COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
HYDROLOGY UNIT

TO: Sikand Engineering
15230 Burbank Blvd
Van Nuys, CA 91411

Date: 04/27/17

REVIEW OF HYDROLOGY STUDY

TR NO. **073336** **DATE OF REPORT** **04/27/17**

We have reviewed your Hydrology Study.

[X] The Hydrology Study has been approved.

[X] Refer to comments below:

COMMENTS:

1. Infiltration rate for the project site has been assumed but must be approved by Geotechnical and Materials Engineering Division prior to the grading plans. Any changes to the assumed infiltration rate may require a revised Hydrology Study and/or Tentative Map.

2. Work within soft bottom drainage areas (which may include but is not limited to soft bottom basins, channels, watercourses, grade to drain) will require maintenance permits from Fish and Game, Army Corps of Engineers, and RWQCB prior to approval of the storm drain, and the permits must be still active prior to acceptance.

3. A Drainage Benefit Assessment Area must be established prior to the recordation of the final map. This DBAA will be to finance the future ongoing maintenance and capital replacement of all water quality devices/systems identified to be maintained by the County of Los Angeles.

REVIEWED BY ______________________
Vilong Truong (626) 458-4921

REGISTERED PROFESSIONAL ENGINEER
VILONG TRUONG
NO. C82680
CIVIL
STATE OF CALIFORNIA

APPROVED BY: ______________________

DRAINAGE CONCEPT

FOR

Vesting TTM No. 073336
(Northlake Phase 1)

IN THE UNINCORPORATED AREA OF
LOS ANGELES COUNTY

Prepared For:
Northlake Associates, LLC
1999 Avenue of the Stars, Suite 2850, Los Angeles, CA 90067

REGISTERED PROFESSIONAL ENGINEER
DOUG FARMER
No. 49041
Exp. 9-30-18
CIVIL
STATE OF CALIFORNIA

Prepared By:
SIKAND
Engineering | Planning | Surveying
15230 Burbank Blvd., Suite 100, Van Nuys, Ca 91411
Tel: (818) 787-8550; Fax: (818) 901-7451

HYDROLOGY STUDY APPROVED

CHECKED BY: ______ RCE NO. 82680 DATE 4/27/2017

APPROVED BY: ______ DATE 4/27/2017

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

W.O.: 5090-033-35
Date: 04-27-17

TABLE OF CONTENTS

Section 1

Purpose of the Study

The purpose of this study is to analyze the hydrological impacts of the proposed site development against its pre-development receiving outlet conditions; to provide respective mitigation solutions and related BMPs, to comply with the requirements established by the County of Los Angeles and the State of California; and, to provide the criteria for the design of the on-site storm drain systems and other drainage devices.

Project Description

The site is located between the west side of the Castaic Lake and the east side of the Golden State Freeway (Interstate 5), in the unincorporated area of Los Angeles County in Castaic, State of California (See Section 2, Vicinity Map).

The project lies in the middle of the drainage path of Grasshopper Canyon, and is currently undeveloped. The natural drainage pattern of the canyon flows from northwest to southeast. The natural outlet point of the site at the tract boundary is about approximately 2880 feet of natural canyon, northwest and upstream of the Castaic Lagoon. No portion of the project site is within the any floodway or floodplain, according to the FEMA Firm Map (See Section 2, Firm Map)

PROPOSED CONDITION: The project is mostly residential development, consisting of single-family and multi-family residential homes. It is also comprised of a number of park sites, open spaces, tank site, debris basins, and water quality/mitigation basin. The onsite storm drain conveyance is divided into two (2) systems prior to discharging back to the natural canyon: Clean water system, which conveys runoff from the proposed development areas; and, Dirty water system, which conveys runoff coming from the debris basins and areas with natural condition tributaries. The clean water system outlets into 5 proposed retarding basins (combined basin for both retention and detention) located downstream of the development. Design spillways are located south of each basin, and conveys the excess flow out of each basin. Discharge from the southerly most basin, Basin E, will join the Dirty water system to discharge back into the natural canyon.

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". Water Quality requirements are based on the LID Ordinance.

The following are the criteria used in the calculations:

- Design Storm Frequency :
  50-yr for undeveloped areas and developed sump areas,
  25-yr for developed areas.
- Soil Type Number = 094
- Basin Name = Santa Clara
- DPA Zones = 3 and 5
- Peak Bulking Factor
  - DPA Zone 3 = 1.620 (for areas ≤ 64 ac)
  - DPA Zone 5 = 1.465 (for areas ≤ 64 ac)

- Debris Production:
    - DPA Zone 3 = 218.75 cy/ac (for areas ≤ 64 ac)
    - DPA Zone 5 = 128.125 cy/ac (for areas ≤ 64 ac)
- Isohyet = 5.8” (50-yr, 24-hr)
- % Imperviousness:

  1% for undeveloped areas,
  5% for graded, landscaped, or park areas,
  42% for single-family residential areas,
  86% for multi-family residential areas,
  91% for paved street areas.

Time of Concentration (TC) and design Peak Flow (Q) for each subarea are calculated using the TC Calculator. Burning of flows, flood routing and confluence Peak Qs are calculated using F0601M program, also know as the Modified Rational Method program (MODRAT) (See Sections 3 & 4, TC and MODRAT Calculations).

This report provides calculations for all subareas within the Existing Condition and subareas up to Node 90C for the Proposed Condition.

Routing output, Cumulative Hydrograph for Nodes 64A (Natural subareas) and 90C (Developed Subareas), and an Individual Hydrograph for Node 102A, have been calculated and provided to Geosyntec for use in the retention basin analysis and outlet node calculations.

Routing and Hydrograph output has been included in Section 4 of this report for all storm events. The Hydrographs were then utilized by Geosyntec as a basis for their modeling. Refer to Geosyntec’s report for calculations downstream of Node 90C, and for final Outlet Node conditions for all storm events.

Debris Production Volumes are calculated using the DPR Chart for undeveloped areas under single DPA Zone; except for the Existing Condition outlet, which uses multiple DPA Zones; and bulking of the flows are obtained using the Peak Bulk Factors Chart for undeveloped areas under single DPA Zone (See Section 2 for Charts; Section 5 for Calculations).

Refer to Geosyntec’s report for basin Retarding calculations

Summary

The impacts of increased flow (ΔQ) and increased volume (ΔVol) due to the proposed development will be mitigated onsite using the combination effect of retention and detention of the proposed retarding basins, for the design storm event.

Comparing the design frequency between the Pre-Development and Post-Development/Post Retarding conditions at the outlet point, the proposed condition discharge does not exceed the existing condition discharge, as shown below.

Design Frequency Summary, Post-Retarding:

	Pre-Development				***Post-Development / Post-Retarding**			
	Area (ac)	**Q**b (cfs)	**Q**bb (cfs)	**DPV** (cy)	**Area** (ac)	**Q**b+d (cfs)	**Q**bb+d (cfs)	**DPV** (cy)
OUTLET	2108.9	2899.2	4064.8	143,392	2154.4	2730.5	2739.9	2,050

**Refer to Geosyntec's Report for Post-Development POST-RETARDING Calculations and Outlet Node Flows.*

Similarly, for the hydromodification clear frequency comparison, Post-Development/Post-Retarding condition Volumes, Velocities, and Depth/Width ratios do not exceed the existing condition values, as shown below.

Clear Frequency Summary, Post-Retarding:

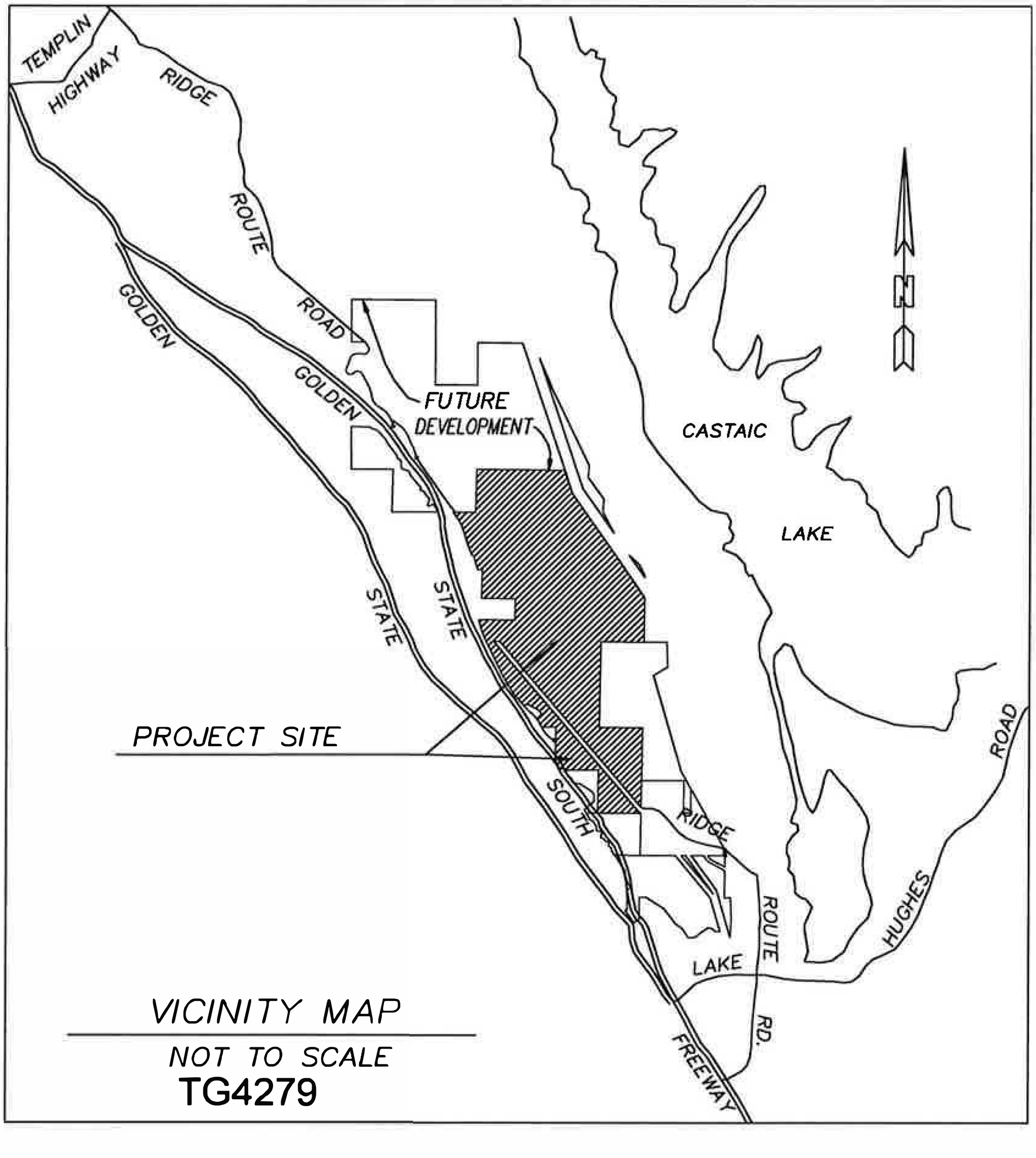
	Pre-Development				**Post-Development**					**Delta**			
Freq.	**Q** (cfs)	**Vol** (ac-ft)	**Velocity** (ft/s)	**Depth/Width** (ft/ft)	**Q** (cfs)	**Vol** (ac-ft)	**Geomorphically Significant Flow Volume, > 11 cfs**	**Velocity** (ft/s)	**Depth/ Width** (ft/ft)	**%Δ Q**	**%Δ Volume**	**%Δ Velocity**	**%Δ Depth/ Width**
50	2817.3	326.4	7.24	0.12	2812.7	340.6	316.9	7.24	0.12	-0.2	-3	0	0
25	2415.4	270.6	6.89	0.11	2180.6	269.4	245.7	6.68	0.11	-10	-9	-3	-2
10	1636.4	175.2	6.12	0.11	1423.8	183.5	160.5	5.88	0.11	-13	-8	-4	-1
5	1243.5	136.0	5.65	0.11	1019.3	129.8	112.6	5.33	0.10	-18	-17	-6	-2
2	535.0	69.4	4.55	0.10	469.3	67.2	54.9	4.42	0.10	-12	-21	-3	0
Pre and Post Development Q, Volume, Velocity, and Depth/Width at Outlet Node provided by Geosyntec													

**Refer to Geosyntec's Report for Post-Development POST-RETARDING Calculations and Outlet Node Flows.*

After mitigation, the Volumes, Velocities, and Depth/Width ratios for all frequencies have decreased to below the existing condition values.

