT CONCRETE POURED FROM WALL TO WALL OF TRENCH AND FROM BOTTOM OF TRENCH TO A MINIMUM DEPTH OF 4 INCHES OVER TOP OF PIPE.
28. A PERMIT SHALL BE OBTAINED FROM THE FLOOD CONTROL ELEMENT PRIOR TO COMMENCING ANY CONSTRUCTION WORK UNDER THIS CONTRACT. CONTACT BY TELEPHONE AT 226-4708 TO OBTAIN AN INSPECTION AND CONNECTION PERMIT AND TO MAKE DEPOSIT FOR CONSTRUCTION INSPECTION BY THE FLOOD CONTROL ELEMENT
29. THE CONTRACTOR SHALL PROVIDE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES UNTIL THIS STORM DRAIN SYSTEM IS OPERABLE.
30. THE PIPE SHALL BE MARKED AS CALLED WITH "S" OR P ADDITIONAL COVER OVER THE INVERT REINFORCING FOR THE REACHES AS INDICATED IN THE PROFILE.
31. THE CONTRACTOR SHALL NOTIFY THE FLOOD CONTROL ELEMENT'S CONTRACT ADMINISTRATION DIVISION BY TELEPHONE AT (213) 226-4206 AT LEAST 48 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
32. ALL REFERENCES ON THIS PLAN TO THE COUNTY ENGINEER, ROAD DEPARTMENT OR FLOOD CONTROL DISTRICT SHALL APPLY TO THESE APPROPRIATE SECTIONS OF THE DEPARTMENT OF PUBLIC WORKS



NOTE:
ADJUST AS NECESSARY FOR COMPLIANCE WITH RESIDENTIAL SWIMMING POOL ENCLOSURE CODES

TYPICAL FENCE
NO SCALE

GENERAL NOTES:

1. ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. MEAN SEA LEVEL DATUM OF 1929. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1985 EDITION," INCLUDING SUPPLEMENTS AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE DIRECTOR OF PUBLIC WORKS.
2. APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION, OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL SHEETS.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE AT 226-4106 AT LEAST 24 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT. THE CONTRACTOR SHALL SUBMIT A DEPOSIT FOR CONSTRUCTION INSPECTION TO THE FLOOD CONTROL DISTRICT, 900 SOUTH FREMONT AVENUE, ALHAMBRA. AT LEAST 24 HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT, COPIES OF ALL PERMITS MUST BE FILED WITH THE DISTRICT AT THE ABOVE ADDRESS PRIOR TO SUBMITTING THIS DEPOSIT.
4. ALL CONSTRUCTION JOINTS IN THE FOOTING OF SLABS AND WALLS SHALL BE IN THE SAME PLANE, NO STAGGERING OF JOINTS WILL BE PERMITTED.
5. NO CONCRETE SHALL BE PLACED UNTIL THE FORMS AND REINFORCING STEEL HAS BEEN PLACED, INSPECTED AND APPROVED.
6. TRANSVERSE REINFORCEMENT AND TRANSVERSE JOINTS SHALL BE PLACED AT RIGHT ANGLES (OR RADIAL) TO CONDUIT CENTERLINE EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
7. ALL CONCRETE SHALL BE PORTLAND CEMENT CONCRETE WITH AN ULTIMATE 28 DAYS COMPRESSIVE STRENGTH OF 3250 P.S.I. EXCEPT THAT ALL R.C.P. STRUCTURES SHALL BE OF 4000 P.S.I.
8. ALL EXPOSED EDGES SHALL BE FINISHED WITH A 3/4" CHAMFER.
9. ALL STEEL ADJACENT TO FACE OF CONCRETE SHALL HAVE 2½" CLEARANCE UNLESS OTHERWISE SPECIFIED.
10. REINFORCEMENT IS TO BE DEFORMED BARS OF INTERMEDIATE GRADE STEEL AS PER A.S.T.M. A-615-GRADE 60.
11. ALL BAR BENDS AND HOOKS SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE "MANUAL OF STANDARD PRACTICE".
12. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTERLINE OF STEEL UNLESS OTHERWISE NOTED.
13. ALL BACKFILLS AND FILLS TO BE USED AS SUBGRADE SHALL BE COMPACTED TO A RELATIVE DENSITY OF 90% UNLESS OTHERWISE SPECIFIED.
14. ALL STEEL THAT IS TO BE CONTINUOUS SHALL HAVE A MINIMUM LAP OF 30 BAR DIAMETERS OR 18", WHICHEVER IS GREATER.
15. ALL CATCH BASINS AND CONNECTOR PIPES BETWEEN CATCH BASINS TO BE INSPECTED BY THE COUNTY ROAD ELEMENT.
16. PIPE SHALL BE EMBEDDED 6 INCHES INTO ALL STRUCTURES INCLUDING INLET & HEADWALLS, UNLESS OTHERWISE SPECIFIED.
17. WHERE PIPE IS TO BE PLACED IN FILL, THE FILL SHALL BE COMPACTED TO A MINIMUM DEPTH OF 3 FEET ABOVE THE TOP OF PIPE PRIOR TO TRENCHING.
18. ALL BACKFILL AND FILL AROUND CLOSED CONDUIT IN STREET RIGHTS OF WAY SHALL BE BROUGHT UP TO SUBGRADE OF THE ROAD OR 10.7 FEET ABOVE THE TOP OF THE CONDUIT, WHICHEVER IS LESS. THE ROAD ELEMENT SHALL INSPECT ALL BACKFILL AND FILL ABOVE AS PREVIOUSLY NOTED. APPLICATION FOR AN ENGINEER OR INSPECTOR IN CONNECTION WITH THE WORK, SHALL BE MADE BY THE CONTRACTOR AT LEAST 24 HOURS BEFORE HIS SERVICE IS REQUIRED. CALL 226-8188.
19. A PERMIT SHALL BE OBTAINED FROM THE ROAD ELEMENT AND SHALL BE SUBMITTED TO THE INSPECTOR PRIOR TO COMMENCING CONSTRUCTION WITHIN THEIR RIGHTS OF WAY.
20. ALL REINFORCED CONCRETE PIPE SHALL BE BEDDED IN ACCORDANCE WITH LOS ANGELES COUNTY ENGINEER CASE A BEDDING PER STANDARD DRAWING D-54, UNLESS OTHERWISE NOTED.
21. UNLESS OTHERWISE SHOWN, CONCRETE DIMENSIONS SHALL BE MEASURED VERTICALLY OR HORIZONTALLY AND PARALLEL OR AT RIGHT ANGLES (OR RADIAL) TO THE CENTER LINE OF CONSTRUCTION.
22. THIS STORM DRAIN WILL NOT BE ACCEPTED FOR MAINTENANCE UNTIL THE STREETS HAVE BEEN PAVED, MANHOLES BROUGHT TO GRADE, AND THE SYSTEM IS CLEANED TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS.