Preliminary alignment and layout of the drainage device, swales, detention/retention combination, and storm drain system are shown on the Proposed Condition Map (see Section 4).

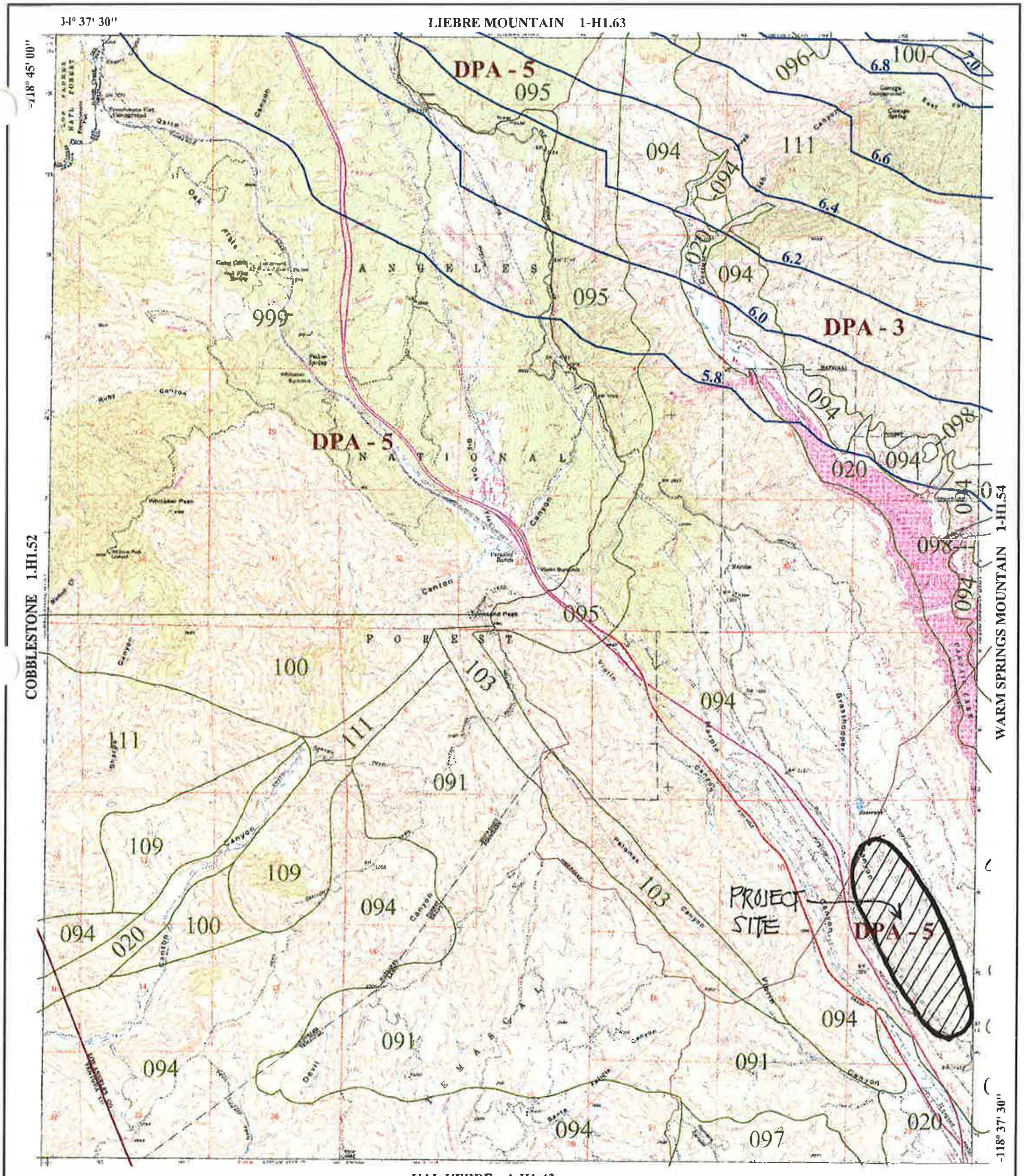
Section 2



VICINITY MAP

NOT TO SCALE

TG4279



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

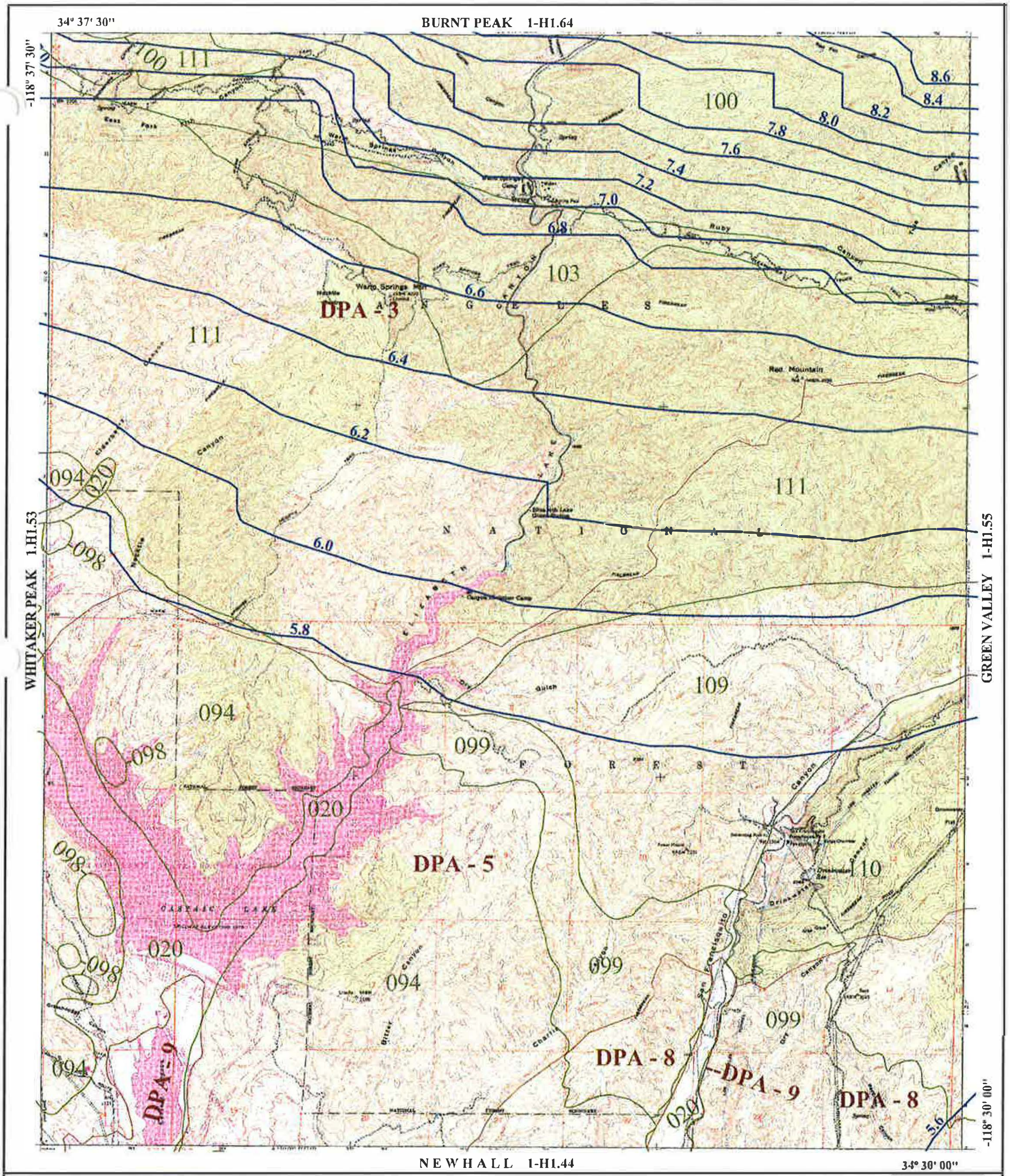
1 0 1 2 Miles

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

WHITAKER PEAK
50-YEAR 24-HOUR ISOHYET

1-H1.53

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

N
W E
S

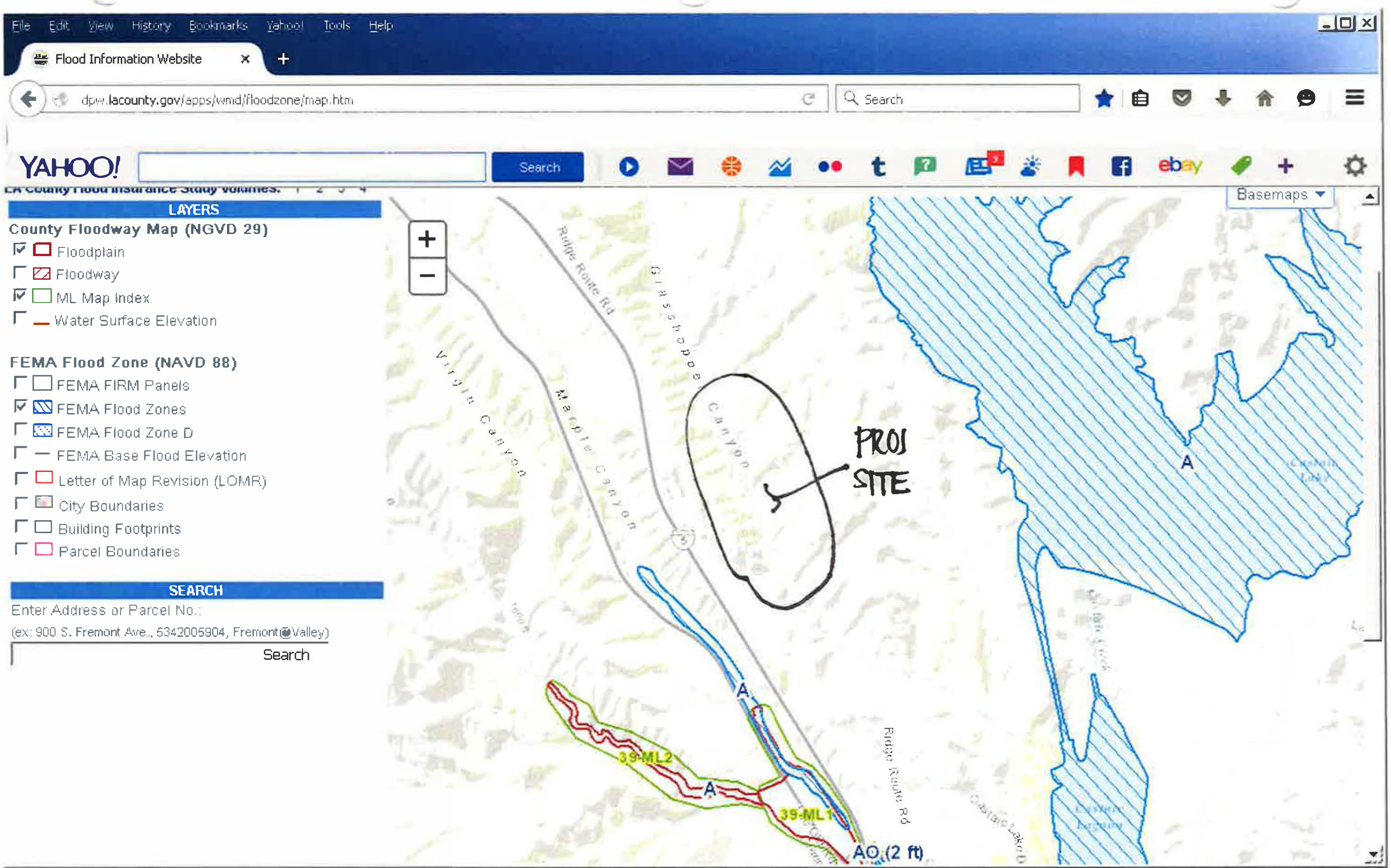
1 0 1 2 Miles

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

WARM SPRINGS MOUNTAIN 50-YEAR 24-HOUR ISOHYET

1-H1.54

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works


File Edit View History Bookmarks Yahoo! Tools Help
Flood Information Website
dpw.lacounty.gov/apps/wmd/floodzone/map.htm
Search
YAHOO!
Search
LAYERS
County Floodway Map (NGVD 29)
Floodplain
Floodway
ML Map Index
Water Surface Elevation
FEMA Flood Zone (NAVD 88)
FEMA FIRM Panels
FEMA Flood Zones
FEMA Flood Zone D
FEMA Base Flood Elevation
Letter of Map Revision (LOMR)
City Boundaries
Building Footprints
Parcel Boundaries
SEARCH
Enter Address or Parcel No.:
(ex: 900 S. Fremont Ave., 5342005904, Fremont Valley)
Search
Basemaps
Ridge Route Rd
Grasshopper Canyon
Virgin Canyon
Marple Canyon
PROJ SITE
A
39-ML2
39-ML1
AO (2 ft)
Ridge Route Rd

e Flood Insurance Study report for this jurisdiction.

ce is available in this community, contact your insurance
d Insurance Program at 1-800-638-6620.

0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0575F

FIRM
FLOOD INSURANCE RATE MAP

LOS ANGELES COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 575 OF 2350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	0575	F

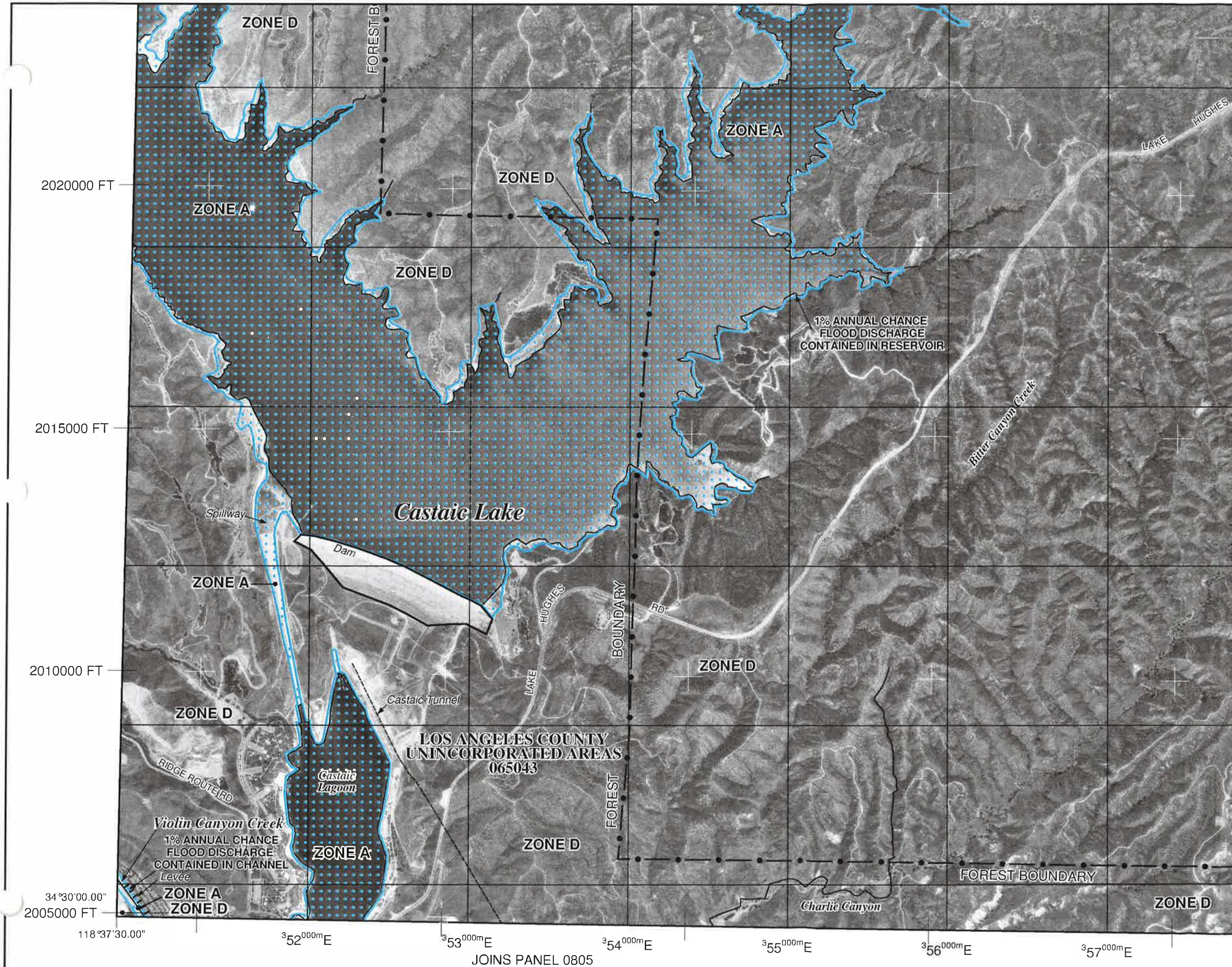
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C0575F

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood **Map** Store at www.msc.fema.gov



…e Flood Insurance Study report for this jurisdiction.

…ce is available in this community, contact your insurance …d Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0600F

FIRM
FLOOD INSURANCE RATE MAP
LOS ANGELES COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 600 OF 2350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	0600	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C0600F

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

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Proportion Impervious Data

Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

Section 3

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

50-yr Design 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)
50	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
50	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
50	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
50	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
50	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
50	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
50	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
50	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
50	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
50	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
50	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
50	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
50	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
50	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
50	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
50	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
50	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
50	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
50	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
50	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
50	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
50	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
50	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
50	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
50	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
50	37A	26.8	0.01	50	94	1890	0.25	5.8	10	2.5	0.86	0.86	57.62
50	38A	64.1	0.01	50	94	3261	0.14	5.8	15	2.06	0.85	0.85	112.24
50	39A	41.6	0.01	50	94	2268	0.21	5.8	11	2.39	0.86	0.86	85.5
50	42E	61.9	0.01	50	94	3825	0.15	5.8	17	1.95	0.84	0.84	101.39
50	43E	50.1	0.01	50	94	2265	0.18	5.8	12	2.29	0.86	0.86	98.67
50	44E	64.4	0.01	50	94	3261	0.15	5.8	15	2.06	0.85	0.85	112.76
50	46A	47.5	0.01	50	94	2761	0.16	5.8	13	2.21	0.85	0.85	89.23
50	47A	38.8	0.01	50	94	4397	0.14	5.8	18	1.9	0.84	0.84	61.92
50	48A	38.8	0.01	50	94	4016	0.14	5.8	17	1.95	0.84	0.84	63.55
50	49A	25.9	0.01	50	94	1562	0.24	5.8	8	2.77	0.87	0.87	62.42
50	50A	68.3	0.01	50	94	3772	0.11	5.8	17	1.95	0.84	0.84	111.88

50	53F	45.6	0.01	50	94	2373	0.13	5.8	12	2.29	0.86	0.86	89.8
50	54F	53.1	0.01	50	94	3206	0.14	5.8	15	2.06	0.85	0.85	92.98
50	56A	46	0.01	50	94	3001	0.16	5.8	14	2.13	0.85	0.85	83.28
50	57A	50.8	0.01	50	94	3314	0.15	5.8	15	2.06	0.85	0.85	88.95
50	60B	53	0.01	50	94	3978	0.1	5.8	18	1.9	0.84	0.84	84.59
50	61B	38.3	0.01	50	94	1840	0.16	5.8	10	2.5	0.86	0.86	82.35
50	63A	47.7	0.01	50	94	2864	0.18	5.8	13	2.21	0.85	0.85	89.6
50	64A	50	0.01	50	94	2172	0.24	5.8	11	2.39	0.86	0.86	102.77
50	65A	45.7	0.01	50	94	1777	0.28	5.8	9	2.63	0.87	0.87	104.57
50	66A	38.3	0.01	50	94	1612	0.25	5.8	9	2.63	0.87	0.87	87.63
50	OP1	2.5	0.01	50	94	250	0.05	5.8	5	3.46	0.89	0.89	7.72
50	OP5	4	0.01	50	94	250	0.4	5.8	5	3.46	0.89	0.89	12.36