RIPRAP NOTES

1. ROCKS FOR GROUTED RIPRAP SHALL BE GOOD QUALITY BROKEN CONCRETE AND/OR RIVER RUN ROCK. THE SMALLEST DIMENSIONS SHALL EXCEED 3 INCHES AND THE LARGEST DIMENSION SHALL NOT EXCEED 18 INCHES. THE LARGEST DIMENSION SHALL NOT EXCEED 4 TIMES THE SMALLEST DIMENSION.
2. THERE SHALL BE A GROUT BED OF AT LEAST 3 INCHES BENEATH THE FIRST LAYER OF ROCK. ALL THE VOIDS BETWEEN THE ROCKS SHALL BE FILLED WITH GROUT. MAXIMUM SPACING BETWEEN ROCKS SHALL BE 2 INCHES.
3. SURFACE ROCKS SHALL BE IMBEDDED FROM 1/2 TO 2/3 OF THEIR MAXIMUM DIMENSION.

NOTE: CONCRETE MAY BE SUBSTITUTED FOR THE GROUT.

PRIVATE ENGINEERS NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING.

Edward L Pearson — 7-15-85
REGISTERED CIVIL ENGINEER No. 9783 — DATE

STANDARD PLANS

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

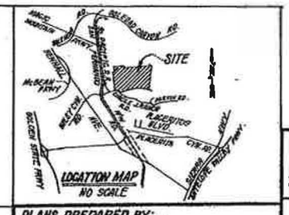
CATCH BASIN No. 1	2-D180
CATCH BASIN No. 2	2-D182
CATCH BASIN No. 3	2-D183
JUNCTION STRUCTURE No. 2	2-D112
JUNCTION STRUCTURE No. 4	2-D193
MANHOLE No. 1	2-D102
MANHOLE No. 2	2-D184
MANHOLE No. 4	2-D113
TRANSITION STRUCTURE No. 1	2-D235
TRANSITION STRUCTURE No. 3	2-D190
TYPICAL FENCE & GATE FOR CHANNEL FRONTS OF WAY	2-D178
CONNECTION TO CATCH BASIN	2-D222
DETAIL OF CATCH BASIN OPENING	2-D232
CATCH BASIN PROTECTION BAR	2-D175
CATCH BASIN REINFORCEMENT FOR ROUND MANHOLES	2-D157
MANHOLE FRAME & COVER FOR CATCH BASIN	2-D227
MANHOLE FRAME & COVER	2-D472
TYPICAL FENCE, GATE AND HEADWALLS	2-D180
DETAILS FOR CHANNEL WALLS	2-D181
PROTECTION BARRIER	2-D231

LOS ANGELES COUNTY ENGINEER

PIPE BEDDING FOR STORM DRAIN	D-54
CONCRETE PIPE ANCHOR	D-72

LOS ANGELES COUNTY ROAD DEPARTMENT

CURB & GUTTER TRANSITIONS & MODIFICATIONS	60-03



PLANS REVISED BY:
R. T. QUINN & ASSOCIATES
1595 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
SHEETS: 1, 8, 9, 10, 11, 12, 13, 2, 3 & 7
12/19/85
SIGNATURE: R T Quinn R.C.E. 24988

PLANS PREPARED BY:
E.L. PEARSON & ASSOCIATES INC.
855 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
(213) 321-1615
SIGNATURE: Edward L Pearson R.C.E. NO. 9783