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006      1     1A 294   140.912A29                                          G1
006      1     2A 294   150.610A292 1320 10000
006      1     3A 294   148.810A292  960 10000
006      1     4A 294   137.8 9A292 1272 08000
006      1     5A 294   146.911A29
006      1     6A  94        99A29
006      1     7A  94        99A29
006      1     8B 294   155.410A291 1656 12000
006      1     9B 294   151.011A29
006      1    10AB 94          A292 1663 08000
006      1    11A 294   146.312A29
006      1    12A 294   146.712A29
006      1    13A 294   155.011A292 1584 04000
006      1    14A 294   152.811A29
006      1    15A 294   152.612A292 1085 05000
006      1    16A 294   123.510A29
006      1    17A  94        99A29
006      1    18A  94        99A29
006      1    19C 294   126.0 7A292 1584 09000
006      1    20C 294   148.714A29
006      1    21AC 94          A292 1337 05000
006      1    22A 294   149.715A29
006      1    23A  94        99A29
006      1    24A  94        99A29
006      1    25D 294   145.011A29
006      1    26D 294   131.112A292 1020 10000
006      1    27D 294   149.312A292 1290 10000
006      1    28D 294   147.514A29
006      1    29D 294   129.211A292 1232 10000
006      1    30D 294   148.610A292 1423 08000
006      1    31D 294   141.113A29
006      1    32AD 94          A292  827 03000
006      1    33A  94        99A29
006      1    34A  94        99A29
006      1    35A 294   141.313A292  488 04000
006      1    36A 294   146.411A292 1164 03000
006      1    37A 294   126.810A29
006      1    38A 294   164.115A292 1779 04000
006      1    39A 294   141.611A29
006      1    40A  94        99A29
006      1    41A  94        99A29
006      1    42E 294   161.917A29
006      1    43E 294   150.112A292 1851 08000
006      1    44E 294   164.415A29
006      1    45AE 94          A292 1975 03000
006      1    46A 294   147.513A29
006      1    47A 294   138.818A29
006      1    48A 294   138.817A292  888 04000
006      1    49A 294   125.9 8A292 1226 03000
006      1    50A 294   168.317A29
006      1    51A  94        99A29
006      1    52A  94        99A29
006      1    53F 294   145.612A291 2348 11000
006      1    54F 294   153.115A29
006      1    55AF 94          A292 1223 02000
006      1    56A 294   146.014A292 1272 02000
006      1    57A 294   150.815A29
006      1    58A  94        99A29
006      1    59A  94        99A29
006      1    60B 294   153.018A291 1480 11000
006      1    61B 294   138.310A29
006      1    62AB 94          A292  589 03000
006      1    63A 294   147.713A292  826 02000
006      1    64A 294   150.011A292 1214 03000
006      1    65A 294   145.7 9A292 1165 02000
006      1    66A 294   138.3 9A29                                        2  2
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005      1    1A Northlake, Exist. DESIGN 50-yr BURNED
005      1   66A Northlake, Exist. DESIGN 50-yr BURNED, OUTLET HYD.
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Program Package Serial Number: 2083
02/13/15 FILE: EXD 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

Northlake, Exist. 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
1	1A	40.9	81.79	40.9	81.79	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	2A	50.6	111.78	91.5	193.57	2	1320.	.10000	.00	.00	0.	294	10	A29	.01
1	3A	48.8	107.80	140.3	295.20	2	960.	.10000	.00	.00	0.	294	10	A29	.01
1	4A	37.8	87.55	178.1	375.91	2	1272.	.08000	.00	.00	0.	294	9	A29	.01
1	5A	46.9	98.25	225.0	463.32	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	6A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	122.38	55.4	122.38	1	1656.	.12000	.00	.00	0.	294	10	A29	.01
1	9B	51.0	106.84	106.4	213.34	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	10AB	106.4	213.34	331.4	676.47	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	92.59	377.7	756.56	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	12A	46.7	93.39	424.4	841.37	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	13A	55.0	115.22	479.4	944.80	2	1584.	.04000	.00	.00	0.	294	11	A29	.01
1	14A	52.8	110.61	532.2	1023.37	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	15A	52.6	105.19	584.8	1118.22	2	1085.	.05000	.00	.00	0.	294	12	A29	.01
1	16A	23.5	51.91	608.3	1144.93	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	17A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	67.96	26.0	67.96	2	1584.	.09000	.00	.00	0.	294	7	A29	.01
1	20C	48.7	90.12	74.7	152.92	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	21AC	74.7	152.92	683.0	1274.91	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	89.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	23A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	94.27	45.0	94.27	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	26D	31.1	62.20	76.1	156.47	2	1020.	.10000	.00	.00	0.	294	12	A29	.01
1	27D	49.3	98.59	125.4	253.67	2	1290.	.10000	.00	.00	0.	294	12	A29	.01
1	28D	47.5	87.90	172.9	338.17	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	29D	29.2	61.17	202.1	396.41	2	1232.	.10000	.00	.00	0.	294	11	A29	.01
1	30D	48.6	107.36	250.7	491.82	2	1423.	.08000	.00	.00	0.	294	10	A29	.01
1	31D	41.1	78.89	291.8	561.36	0	0.	.00000	.00	.00	0.	294	13	A29	.01
1	32AD	291.8	561.36	1024.5	1889.29	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	79.27	1065.8	1950.89	2	488.	.04000	.00	.00	0.	294	13	A29	.01
1	36A	46.4	97.20	1112.2	2008.46	2	1164.	.03000	.00	.00	0.	294	11	A29	.01
1	37A	26.8	59.20	1139.0	2021.58	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	38A	64.1	114.78	1203.1	2120.34	2	1779.	.04000	.00	.00	0.	294	15	A29	.01
1	39A	41.6	87.15	1244.7	2139.66	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	40A	.0	.00	1244.7	2139.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1244.7	2139.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	61.9	103.51	61.9	103.51	0	0.	.00000	.00	.00	0.	294	17	A29	.01
1	43E	50.1	100.19	112.0	203.71	2	1851.	.08000	.00	.00	0.	294	12	A29	.01
1	44E	64.4	115.32	176.4	313.07	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	45AE	176.4	313.07	1421.1	2413.19	2	1975.	.03000	.00	.00	0.	94	0	A29	.00
1	46A	47.5	91.17	1468.6	2433.68	0	0.	.00000	.00	.00	0.	294	13	A29	.01

Program Package Serial Number: 2083
02/13/15 FILE: EXD 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: C:\civild_MORA\scr_soilx_34.dat

Northlake, Exist. 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
1	47A	38.8	62.98	1507.4	2487.97	0	0.	.00000	.00	.00	0.	294	18	A29	.01
1	48A	38.8	64.88	1546.2	2542.48	2	888.	.04000	.00	.00	0.	294	17	A29	.01
1	49A	25.9	63.46	1572.1	2548.91	2	1226.	.03000	.00	.00	0.	294	8	A29	.01
1	50A	68.3	114.22	1640.4	2617.61	0	0.	.00000	.00	.00	0.	294	17	A29	.01
1	51A	.0	.00	1640.4	2617.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	52A	.0	.00	1640.4	2617.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	53F	45.6	91.19	45.6	91.19	1	2348.	.11000	.00	.00	0.	294	12	A29	.01
1	54F	53.1	95.09	98.7	169.26	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	55AF	98.7	169.26	1739.1	2740.59	2	1223.	.02000	.00	.00	0.	94	0	A29	.00
1	56A	46.0	85.12	1785.1	2757.22	2	1272.	.02000	.00	.00	0.	294	14	A29	.01
1	57A	50.8	90.97	1835.9	2772.60	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	58A	.0	.00	1835.9	2772.60	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	59A	.0	.00	1835.9	2772.60	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	60B	53.0	86.03	53.0	86.03	1	1480.	.11000	.00	.00	0.	294	18	A29	.01
1	61B	38.3	84.60	91.3	157.98	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	62AB	91.3	157.98	1927.2	2862.59	2	589.	.03000	.00	.00	0.	94	0	A29	.00
1	63A	47.7	91.56	1974.9	2877.09	2	826.	.02000	.00	.00	0.	294	13	A29	.01
1	64A	50.0	104.75	2024.9	2890.28	2	1214.	.03000	.00	.00	0.	294	11	A29	.01
1	65A	45.7	105.85	2070.6	2895.76	2	1165.	.02000	.00	.00	0.	294	9	A29	.01
1	66A	38.3	88.71	2108.9	2899.20	0	0.	.00000	.00	.00	0.	294	9	A29	.01

Program Package Serial Number: 2083
02/13/15 FILE: EXD 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:
Northlake, Exist. DESIGN 50-yr BURNED, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	46.31	200	47.37	300	49.78	400	52.49
500	55.65	600	59.75	700	64.92	800	82.24	900	135.06
1000	227.92	1050	317.78	1100	484.22	1110	539.82	1120	619.57
1130	740.54	1131	754.45	1132	768.38	1133	783.50	1134	799.21
1135	815.63	1136	832.66	1137	850.78	1138	869.72	1139	889.65
1140	910.22	1141	932.39	1142	955.48	1143	979.97	1144	1005.74
1145	1034.08	1146	1064.06	1147	1096.15	1148	1130.11	1149	1174.91
1150	1225.62	1151	1285.21	1152	1354.42	1153	1434.58	1154	1515.94
1155	1601.40	1156	1688.21	1157	1776.95	1158	1858.17	1159	1937.20
1160	2015.10	1161	2093.65	1162	2171.12	1163	2255.79	1164	2344.01
1165	2436.38	1166	2529.91	1167	2623.61	1168	2714.23	1169	2794.35
1170	2856.29	1171	2893.02	1172	2899.20	1173	2874.71	1174	2820.51
1175	2741.32	1176	2642.51	1177	2529.54	1178	2407.80	1179	2282.20
1180	2155.84	1181	2032.11	1182	1912.03	1183	1797.20	1184	1688.33
1185	1586.15	1186	1490.64	1187	1402.01	1188	1319.67	1189	1244.15
1190	1174.46	1191	1110.58	1192	1051.90	1193	998.23	1194	948.74
1195	903.24	1196	861.55	1197	823.31	1198	788.08	1199	755.65
1200	725.92	1201	697.33	1202	670.02	1203	644.52	1204	621.26
1205	600.28	1206	580.46	1207	561.33	1208	543.73	1209	527.72
1210	512.50	1211	498.33	1212	485.24	1213	473.66	1214	462.21
1215	450.88	1216	440.14	1217	429.29	1218	418.79	1219	408.95
1220	399.01	1221	389.69	1222	380.43	1223	371.68	1224	363.22
1225	354.85	1226	347.25	1227	339.71	1228	332.39	1229	325.83
1230	319.54	1231	314.25	1232	309.28	1233	304.25	1234	299.21
1235	293.88	1236	288.80	1237	283.72	1238	278.46	1239	273.82
1240	269.00	1241	264.31	1242	259.43	1243	254.83	1244	250.26
1245	245.53	1246	241.17	1247	236.90	1248	232.84	1249	229.06
1250	225.42	1251	222.58	1252	219.16	1253	216.03	1254	212.87
1255	209.69	1256	206.54	1257	203.41	1258	200.02	1259	196.88
1260	193.71	1261	190.57	1262	187.24	1263	184.44	1264	181.10
1265	178.08	1266	175.07	1267	172.07	1268	169.14	1269	166.25
1270	163.41	1271	160.63	1272	157.84	1273	155.18	1274	152.52
1275	149.87	1276	147.31	1277	144.79	1278	142.28	1279	139.94
1280	137.70	1281	135.66	1282	133.85	1283	132.22	1284	130.53
1285	128.83	1286	127.13	1287	125.42	1288	123.67	1289	121.96
1290	120.24	1291	118.53	1292	116.82	1293	115.14	1294	113.47
1295	111.81	1296	110.17	1297	108.56	1298	106.97	1299	105.40
1300	103.86	1310	90.61	1320	81.17	1330	74.57	1340	69.27
1350	65.50	1360	62.73	1370	60.58	1380	58.76	1390	57.10
1400	55.71	1420	53.24	1440	51.01	1460	45.98	1500	45.47

TOTAL VOLUME THIS HYDROGRAPH = 375.29(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