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	DELETED LINE "B-5", REVISED HYDRAULIC ELEMENTS, ADDED LINE D-6, D-7 & D-8	Edward L Pearson	David L Richter	7/15/85
2	ELIMINATED LINES "D-4, D-5 & D-6, REVISED HYDRAULIC ELEMENTS "SAME AS ABOVE" FENCE DETAIL	R.T. Quinn	Michael Richards	10/1/85
3	REVISED LINE C-3, ADDED LINE C-13 & LINE C-14	Olivia Lin	S. KHALIL C 56795	10/17/85
4	ADDED NOTES FOR MODIFICATION OF A AND B, C-4 & C-5, D-2, D-3, D-4, D-5 AND D-6, REVISED LINE C-1	R.T. Quinn	S. KHALIL C 56795	11/19/85
5	ADDED NOTES 2 & 3, REVISED LINE C-1	R.T. Quinn	S. KHALIL	11/26/85
6	REV. ST. NAME, SHT. 1, ADDED REVISED BRIDGE SHT. 3, REV. ACCESS RD. SHT. 7, ADDED ACCESS RAMP SHT. 8	R.T. Quinn	S. KHALIL	12/2/85

SOUTHERN CALIFORNIA BLUEPRINT CO. P.D. SHEET NO. 1 DATE: 1-83

"PF 520259"

COUNTY OF LOS ANGELES, CALIFORNIA

THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

LAND DEVELOPMENT DIVISION

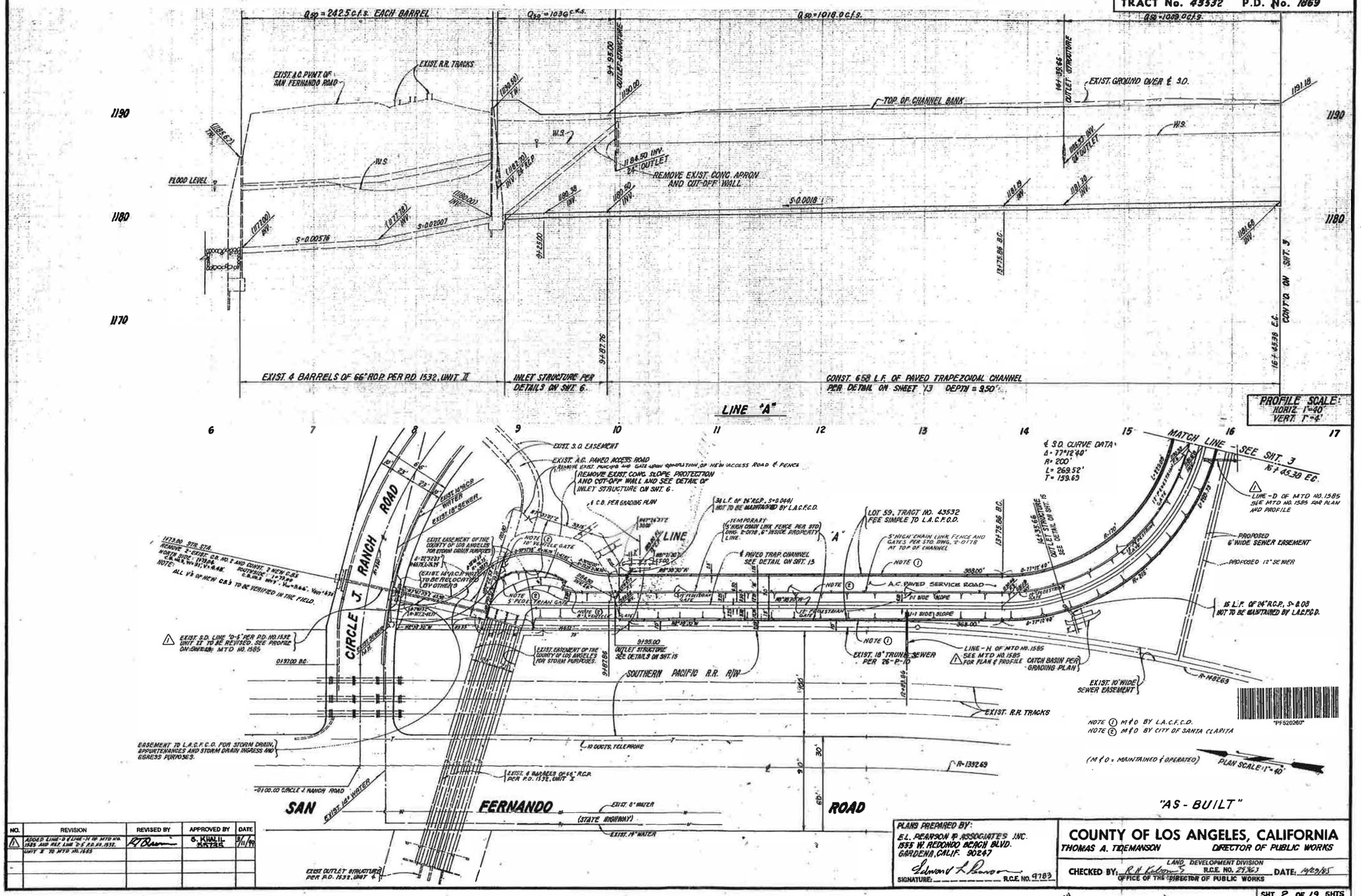
APPROVED BY: Carl L Blum — DIVISION ENGINEER — DATE: 12/29/85