25-yr Clear 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)
25	1A	40.9	0.01	25	94	2501	0.2	5.1	13	1.94	0.84	0.84	66.65
25	2A	50.6	0.01	25	94	2085	0.24	5.1	11	2.1	0.85	0.85	90.32
25	3A	48.8	0.01	25	94	1886	0.17	5.1	11	2.1	0.85	0.85	87.11
25	4A	37.8	0.01	25	94	1577	0.19	5.1	10	2.2	0.85	0.85	70.69
25	5A	46.9	0.01	25	94	2013	0.15	5.1	12	2.02	0.85	0.85	80.53
25	8B	55.4	0.01	25	94	1990	0.29	5.1	11	2.1	0.85	0.85	98.89
25	9B	51	0.01	25	94	2230	0.22	5.1	12	2.02	0.85	0.85	87.57
25	11A	46.3	0.01	25	94	2402	0.19	5.1	13	1.94	0.84	0.84	75.45
25	12A	46.7	0.01	25	94	2523	0.24	5.1	13	1.94	0.84	0.84	76.1
25	13A	55	0.01	25	94	2188	0.21	5.1	12	2.02	0.85	0.85	94.44
25	14A	52.8	0.01	25	94	2314	0.24	5.1	12	2.02	0.85	0.85	90.66
25	15A	52.6	0.01	25	94	2494	0.18	5.1	13	1.94	0.84	0.84	85.72
25	16A	23.5	0.01	25	94	1862	0.24	5.1	11	2.1	0.85	0.85	41.95
25	19C	26	0.01	25	94	1296	0.28	5.1	8	2.44	0.86	0.86	54.56
25	20C	48.7	0.01	25	94	2971	0.16	5.1	15	1.82	0.83	0.83	73.57
25	22A	49.7	0.01	25	94	3412	0.15	5.1	17	1.71	0.82	0.82	69.69
25	25D	45	0.01	25	94	2381	0.23	5.1	12	2.02	0.85	0.85	77.27
25	26D	31.1	0.01	25	94	2454	0.22	5.1	13	1.94	0.84	0.84	50.68
25	27D	49.3	0.01	25	94	2374	0.18	5.1	13	1.94	0.84	0.84	80.34
25	28D	47.5	0.01	25	94	2966	0.16	5.1	15	1.82	0.83	0.83	71.75
25	29D	29.2	0.01	25	94	2182	0.19	5.1	12	2.02	0.85	0.85	50.14
25	30D	48.6	0.01	25	94	1877	0.24	5.1	11	2.1	0.85	0.85	86.75
25	31D	41.1	0.01	25	94	2744	0.19	5.1	14	1.88	0.84	0.84	64.91
25	35A	41.3	0.01	25	94	2799	0.18	5.1	14	1.88	0.84	0.84	65.22
25	36A	46.4	0.01	25	94	2330	0.22	5.1	12	2.02	0.85	0.85	79.67
25	37A	26.8	0.01	25	94	1890	0.25	5.1	11	2.1	0.85	0.85	47.84
25	38A	64.1	0.01	25	94	3261	0.14	5.1	17	1.71	0.82	0.82	89.88
25	39A	41.6	0.01	25	94	2268	0.21	5.1	12	2.02	0.85	0.85	71.43
25	42E	61.9	0.01	25	94	3825	0.15	5.1	18	1.67	0.82	0.82	84.77
25	43E	50.1	0.01	25	94	2265	0.18	5.1	12	2.02	0.85	0.85	86.02
25	44E	64.4	0.01	25	94	3261	0.15	5.1	16	1.76	0.83	0.83	94.08
25	46A	47.5	0.01	25	94	2761	0.16	5.1	15	1.82	0.83	0.83	71.75
25	47A	38.8	0.01	25	94	4397	0.14	5.1	21	1.55	0.81	0.81	48.71
25	48A	38.8	0.01	25	94	4016	0.14	5.1	19	1.62	0.82	0.82	51.54
25	49A	25.9	0.01	25	94	1562	0.24	5.1	10	2.2	0.85	0.85	48.43
25	50A	68.3	0.01	25	94	3772	0.11	5.1	19	1.62	0.82	0.82	90.73

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

25	53F	45.6	0.01	25	94	2373	0.13	5.1	14	1.88	0.84	0.84	72.01
25	54F	53.1	0.01	25	94	3206	0.14	5.1	17	1.71	0.82	0.82	74.46
25	56A	46	0.01	25	94	3001	0.16	5.1	15	1.82	0.83	0.83	69.49
25	57A	50.8	0.01	25	94	3314	0.15	5.1	17	1.71	0.82	0.82	71.23
25	60B	53	0.01	25	94	3978	0.1	5.1	20	1.59	0.82	0.82	69.1
25	61B	38.3	0.01	25	94	1840	0.16	5.1	11	2.1	0.85	0.85	68.37
25	63A	47.7	0.01	25	94	2864	0.18	5.1	15	1.82	0.83	0.83	72.06
25	64A	50	0.01	25	94	2172	0.24	5.1	12	2.02	0.85	0.85	85.85
25	65A	45.7	0.01	25	94	1777	0.28	5.1	10	2.2	0.85	0.85	85.46
25	66A	38.3	0.01	25	94	1612	0.25	5.1	10	2.2	0.85	0.85	71.62

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

10-yr Clear 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)
10	1A	40.9	0.01	10	94	2501	0.2	4.1	16	1.42	0.8	0.8	46.46
10	2A	50.6	0.01	10	94	2085	0.24	4.1	13	1.56	0.81	0.81	63.94
10	3A	48.8	0.01	10	94	1886	0.17	4.1	13	1.56	0.81	0.81	61.66
10	4A	37.8	0.01	10	94	1577	0.19	4.1	12	1.62	0.82	0.82	50.21
10	5A	46.9	0.01	10	94	2013	0.15	4.1	14	1.51	0.81	0.81	57.36
10	8B	55.4	0.01	10	94	1990	0.29	4.1	12	1.62	0.82	0.82	73.59
10	9B	51	0.01	10	94	2230	0.22	4.1	14	1.51	0.81	0.81	62.38
10	11A	46.3	0.01	10	94	2402	0.19	4.1	15	1.46	0.8	0.8	54.08
10	12A	46.7	0.01	10	94	2523	0.24	4.1	15	1.46	0.8	0.8	54.55
10	13A	55	0.01	10	94	2188	0.21	4.1	14	1.51	0.81	0.81	67.27
10	14A	52.8	0.01	10	94	2314	0.24	4.1	14	1.51	0.81	0.81	64.58
10	15A	52.6	0.01	10	94	2494	0.18	4.1	16	1.42	0.8	0.8	59.75
10	16A	23.5	0.01	10	94	1862	0.24	4.1	12	1.62	0.82	0.82	31.22
10	19C	26	0.01	10	94	1296	0.28	4.1	10	1.77	0.83	0.83	38.2
10	20C	48.7	0.01	10	94	2971	0.16	4.1	18	1.34	0.79	0.79	51.55
10	22A	49.7	0.01	10	94	3412	0.15	4.1	21	1.25	0.78	0.78	48.46
10	25D	45	0.01	10	94	2381	0.23	4.1	15	1.46	0.8	0.8	52.56
10	26D	31.1	0.01	10	94	2454	0.22	4.1	15	1.46	0.8	0.8	36.32
10	27D	49.3	0.01	10	94	2374	0.18	4.1	16	1.42	0.8	0.8	56
10	28D	47.5	0.01	10	94	2966	0.16	4.1	18	1.34	0.79	0.79	50.28
10	29D	29.2	0.01	10	94	2182	0.19	4.1	14	1.51	0.81	0.81	35.71
10	30D	48.6	0.01	10	94	1877	0.24	4.1	12	1.62	0.82	0.82	64.56
10	31D	41.1	0.01	10	94	2744	0.19	4.1	17	1.38	0.79	0.79	44.81
10	35A	41.3	0.01	10	94	2799	0.18	4.1	17	1.38	0.79	0.79	45.03
10	36A	46.4	0.01	10	94	2330	0.22	4.1	15	1.46	0.8	0.8	54.2
10	37A	26.8	0.01	10	94	1890	0.25	4.1	12	1.62	0.82	0.82	35.6
10	38A	64.1	0.01	10	94	3261	0.14	4.1	20	1.28	0.78	0.78	64
10	39A	41.6	0.01	10	94	2268	0.21	4.1	15	1.46	0.8	0.8	48.59
10	42E	61.9	0.01	10	94	3825	0.15	4.1	22	1.22	0.77	0.77	58.15
10	43E	50.1	0.01	10	94	2265	0.18	4.1	15	1.46	0.8	0.8	58.52
10	44E	64.4	0.01	10	94	3261	0.15	4.1	20	1.28	0.78	0.78	64.3
10	46A	47.5	0.01	10	94	2761	0.16	4.1	18	1.34	0.79	0.79	50.28
10	47A	38.8	0.01	10	94	4397	0.14	4.1	25	1.15	0.76	0.76	33.91
10	48A	38.8	0.01	10	94	4016	0.14	4.1	23	1.19	0.77	0.77	35.55
10	49A	25.9	0.01	10	94	1562	0.24	4.1	11	1.69	0.82	0.82	35.89
10	50A	68.3	0.01	10	94	3772	0.11	4.1	24	1.17	0.77	0.77	61.53

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

10	53F	45.6	0.01	10	94	2373	0.13	4.1	16	1.42	0.8	0.8	51.8
10	54F	53.1	0.01	10	94	3206	0.14	4.1	20	1.28	0.78	0.78	53.02
10	56A	46	0.01	10	94	3001	0.16	4.1	19	1.31	0.78	0.78	47
10	57A	50.8	0.01	10	94	3314	0.15	4.1	20	1.28	0.78	0.78	50.72
10	60B	53	0.01	10	94	3978	0.1	4.1	25	1.15	0.76	0.76	46.32
10	61B	38.3	0.01	10	94	1840	0.16	4.1	13	1.56	0.81	0.81	48.4
10	63A	47.7	0.01	10	94	2864	0.18	4.1	18	1.34	0.79	0.79	50.5
10	64A	50	0.01	10	94	2172	0.24	4.1	14	1.51	0.81	0.81	61.16
10	65A	45.7	0.01	10	94	1777	0.28	4.1	12	1.62	0.82	0.82	60.71
10	66A	38.3	0.01	10	94	1612	0.25	4.1	11	1.69	0.82	0.82	53.08