CHECKED BY: R H Nelson S — R.C.E. NO. 27367 — DATE: 12/26/85
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 1 OF 19 SHTS

337-F126.1-19

STORM DRAIN PLANS IN
TRACT No. 43532 P.D. No. 1869



NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	ADDED LINE-D & LINE-H OF MTD NO. 1585 AND REF. LINE D-5 P.D. NO. 1532, UNIT II TO MTD NO. 1585	R.T. Pearson	S. KHALIL 25735	9/11/84

PLANS PREPARED BY:
E.L. PEARSON & ASSOCIATES INC.
1555 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
SIGNATURE: Edward L Pearson R.C.E. NO. 9783

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
CHECKED BY: R.H. Kalmus R.C.E. NO. 27363 DATE: 12/29/83
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 2 OF 19 SHTS

STORM DRAIN PLANS IN TRACT No. 43532 P.D. No. 1869

NOTE: EXIST. UTILITIES TO BE PROTECTED DURING CONSTRUCTION.

CAUTION: HIGH PRESSURE GAS LOCATE BEFORE EXCAVATION

LINE "A-1"

LINE "A"

"AS - BUILT"

S.D. CURVE DATA
Δ= 27°11'52"
R= 200'
L= 94.94'
T= 48.38'

S.D. CURVE DATA
Δ= 32°02'30"
R= 200'
L= 111.85'
T= 57.43'

NOTE ① M & O BY L.A.F.C.D.
NOTE ② M & O BY CITY OF SANTA CLARITA
(M & O - MAINTAINED & OPERATED)

PROFILE SCALE
HORIZ. 1"=40'
VERT. 1"=4'

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	ADDED LINES & I.E.S OF WATER MA. FROM STA. 20+00 TO STA. 21+00 PER MTD NO. 1585	R.T. Dennis	S. KHALIL GAINES	9/2/99
2	ADDED PRIVATE BRIDGE & BRIDGE FOOTINGS, M.W.D. ST. MAINS AND ADDED SHEET 4 NOTE	R.T. Dennis	S. KHALIL	11/2/00
3	REMOVED C.L. FENCE, ADDED EXIST. WALL, ADDED SECTION A-A	R.T. Dennis	Robert Gaines	7/6/01

PLANS PREPARED BY:
E. L. PEARSON & ASSOCIATES INC.
1555 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
(213) 321-1515
SIGNATURE: Edward L. Pearson R.C.E. NO. 9783

COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS
CHECKED BY: R.H. Erickson R.C.E. NO. 27451 DATE: 10/20/95
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 3 OF 19 SHTS

SOUTHERN CALIFORNIA BLUEPRINT CO. P.D. SHEET NO. 2 DATE 1-93

STORM DRAIN PLANS IN TRACT No. 43532 P.D. No. 1869

Q50 = 414 c.f.s. — Q50 = 400 c.f.s.

EXIST. GROUND OVER L.A.C.F.C.D. — TOP OF CHANNEL BANK — W.S. — EXIST. 36"ϕ GAS LINE — MATCH LINE SEE SHEET 8

OUTLET STRUCTURE TO CHANNEL SEE DETAIL ON SHEET 15 LINE "B-1" SHT. 9

S=0.0018 — S=0.0018

WARPED WING WALL & BOTTOM SLAB, SEE DETAILS ON SHT. 13

EXIST. 16'-9" DIA. SAUGUS PIPELINE

LINE B

CONST. 316 L.F. OF CONCRETE PAVED TRAPEZOIDAL CHANNEL - SEE DETAILS ON SHEET 13

CONST. 34 L.F. OF SINGLE 8'x8' R.C. BOX SEE DETAILS ON SHT. 14

CONST. 478 L.F. OF CON'C. PAVED TRAPEZOIDAL CHANNEL SEE DETAILS ON SHEET 13

0+00.00 = 21+28.59 LINE-A — TRANSITION STRUCTURE (4) SEE DETAILS ON SHT. 14

PROFILE SCALES
HORIZ.: 1" = 40'
VERT.: 1" = 4'

LINE-A CONCRETE PAVED TRAPEZOIDAL CHANNEL SEE SHEET 3

STORM DRAIN AND INGRESS & EGRESS EASEMENT TO L.A.C.F.C.D. PER M.T.D. NO 1585

LOT 60, TRACT NO. 43532 FEE SIMPLE TO L.A.C.F.C.D.

PLAN SCALE: 1" = 40'

LINE-F OF MTD NO. 1585 SEE MTD NO. 1585 FOR PROFILE

LINE-B, CONCRETE PAVED TRAPEZOIDAL CHANNEL, SEE SHEET 13 FOR DETAIL

5' HIGH CHAIN LINK FENCE PER STD. DWG. B-D178, @ INSIDE ESMT. LINE SEE NOTE (1)

R.C. PAVED SERVICE ROAD

20' WIDE GAS LINE EASEMENT (S. Calif. Gas Co.)

5' HIGH CHAIN LINK FENCE STD. DWG. B-D178 AND PEDESTRIAN GATES SEE NOTE (2)

EASEMENT TO L.A.C.F.C.D. FOR FLOOD CONTROL PURPOSES.

5' HIGH CHAIN LINK FENCE PER STAND. DWG. B-D178, @ INSIDE ESMT. LINE. SEE NOTE (1)

21+43.60 E.C. LINE-A — TRANSITION STRUCTURE (4) PER DETAIL ON SHEET 14 — 21+83.72 LINE-A

SERVICE ROAD SEE NOTE (1)

EXIST. BLOCK WALL - NO BACKFILL TO BE PLACED AGAINST WALL WITHOUT PRIOR APPROVAL OF L.A.C.F.C.D.W.

18' WIDE EASEMENT TO LOS ANGELES COUNTY FLOOD CONTROL DISTRICT FOR STORM DRAIN INGRESS AND EGRESS PURPOSES PER M.T.D. NO. 1585

LINE-D 48"R.C.P. SEE SHEET 10

LINE-A, 75"R.C.P. SEE SHEET 3

VIA PRINCESSA

CONC. CURB & GUTTER — CONC. MEDIAN CURB — CONC. DRIVEWAYS PER STREET PLAN

LINE B-2, 24"R.C.P. SEE SHEET 9

LINE B-1, 33"R.C.P. SEE SHT. 9

3"A.C. PAVED TURNAROUND SEE NOTE (1)

EXIST. 16'-9" DIA. SAUGUS PIPELINE — REMOVE CHAIN LINK FENCE — P.S.P. M.T.D. R/W — MATCH LINE SEE SHEET 8

C.L. FENCE SEE NOTE (1) — A.C. PAVED ROAD SEE NOTE (2) — 4'C.L. WALK GATE SEE NOTE (1) — PROVIDE VISUAL MARKERS PERIODICALLY REMOVED BY THE CITY OF SANTA CLARITA

EASEMENT TO THE L.A.C.F.C.D. FOR STORM DRAIN INGRESS & EGRESS PURPOSES. STORM DRAIN

CAUTION!
EXIST. 34" ϕ HIGH PRESSURE GAS LINE.

NOTE (1) M&O BY L.A.C.F.C.D.
NOTE (2) M&O BY CITY OF SANTA CLARITA
(M&O - MAINTENANCE & OPERATION)

SECTION "A-A" N.T.S.

STORM DRAIN CURVE DATA

	Δ	R	L	T
(1)	78°36'20"	100'	137.19'	81.86'
(2)	10°04'44"	1255'	220.77'	110.67'
(3)	12°39'47"	400'	88.40'	44.38'
(4)	49°19'15"	100'	86.14'	45.96'

"AS-BUILT"

"PF520265"

NO.	REVISION	REVISED BY	APPROVED BY	DATE
6	ADDED MARKERS & EGRESS ESMT. SHT 7	R.T. Ebrin	S. KHALIL	2/16/99
5	ADDED EXIST. 34"ϕ GAS LINE ON PLAN & PROFILE, CHANGE ESMT. ON 4	R.T. Ebrin	S. KHALIL 65735	7/12/
4	ADDED LINE-F OF MTD. NO. 1585 & ALSO INGRESS & EGRESS EASEMENT	R.T. Ebrin	S. KHALIL	3/14/99
3	ADDED INGRESS & EGRESS EASEMENT PER M.T.D. NO. 1585	R.T. Ebrin	S. KHALIL	10/19/98
2	ADDED WALL & NOTE, RELOCATED FENCE & GATE AND ADDED PAVEMENT	R.T. Ebrin	S. KHALIL	11/2/98
1	REMOVED EXIST. FENCE & ADDED DETAIL "A-A"	R.T. Ebrin		7/1/98

REGISTERED PROFESSIONAL ENGINEER ROBERT X CLAY No. 21908 Exp. Dec. 31, 1999 CIVIL STATE OF CALIFORNIA

E.G.= 79.59 E.C. STR. STR.

PLANS PREPARED BY:
E.L. PEARSON & ASSOCIATES INC.
1535 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
(213) 321-1515
SIGNATURE: Edward L. Pearson R.C.E. NO. 2782

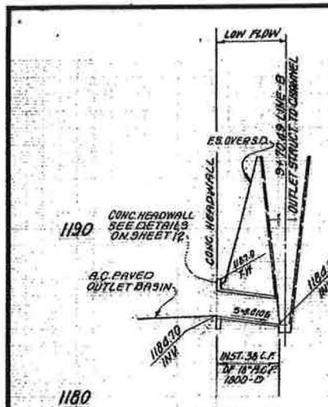
COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

CHECKED BY: R.T. Ebrin — LAND DEVELOPMENT DIVISION OFFICE OF THE DIRECTOR OF PUBLIC WORKS — R.C.E. NO. 27963 — DATE: 4/6/65