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

5-yr Clear 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)
5	1A	40.9	0.01	5	94	2501	0.2	3.4	19	1.08	0.75	0.75	33.13
5	2A	50.6	0.01	5	94	2085	0.24	3.4	16	1.17	0.77	0.77	45.59
5	3A	48.8	0.01	5	94	1886	0.17	3.4	16	1.17	0.77	0.77	43.96
5	4A	37.8	0.01	5	94	1577	0.19	3.4	14	1.25	0.78	0.78	36.86
5	5A	46.9	0.01	5	94	2013	0.15	3.4	17	1.14	0.76	0.76	40.63
5	8B	55.4	0.01	5	94	1990	0.29	3.4	15	1.21	0.77	0.77	51.62
5	9B	51	0.01	5	94	2230	0.22	3.4	17	1.14	0.76	0.76	44.19
5	11A	46.3	0.01	5	94	2402	0.19	3.4	18	1.11	0.76	0.76	39.06
5	12A	46.7	0.01	5	94	2523	0.24	3.4	18	1.11	0.76	0.76	39.4
5	13A	55	0.01	5	94	2188	0.21	3.4	17	1.14	0.76	0.76	47.65
5	14A	52.8	0.01	5	94	2314	0.24	3.4	17	1.14	0.76	0.76	45.75
5	15A	52.6	0.01	5	94	2494	0.18	3.4	19	1.08	0.75	0.75	42.61
5	16A	23.5	0.01	5	94	1862	0.24	3.4	15	1.21	0.77	0.77	21.89
5	19C	26	0.01	5	94	1296	0.28	3.4	11	1.4	0.8	0.8	29.12
5	20C	48.7	0.01	5	94	2971	0.16	3.4	22	1.01	0.74	0.74	36.4
5	22A	49.7	0.01	5	94	3412	0.15	3.4	24	0.97	0.74	0.74	35.67
5	25D	45	0.01	5	94	2381	0.23	3.4	17	1.14	0.76	0.76	38.99
5	26D	31.1	0.01	5	94	2454	0.22	3.4	18	1.11	0.76	0.76	26.24
5	27D	49.3	0.01	5	94	2374	0.18	3.4	18	1.11	0.76	0.76	41.59
5	28D	47.5	0.01	5	94	2966	0.16	3.4	22	1.01	0.74	0.74	35.5
5	29D	29.2	0.01	5	94	2182	0.19	3.4	17	1.14	0.76	0.76	25.3
5	30D	48.6	0.01	5	94	1877	0.24	3.4	15	1.21	0.77	0.77	45.28
5	31D	41.1	0.01	5	94	2744	0.19	3.4	20	1.06	0.75	0.75	32.67
5	35A	41.3	0.01	5	94	2799	0.18	3.4	20	1.06	0.75	0.75	32.83
5	36A	46.4	0.01	5	94	2330	0.22	3.4	17	1.14	0.76	0.76	40.2
5	37A	26.8	0.01	5	94	1890	0.25	3.4	15	1.21	0.77	0.77	24.97
5	38A	64.1	0.01	5	94	3261	0.14	3.4	24	0.97	0.74	0.74	46.01
5	39A	41.6	0.01	5	94	2268	0.21	3.4	17	1.14	0.76	0.76	36.04
5	42E	61.9	0.01	5	94	3825	0.15	3.4	26	0.93	0.73	0.73	42.02
5	43E	50.1	0.01	5	94	2265	0.18	3.4	18	1.11	0.76	0.76	42.26
5	44E	64.4	0.01	5	94	3261	0.15	3.4	24	0.97	0.74	0.74	46.23
5	46A	47.5	0.01	5	94	2761	0.16	3.4	21	1.03	0.75	0.75	36.69
5	47A	38.8	0.01	5	94	4397	0.14	3.4	29	0.89	0.72	0.72	24.86
5	48A	38.8	0.01	5	94	4016	0.14	3.4	28	0.9	0.72	0.72	25.14
5	49A	25.9	0.01	5	94	1562	0.24	3.4	13	1.29	0.78	0.78	26.06
5	50A	68.3	0.01	5	94	3772	0.11	3.4	28	0.9	0.72	0.72	44.26

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

5	53F	45.6	0.01	5	94	2373	0.13	3.4	20	1.06	0.75	0.75	36.25
5	54F	53.1	0.01	5	94	3206	0.14	3.4	24	0.97	0.74	0.74	38.12
5	56A	46	0.01	5	94	3001	0.16	3.4	22	1.01	0.74	0.74	34.38
5	57A	50.8	0.01	5	94	3314	0.15	3.4	24	0.97	0.74	0.74	36.46
5	60B	53	0.01	5	94	3978	0.1	3.4	29	0.89	0.72	0.72	33.96
5	61B	38.3	0.01	5	94	1840	0.16	3.4	16	1.17	0.77	0.77	34.5
5	63A	47.7	0.01	5	94	2864	0.18	3.4	21	1.03	0.75	0.75	36.85
5	64A	50	0.01	5	94	2172	0.24	3.4	16	1.17	0.77	0.77	45.05
5	65A	45.7	0.01	5	94	1777	0.28	3.4	14	1.25	0.78	0.78	44.56
5	66A	38.3	0.01	5	94	1612	0.25	3.4	13	1.29	0.78	0.78	38.54

TC Calculator Results

VTM 73336, Northlake Phase 1
Existing Condition

2-yr Clear 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)
2	1A	40.9	0.01	2	94	2501	0.2	2.2	30	0.57	0.6	0.6	13.99
2	2A	50.6	0.01	2	94	2085	0.24	2.2	24	0.63	0.63	0.63	20.08
2	3A	48.8	0.01	2	94	1886	0.17	2.2	24	0.63	0.63	0.63	19.37
2	4A	37.8	0.01	2	94	1577	0.19	2.2	21	0.67	0.65	0.65	16.46
2	5A	46.9	0.01	2	94	2013	0.15	2.2	27	0.59	0.62	0.62	17.16
2	8B	55.4	0.01	2	94	1990	0.29	2.2	23	0.64	0.63	0.63	22.34
2	9B	51	0.01	2	94	2230	0.22	2.2	26	0.6	0.62	0.62	18.97
2	11A	46.3	0.01	2	94	2402	0.19	2.2	29	0.57	0.61	0.61	16.1
2	12A	46.7	0.01	2	94	2523	0.24	2.2	29	0.57	0.61	0.61	16.24
2	13A	55	0.01	2	94	2188	0.21	2.2	26	0.6	0.62	0.62	20.46
2	14A	52.8	0.01	2	94	2314	0.24	2.2	27	0.59	0.62	0.62	19.31
2	15A	52.6	0.01	2	94	2494	0.18	2.2	30	0.57	0.6	0.6	17.99
2	16A	23.5	0.01	2	94	1862	0.24	2.2	22	0.65	0.64	0.64	9.78
2	19C	26	0.01	2	94	1296	0.28	2.2	17	0.74	0.68	0.68	13.08
2	20C	48.7	0.01	2	94	2971	0.16	2.2	30	0.57	0.6	0.6	16.66
2	22A	49.7	0.01	2	94	3412	0.15	2.2	30	0.57	0.6	0.6	17
2	25D	45	0.01	2	94	2381	0.23	2.2	28	0.58	0.61	0.61	15.92
2	26D	31.1	0.01	2	94	2454	0.22	2.2	29	0.57	0.61	0.61	10.81
2	27D	49.3	0.01	2	94	2374	0.18	2.2	29	0.57	0.61	0.61	17.14
2	28D	47.5	0.01	2	94	2966	0.16	2.2	30	0.57	0.6	0.6	16.25
2	29D	29.2	0.01	2	94	2182	0.19	2.2	27	0.59	0.61	0.61	10.51
2	30D	48.6	0.01	2	94	1877	0.24	2.2	23	0.64	0.63	0.63	19.6
2	31D	41.1	0.01	2	94	2744	0.19	2.2	30	0.57	0.6	0.6	14.06
2	35A	41.3	0.01	2	94	2799	0.18	2.2	30	0.57	0.6	0.6	14.12
2	36A	46.4	0.01	2	94	2330	0.22	2.2	27	0.59	0.61	0.61	16.7
2	37A	26.8	0.01	2	94	1890	0.25	2.2	23	0.64	0.63	0.63	10.81
2	38A	64.1	0.01	2	94	3261	0.14	2.2	30	0.57	0.6	0.6	21.92
2	39A	41.6	0.01	2	94	2268	0.21	2.2	27	0.59	0.61	0.61	14.97
2	42E	61.9	0.01	2	94	3825	0.15	2.2	30	0.57	0.6	0.6	21.17
2	43E	50.1	0.01	2	94	2265	0.18	2.2	28	0.58	0.61	0.61	17.73
2	44E	64.4	0.01	2	94	3261	0.15	2.2	30	0.57	0.6	0.6	22.02
2	46A	47.5	0.01	2	94	2761	0.16	2.2	30	0.57	0.6	0.6	16.25
2	47A	38.8	0.01	2	94	4397	0.14	2.2	30	0.57	0.6	0.6	13.27
2	48A	38.8	0.01	2	94	4016	0.14	2.2	30	0.57	0.6	0.6	13.27
2	49A	25.9	0.01	2	94	1562	0.24	2.2	20	0.68	0.65	0.65	11.45
2	50A	68.3	0.01	2	94	3772	0.11	2.2	30	0.57	0.6	0.6	23.36

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

2	53F	45.6	0.01	2	94	2373	0.13	2.2	30	0.57	0.6	0.6	15.6
2	54F	53.1	0.01	2	94	3206	0.14	2.2	30	0.57	0.6	0.6	18.16
2	56A	46	0.01	2	94	3001	0.16	2.2	30	0.57	0.6	0.6	15.73
2	57A	50.8	0.01	2	94	3314	0.15	2.2	30	0.57	0.6	0.6	17.37
2	60B	53	0.01	2	94	3978	0.1	2.2	30	0.57	0.6	0.6	18.13
2	61B	38.3	0.01	2	94	1840	0.16	2.2	24	0.63	0.63	0.63	15.2
2	63A	47.7	0.01	2	94	2864	0.18	2.2	30	0.57	0.6	0.6	16.31
2	64A	50	0.01	2	94	2172	0.24	2.2	25	0.62	0.63	0.63	19.53
2	65A	45.7	0.01	2	94	1777	0.28	2.2	21	0.67	0.65	0.65	19.9
2	66A	38.3	0.01	2	94	1612	0.25	2.2	20	0.68	0.65	0.65	16.93

TC Calculator Results

VTM 73336, Northlake Phase 1
Existing Condition

LID Clear 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)	Volume (ac-ft)
LID	1A	40.9	0.01	LID	94	2501	0.2	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	2A	50.6	0.01	LID	94	2085	0.24	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	3A	48.8	0.01	LID	94	1886	0.17	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	4A	37.8	0.01	LID	94	1577	0.19	1.15	30	0.3	0.34	0.35	4.0	0.5
LID	5A	46.9	0.01	LID	94	2013	0.15	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	8B	55.4	0.01	LID	94	1990	0.29	1.15	30	0.3	0.34	0.35	5.8	0.7
LID	9B	51	0.01	LID	94	2230	0.22	1.15	30	0.3	0.34	0.35	5.4	0.6
LID	11A	46.3	0.01	LID	94	2402	0.19	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	12A	46.7	0.01	LID	94	2523	0.24	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	13A	55	0.01	LID	94	2188	0.21	1.15	30	0.3	0.34	0.35	5.8	0.7
LID	14A	52.8	0.01	LID	94	2314	0.24	1.15	30	0.3	0.34	0.35	5.5	0.7
LID	15A	52.6	0.01	LID	94	2494	0.18	1.15	30	0.3	0.34	0.35	5.5	0.7
LID	16A	23.5	0.01	LID	94	1862	0.24	1.15	30	0.3	0.34	0.35	2.5	0.3
LID	19C	26	0.01	LID	94	1296	0.28	1.15	30	0.3	0.34	0.35	2.7	0.3
LID	20C	48.7	0.01	LID	94	2971	0.16	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	22A	49.7	0.01	LID	94	3412	0.15	1.15	30	0.3	0.34	0.35	5.2	0.6
LID	25D	45	0.01	LID	94	2381	0.23	1.15	30	0.3	0.34	0.35	4.7	0.6
LID	26D	31.1	0.01	LID	94	2454	0.22	1.15	30	0.3	0.34	0.35	3.3	0.4
LID	27D	49.3	0.01	LID	94	2374	0.18	1.15	30	0.3	0.34	0.35	5.2	0.6
LID	28D	47.5	0.01	LID	94	2966	0.16	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	29D	29.2	0.01	LID	94	2182	0.19	1.15	30	0.3	0.34	0.35	3.1	0.4
LID	30D	48.6	0.01	LID	94	1877	0.24	1.15	30	0.3	0.34	0.35	5.1	0.6
LID	31D	41.1	0.01	LID	94	2744	0.19	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	35A	41.3	0.01	LID	94	2799	0.18	1.15	30	0.3	0.34	0.35	4.3	0.5
LID	36A	46.4	0.01	LID	94	2330	0.22	1.15	30	0.3	0.34	0.35	4.9	0.6
LID	37A	26.8	0.01	LID	94	1890	0.25	1.15	30	0.3	0.34	0.35	2.8	0.3
LID	38A	64.1	0.01	LID	94	3261	0.14	1.15	30	0.3	0.34	0.35	6.7	0.8
LID	39A	41.6	0.01	LID	94	2268	0.21	1.15	30	0.3	0.34	0.35	4.4	0.5
LID	42E	61.9	0.01	LID	94	3825	0.15	1.15	30	0.3	0.34	0.35	6.5	0.8