SHT 7 OF 10 SHTS

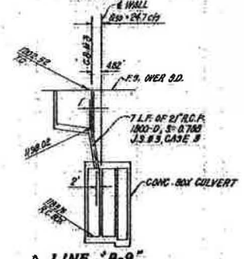
SOUTHERN CALIFORNIA BLUEPRINT CO. P.D. SHEET NO. 2 DATE 1-83

STORM DRAIN PLANS IN TRACT No. 43532 P.D. No. 1869



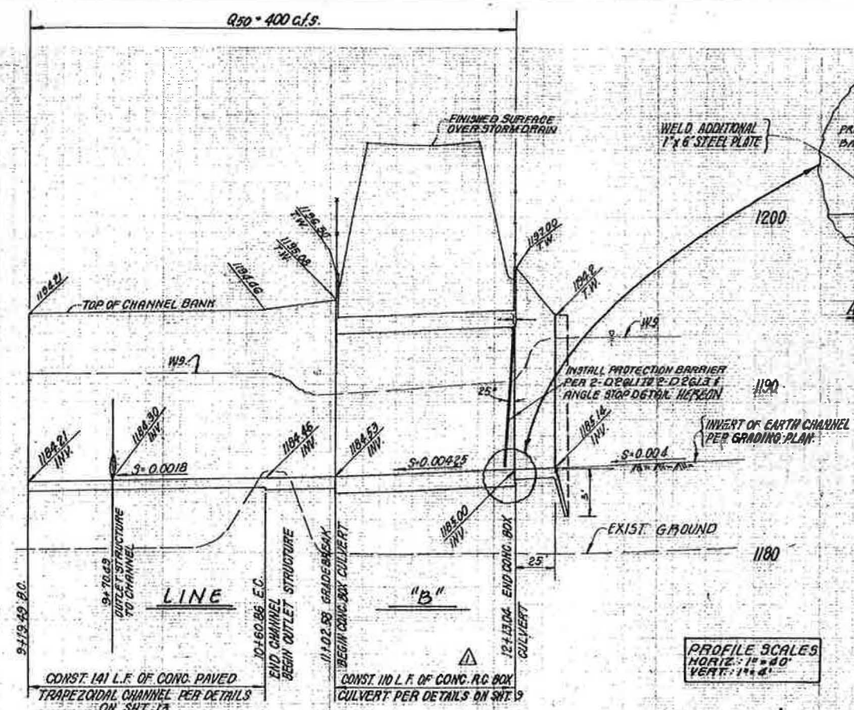
LINE B-8

SCALE: HORIZ. 1"=40' VERT. 1"=4'



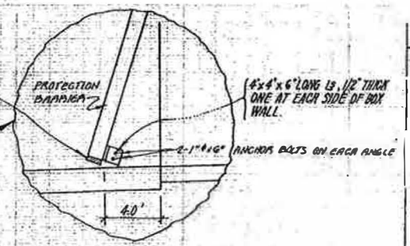
⚠ LINE 'B-9'

HORIZ. 1"=40' VERT. 1"=8'



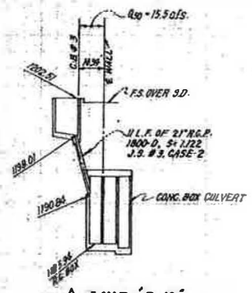
PROFILE SCALES

HORIZ.: 1"=40' VERT.: 1"=4'



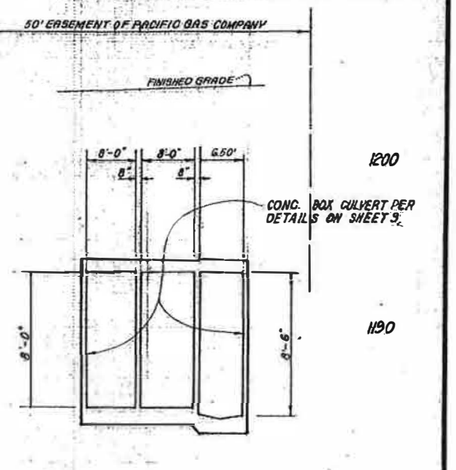
ANGLE STOP DETAIL

NOT TO SCALE



⚠ LINE 'B-10'

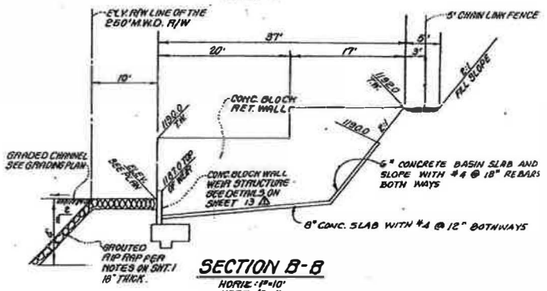
SCALES: HORIZ. 1"=40' VERT. 1"=8'



⚠ SECTION A-A

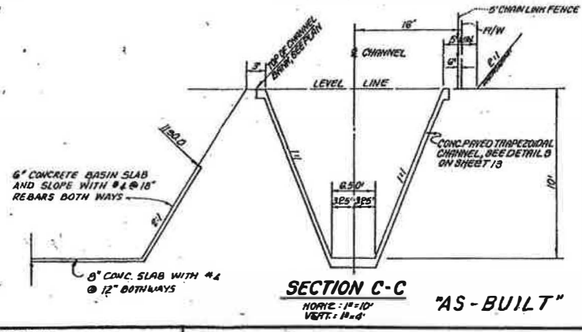
HORIZ. 1"=10' VERT. 1"=4'

NOTE: SEE SHEET 19 FOR STRUCTURAL NOTES AND STRUCTURAL DESIGN CRITERIA.



SECTION B-B

HORIZ. 1"=10' VERT. 1"=4'



SECTION C-C

HORIZ. 1"=10' VERT. 1"=4'

"AS-BUILT"

NO.	REVISION	REVISED BY	APPROVED BY	DATE
⚠	REV. B.C. BOX CULVERT AND ADD LINES "B-9" & "B-10" & REAR & END P.W.F. ADDED SHT. NO. TO 8 OF 19, ANNOTATED SAS LINE & ROAD & C. ACCESS ROAD TO INLET.	E.J. Pearson	David L. Pitchford	9/16
⚠	REVISED FENCE REPLACE CHAIN LINK BY WROUGH IRON	R.T. Quinn	Mark Pestrella	9/16

NOTES:
NOTE ① M&O BY CITY OF SANTA CLARITA
NOTE ② M&O BY L.A.C.F.C.D.
NOTE ③ M&O BY M.W.D.
(M&O = MAINTAINED & OPERATED)

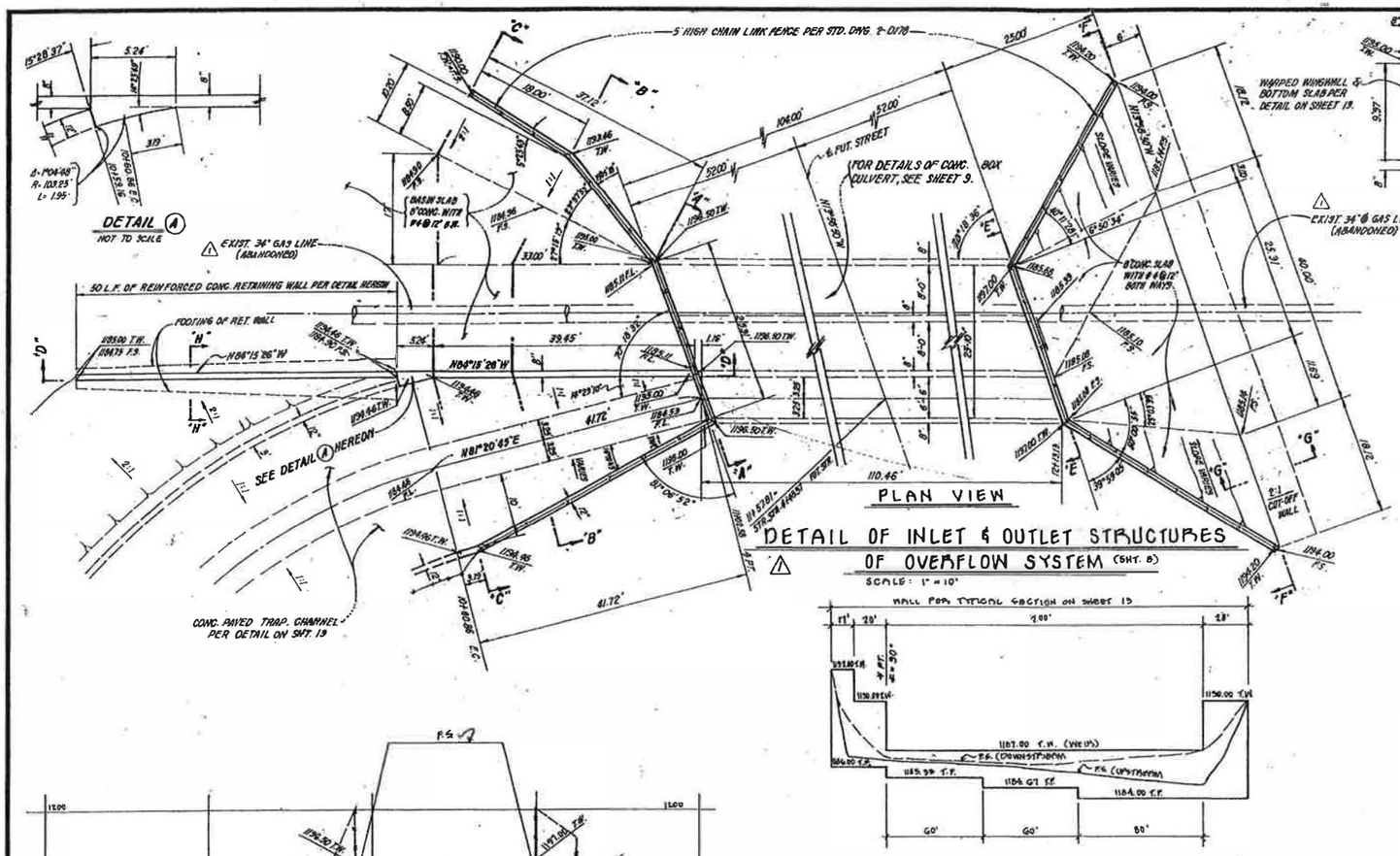
PLANS PREPARED BY:
E.L. PEARSON & ASSOCIATES INC.
1535 W. REDONDO BEACH BLVD.
GARDENA, CALIF. 90247
(213) 321-1515
SIGNATURE: Edward L Pearson R.C.E. NO. 2783