TC Calculator Results

VTM 73336, Northlake Phase 1

Existing Condition

LID	43E	50.1	0.01	LID	94	2265	0.18	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	44E	64.4	0.01	LID	94	3261	0.15	1.15	30	0.3	0.34	0.35	6.8	0.8
LID	46A	47.5	0.01	LID	94	2761	0.16	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	47A	38.8	0.01	LID	94	4397	0.14	1.15	30	0.3	0.34	0.35	4.1	0.5
LID	48A	38.8	0.01	LID	94	4016	0.14	1.15	30	0.3	0.34	0.35	4.1	0.5
LID	49A	25.9	0.01	LID	94	1562	0.24	1.15	30	0.3	0.34	0.35	2.7	0.3
LID	50A	68.3	0.01	LID	94	3772	0.11	1.15	30	0.3	0.34	0.35	7.2	0.9
LID	53F	45.6	0.01	LID	94	2373	0.13	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	54F	53.1	0.01	LID	94	3206	0.14	1.15	30	0.3	0.34	0.35	5.6	0.7
LID	56A	46	0.01	LID	94	3001	0.16	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	57A	50.8	0.01	LID	94	3314	0.15	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	60B	53	0.01	LID	94	3978	0.1	1.15	30	0.3	0.34	0.35	5.6	0.7
LID	61B	38.3	0.01	LID	94	1840	0.16	1.15	30	0.3	0.34	0.35	4.0	0.5
LID	63A	47.7	0.01	LID	94	2864	0.18	1.15	30	0.3	0.34	0.35	5.0	0.6
LID	64A	50	0.01	LID	94	2172	0.24	1.15	30	0.3	0.34	0.35	5.3	0.6
LID	65A	45.7	0.01	LID	94	1777	0.28	1.15	30	0.3	0.34	0.35	4.8	0.6
LID	66A	38.3	0.01	LID	94	1612	0.25	1.15	30	0.3	0.34	0.35	4.0	0.5
												Total =	221.4	26.5

006	1	1A	94	140.912A29			G1
006	1	2A	94	150.610A292	1320	10000	
006	1	3A	94	148.810A292	960	10000	
006	1	4A	94	137.8 9A292	1272	08000	
006	1	5A	94	146.911A29			
006	1	6A	94	99A29			
006	1	7A	94	99A29			
006	1	8B	94	155.410A291	1656	12000	
006	1	9B	94	151.011A29			
006	1	10AB	94	A292	1663	08000	
006	1	11A	94	146.312A29			
006	1	12A	94	146.712A29			
006	1	13A	94	155.011A292	1584	04000	
006	1	14A	94	152.811A29			
006	1	15A	94	152.612A292	1085	05000	
006	1	16A	94	123.510A29			
006	1	17A	94	99A29			
006	1	18A	94	99A29			
006	1	19C	94	126.0 7A292	1584	09000	
006	1	20C	94	148.714A29			
006	1	21AC	94	A292	1337	05000	
006	1	22A	94	149.715A29			
006	1	23A	94	99A29			
006	1	24A	94	99A29			
006	1	25D	94	145.011A29			
006	1	26D	94	131.112A292	1020	10000	
006	1	27D	94	149.312A292	1290	10000	
006	1	28D	94	147.514A29			
006	1	29D	94	129.211A292	1232	10000	
006	1	30D	94	148.610A292	1423	08000	
006	1	31D	94	141.113A29			
006	1	32AD	94	A292	827	03000	
006	1	33A	94	99A29			
006	1	34A	94	99A29			
006	1	35A	94	141.313A292	488	04000	
006	1	36A	94	146.411A292	1164	03000	
006	1	37A	94	126.810A29			
006	1	38A	94	164.115A292	1779	04000	
006	1	39A	94	141.611A29			
006	1	40A	94	99A29			
006	1	41A	94	99A29			
006	1	42E	94	161.917A29			
006	1	43E	94	150.112A292	1851	08000	
006	1	44E	94	164.415A29			
006	1	45AE	94	A292	1975	03000	
006	1	46A	94	147.513A29			
006	1	47A	94	138.818A29			
006	1	48A	94	138.817A292	888	04000	
006	1	49A	94	125.9 8A292	1226	03000	
006	1	50A	94	168.317A29			
006	1	51A	94	99A29			
006	1	52A	94	99A29			
006	1	53F	94	145.612A291	2348	11000	
006	1	54F	94	153.115A29			
006	1	55AF	94	A292	1223	02000	
006	1	56A	94	146.014A292	1272	02000	
006	1	57A	94	150.815A29			
006	1	58A	94	99A29			
006	1	59A	94	99A29			
006	1	60B	94	153.018A291	1480	11000	
006	1	61B	94	138.310A29			
006	1	62AB	94	A292	589	03000	
006	1	63A	94	147.713A292	826	02000	
006	1	64A	94	150.011A292	1214	03000	
006	1	65A	94	145.7 9A292	1165	02000	
006	1	66A	94	138.3 9A29			2 2

Program Package Serial Number: 2083
02/13/15 FILE: EX50 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

Northlake, Exist. 50-yr CLEAR 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
1	1A	40.9	80.14	40.9	80.14	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	2A	50.6	109.62	91.5	189.77	2	1320.	.10000	.00	.00	0.	94	10	A29	.01
1	3A	48.8	105.72	140.3	289.36	2	960.	.10000	.00	.00	0.	94	10	A29	.01
1	4A	37.8	85.90	178.1	368.33	2	1272.	.08000	.00	.00	0.	94	9	A29	.01
1	5A	46.9	96.31	225.0	453.97	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	6A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	120.02	55.4	120.02	1	1656.	.12000	.00	.00	0.	94	10	A29	.01
1	9B	51.0	104.73	106.4	208.82	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	10AB	106.4	208.82	331.4	662.70	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	90.72	377.7	740.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	12A	46.7	91.51	424.4	823.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	13A	55.0	112.95	479.4	924.54	2	1584.	.04000	.00	.00	0.	94	11	A29	.01
1	14A	52.8	108.43	532.2	1001.20	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	15A	52.6	103.07	584.8	1093.26	2	1085.	.05000	.00	.00	0.	94	12	A29	.01
1	16A	23.5	50.91	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	17A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	66.75	26.0	66.75	2	1584.	.09000	.00	.00	0.	94	7	A29	.01
1	20C	48.7	88.22	74.7	149.78	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	21AC	74.7	149.78	683.0	1246.29	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	87.10	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	23A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	92.41	45.0	92.41	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	26D	31.1	60.94	76.1	153.35	2	1020.	.10000	.00	.00	0.	94	12	A29	.01
1	27D	49.3	96.60	125.4	248.57	2	1290.	.10000	.00	.00	0.	94	12	A29	.01
1	28D	47.5	86.05	172.9	331.19	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	29D	29.2	59.96	202.1	388.26	2	1232.	.10000	.00	.00	0.	94	11	A29	.01
1	30D	48.6	105.29	250.7	481.67	2	1423.	.08000	.00	.00	0.	94	10	A29	.01
1	31D	41.1	77.26	291.8	549.56	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	32AD	291.8	549.56	1024.5	1846.33	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	77.64	1065.8	1906.54	2	488.	.04000	.00	.00	0.	94	13	A29	.01
1	36A	46.4	95.28	1112.2	1961.87	2	1164.	.03000	.00	.00	0.	94	11	A29	.01
1	37A	26.8	58.06	1139.0	1973.88	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	38A	64.1	112.33	1203.1	2070.31	2	1779.	.04000	.00	.00	0.	94	15	A29	.01
1	39A	41.6	85.43	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	40A	.0	.00	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1244.7	2087.28	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	61.9	101.21	61.9	101.21	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	43E	50.1	98.17	112.0	199.38	2	1851.	.08000	.00	.00	0.	94	12	A29	.01
1	44E	64.4	112.86	176.4	306.21	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	45AE	176.4	306.21	1421.1	2354.56	2	1975.	.03000	.00	.00	0.	94	0	A29	.00
1	46A	47.5	89.29	1468.6	2371.32	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	47A	38.8	61.55	1507.4	2424.25	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	48A	38.8	63.44	1546.2	2477.39	2	888.	.04000	.00	.00	0.	94	17	A29	.01
1	49A	25.9	62.29	1572.1	2483.94	2	1226.	.03000	.00	.00	0.	94	8	A29	.01

1	50A	68.3	111.68	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	51A	.0	.00	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	52A	.0	.00	1640.4	2549.82	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	53F	45.6	89.35	45.6	89.35	1	2348.	.11000	.00	.00	0.	94	12	A29	.01
1	54F	53.1	93.05	98.7	165.31	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	55AF	98.7	165.31	1739.1	2669.70	2	1223.	.02000	.00	.00	0.	94	0	A29	.00
1	56A	46.0	83.33	1785.1	2683.90	2	1272.	.02000	.00	.00	0.	94	14	A29	.01
1	57A	50.8	89.02	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	58A	.0	.00	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	59A	.0	.00	1835.9	2696.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	60B	53.0	84.08	53.0	84.08	1	1480.	.11000	.00	.00	0.	94	18	A29	.01
1	61B	38.3	82.98	91.3	154.38	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	62AB	91.3	154.38	1927.2	2783.67	2	589.	.03000	.00	.00	0.	94	0	A29	.00
1	63A	47.7	89.67	1974.9	2797.24	2	826.	.02000	.00	.00	0.	94	13	A29	.01
1	64A	50.0	102.68	2024.9	2807.27	2	1214.	.03000	.00	.00	0.	94	11	A29	.01
1	65A	45.7	103.85	2070.6	2813.80	2	1165.	.02000	.00	.00	0.	94	9	A29	.01
1	66A	38.3	87.04	2108.9	2817.32	0	0.	.00000	.00	.00	0.	94	9	A29	.01