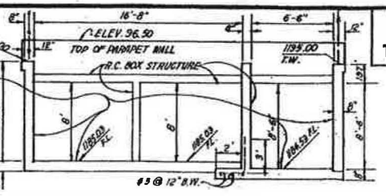
COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON — DIRECTOR OF PUBLIC WORKS

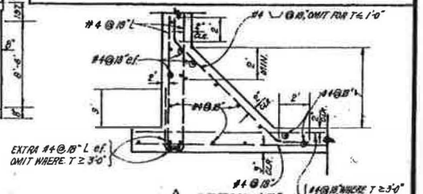
LAND DEVELOPMENT DIVISION
CHECKED BY: RH Kolstad S. R.C.E. NO. 23623 DATE: 12/28/15
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

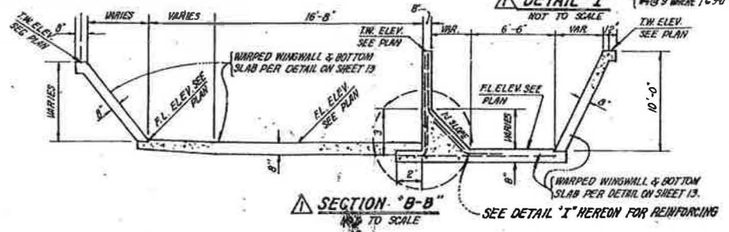
SHT 8 OF 19 SHTS

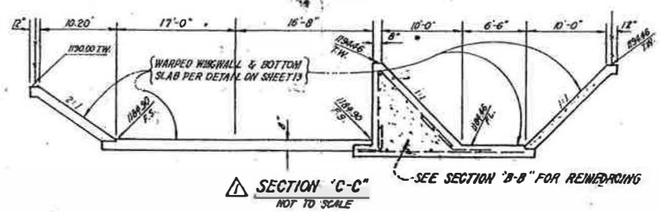
STORM DRAIN PLANS IN TRACT No. 43532 P.D. No. 1809

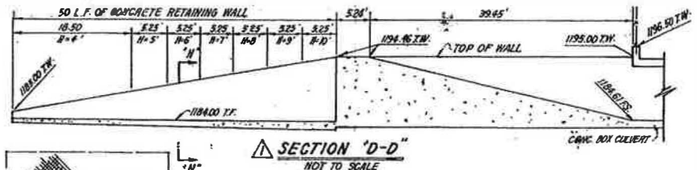


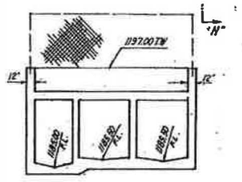


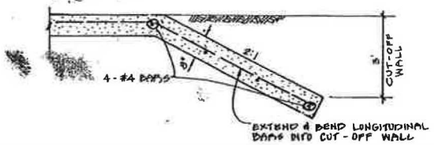


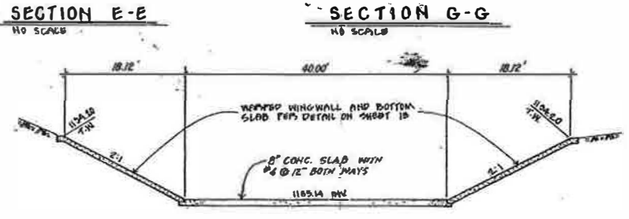












NOTE: SEE SHEET 13 FOR STRUCTURAL NOTES & STRUCTURAL DESIGN CRITERIA.

REINFORCED CONCRETE WING HEADWALLS

H	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'
W	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"	9'-2"	9'-8"
C	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"
B	3'-4"	3'-6"	3'-10"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-10"	6'-2"
F	8"	8"	8"	8"	8"	10"	12"	14"	16"	18"
G	8"	8"	8"	8"	8"	10"	11"	12"	14"	16"
"G" BARS	#4@18	#4@18	#4@18	#4@18	#4@18	#5@18	#5@18	#5@18	#6@18	#6@18
"D" BARS	#4@18	#4@18	#5@18	#5@18	#6@18	#6@18	#6@18	#6@18	#6@18	#6@18

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED INLET & OUTLET STRUCT.	Edward L Pearson	David A Ruth	10/25/85

PLANS PREPARED BY:
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COUNTY OF LOS ANGELES, CALIFORNIA
THOMAS A. TIDEMANSON DIRECTOR OF PUBLIC WORKS

CHECKED BY: R.H. Kubomura R.C.E. NO. 27963 DATE: 10/25/85
LAND DEVELOPMENT DIVISION
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 12 OF 13 SHTS

PF520274