Program Package Serial Number: 2083
02/13/15 FILE: EX50 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:
Northlake, Exist. 50-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	29.79	200	30.40	300	31.85	400	33.55
500	35.50	600	38.04	700	41.24	800	55.77	900	106.22
1000	197.43	1050	283.93	1100	444.89	1110	498.62	1120	575.35
1130	691.95	1131	705.39	1132	718.83	1133	733.43	1134	748.62
1135	764.52	1136	781.02	1137	798.60	1138	816.99	1139	836.36
1140	856.35	1141	877.92	1142	900.40	1143	924.26	1144	949.39
1145	977.07	1146	1006.34	1147	1037.71	1148	1070.89	1149	1114.70
1150	1164.25	1151	1222.46	1152	1290.00	1153	1368.23	1154	1447.62
1155	1531.11	1156	1615.94	1157	1702.64	1158	1781.89	1159	1858.92
1160	1934.73	1161	2011.21	1162	2086.72	1163	2169.31	1164	2255.37
1165	2345.68	1166	2437.44	1167	2529.91	1168	2620.23	1169	2701.37
1170	2765.78	1171	2806.33	1172	2817.32	1173	2798.15	1174	2749.43
1175	2675.59	1176	2581.79	1177	2473.38	1178	2355.81	1179	2233.79
1180	2110.69	1181	1989.78	1182	1872.01	1183	1759.60	1184	1652.62
1185	1551.86	1186	1457.53	1187	1370.00	1188	1288.52	1189	1213.73
1190	1144.73	1191	1081.36	1192	1023.11	1193	969.78	1194	920.59
1195	875.31	1196	833.78	1197	795.62	1198	760.41	1199	728.04
1200	698.31	1201	670.63	1202	643.76	1203	618.24	1204	594.67
1205	572.90	1206	553.61	1207	534.72	1208	517.02	1209	500.55
1210	485.40	1211	471.28	1212	457.97	1213	445.73	1214	434.67
1215	423.83	1216	413.48	1217	402.95	1218	392.71	1219	383.08
1220	373.31	1221	364.12	1222	354.98	1223	346.31	1224	337.92
1225	329.61	1226	322.04	1227	314.49	1228	307.09	1229	300.27
1230	293.58	1231	287.71	1232	282.45	1233	277.86	1234	273.18
1235	268.19	1236	263.40	1237	258.56	1238	253.53	1239	249.08
1240	244.43	1241	239.88	1242	235.15	1243	230.68	1244	226.22
1245	221.59	1246	217.30	1247	213.07	1248	208.94	1249	204.97
1250	200.95	1251	197.70	1252	194.40	1253	191.56	1254	188.67
1255	185.71	1256	182.77	1257	179.84	1258	176.65	1259	173.69
1260	170.69	1261	167.70	1262	164.50	1263	161.82	1264	158.61
1265	155.70	1266	152.80	1267	149.89	1268	147.03	1269	144.22
1270	141.45	1271	138.73	1272	136.02	1273	133.41	1274	130.80
1275	128.22	1276	125.70	1277	123.22	1278	120.75	1279	118.37
1280	116.01	1281	113.73	1282	111.51	1283	109.47	1284	107.61
1285	105.93	1286	104.56	1287	103.14	1288	101.66	1289	100.19
1290	98.70	1291	97.19	1292	95.69	1293	94.18	1294	92.68
1295	91.17	1296	89.68	1297	88.19	1298	86.72	1299	85.25
1300	83.81	1310	70.88	1320	60.91	1330	53.97	1340	49.03
1350	45.05	1360	42.19	1370	40.19	1380	38.68	1390	37.42
1400	36.43	1420	34.73	1440	33.26	1460	29.98	1500	29.25

TOTAL VOLUME THIS HYDROGRAPH = 326.40(Ac.Ft)

EX25

G1

006	1	1A	94	140.913A26			
006	1	2A	94	150.611A262	1320	10000	
006	1	3A	94	148.811A262	960	10000	
006	1	4A	94	137.810A262	1272	08000	
006	1	5A	94	146.912A26			
006	1	6A	94	99A26			
006	1	7A	94	99A26			
006	1	8B	94	155.411A261	1656	12000	
006	1	9B	94	151.012A26			
006	1	10AB	94	A262	1663	08000	
006	1	11A	94	146.313A26			
006	1	12A	94	146.713A26			
006	1	13A	94	155.012A262	1584	04000	
006	1	14A	94	152.812A26			
006	1	15A	94	152.613A262	1085	05000	
006	1	16A	94	123.511A26			
006	1	17A	94	99A26			
006	1	18A	94	99A26			
006	1	19C	94	126.0 8A262	1584	09000	
006	1	20C	94	148.715A26			
006	1	21AC	94	A262	1337	05000	
006	1	22A	94	149.717A26			
006	1	23A	94	99A26			
006	1	24A	94	99A26			
006	1	25D	94	145.012A26			
006	1	26D	94	131.113A262	1020	10000	
006	1	27D	94	149.313A262	1290	10000	
006	1	28D	94	147.515A26			
006	1	29D	94	129.212A262	1232	10000	
006	1	30D	94	148.611A262	1423	08000	
006	1	31D	94	141.114A26			
006	1	32AD	94	A262	827	03000	
006	1	33A	94	99A26			
006	1	34A	94	99A26			
006	1	35A	94	141.314A262	488	04000	
006	1	36A	94	146.412A262	1164	03000	
006	1	37A	94	126.811A26			
006	1	38A	94	164.117A262	1779	04000	
006	1	39A	94	141.612A26			
006	1	40A	94	99A26			
006	1	41A	94	99A26			
006	1	42E	94	161.918A26			
006	1	43E	94	150.112A262	1851	08000	
006	1	44E	94	164.416A26			
006	1	45AE	94	A262	1975	03000	
006	1	46A	94	147.515A26			
006	1	47A	94	138.821A26			
006	1	48A	94	138.819A262	888	04000	
006	1	49A	94	125.910A262	1226	03000	
006	1	50A	94	168.319A26			
006	1	51A	94	99A26			
006	1	52A	94	99A26			
006	1	53F	94	145.614A261	2348	11000	
006	1	54F	94	153.117A26			
006	1	55AF	94	A262	1223	02000	
006	1	56A	94	146.015A262	1272	02000	
006	1	57A	94	150.817A26			
006	1	58A	94	99A26			
006	1	59A	94	99A26			
006	1	60B	94	153.020A261	1480	11000	
006	1	61B	94	138.311A26			
006	1	62AB	94	A262	589	03000	
006	1	63A	94	147.715A262	826	02000	
006	1	64A	94	150.012A262	1214	03000	
006	1	65A	94	145.710A262	1165	02000	
006	1	66A	94	138.310A26			2 2

Program Package Serial Number: 2083

02/23/15 FILE: EX25 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

Northlake, Exist. 25-yr CLEAR 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
1	1A	40.9	68.03	40.9	68.03	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	2A	50.6	92.27	91.5	160.30	2	1320.	.10000	.00	.00	0.	94	11	A26	.01
1	3A	48.8	88.99	140.3	245.64	2	960.	.10000	.00	.00	0.	94	11	A26	.01
1	4A	37.8	72.76	178.1	312.17	2	1272.	.08000	.00	.00	0.	94	10	A26	.01
1	5A	46.9	81.56	225.0	385.96	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	6A	.0	.00	225.0	385.96	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	7A	.0	.00	225.0	385.96	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	8B	55.4	101.02	55.4	101.02	1	1656.	.12000	.00	.00	0.	94	11	A26	.01
1	9B	51.0	88.69	106.4	177.30	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	10AB	106.4	177.30	331.4	563.27	2	1663.	.08000	.00	.00	0.	94	0	A26	.00
1	11A	46.3	77.01	377.7	627.74	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	12A	46.7	77.67	424.4	699.46	0	0.	.00000	.00	.00	0.	94	13	A26	.01
1	13A	55.0	95.65	479.4	785.92	2	1584.	.04000	.00	.00	0.	94	12	A26	.01
1	14A	52.8	91.82	532.2	854.53	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	15A	52.6	87.49	584.8	932.54	2	1085.	.05000	.00	.00	0.	94	13	A26	.01
1	16A	23.5	42.85	608.3	954.06	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	17A	.0	.00	608.3	954.06	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	18A	.0	.00	608.3	954.06	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	19C	26.0	55.43	26.0	55.43	2	1584.	.09000	.00	.00	0.	94	8	A26	.01
1	20C	48.7	75.49	74.7	126.63	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	21AC	74.7	126.63	683.0	1060.56	2	1337.	.05000	.00	.00	0.	94	0	A26	.00
1	22A	49.7	71.91	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	23A	.0	.00	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	24A	.0	.00	732.7	1121.14	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	25D	45.0	78.26	45.0	78.26	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	26D	31.1	51.73	76.1	129.98	2	1020.	.10000	.00	.00	0.	94	13	A26	.01
1	27D	49.3	82.00	125.4	210.92	2	1290.	.10000	.00	.00	0.	94	13	A26	.01
1	28D	47.5	73.63	172.9	281.00	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	29D	29.2	50.78	202.1	329.96	2	1232.	.10000	.00	.00	0.	94	12	A26	.01
1	30D	48.6	88.62	250.7	409.56	2	1423.	.08000	.00	.00	0.	94	11	A26	.01
1	31D	41.1	65.87	291.8	467.89	0	0.	.00000	.00	.00	0.	94	14	A26	.01
1	32AD	291.8	467.89	1024.5	1573.70	2	827.	.03000	.00	.00	0.	94	0	A26	.00
1	33A	.0	.00	1024.5	1567.57	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	34A	.0	.00	1024.5	1567.57	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	35A	41.3	66.19	1065.8	1623.14	2	488.	.04000	.00	.00	0.	94	14	A26	.01
1	36A	46.4	80.69	1112.2	1671.79	2	1164.	.03000	.00	.00	0.	94	12	A26	.01
1	37A	26.8	48.87	1139.0	1683.49	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	38A	64.1	92.74	1203.1	1763.95	2	1779.	.04000	.00	.00	0.	94	17	A26	.01
1	39A	41.6	72.34	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	12	A26	.01
1	40A	.0	.00	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	41A	.0	.00	1244.7	1781.03	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	42E	61.9	86.80	61.9	86.80	0	0.	.00000	.00	.00	0.	94	18	A26	.01
1	43E	50.1	87.12	112.0	173.92	2	1851.	.08000	.00	.00	0.	94	12	A26	.01
1	44E	64.4	96.18	176.4	264.85	0	0.	.00000	.00	.00	0.	94	16	A26	.01
1	45AE	176.4	264.85	1421.1	2002.21	2	1975.	.03000	.00	.00	0.	94	0	A26	.00
1	46A	47.5	73.63	1468.6	2027.67	0	0.	.00000	.00	.00	0.	94	15	A26	.01
1	47A	38.8	50.09	1507.4	2072.20	0	0.	.00000	.00	.00	0.	94	21	A26	.01
1	48A	38.8	52.86	1546.2	2116.92	2	888.	.04000	.00	.00	0.	94	19	A26	.01
1	49A	25.9	49.86	1572.1	2121.64	2	1226.	.03000	.00	.00	0.	94	10	A26	.01
1	50A	68.3	93.04	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	19	A26	.01
1	51A	.0	.00	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	52A	.0	.00	1640.4	2184.22	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	53F	45.6	73.08	45.6	73.08	1	2348.	.11000	.00	.00	0.	94	14	A26	.01

1	54F	53.1	76.83	98.7	137.06	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	55AF	98.7	137.06	1739.1	2292.56	2	1223.	.02000	.00	.00	0.	94	0	A26	.00
1	56A	46.0	71.31	1785.1	2301.49	2	1272.	.02000	.00	.00	0.	94	15	A26	.01
1	57A	50.8	73.50	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	17	A26	.01
1	58A	.0	.00	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	59A	.0	.00	1835.9	2314.91	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	60B	53.0	70.29	53.0	70.29	1	1480.	.11000	.00	.00	0.	94	20	A26	.01
1	61B	38.3	69.84	91.3	129.46	0	0.	.00000	.00	.00	0.	94	11	A26	.01
1	62AB	91.3	129.46	1927.2	2388.45	2	589.	.03000	.00	.00	0.	94	0	A26	.00
1	63A	47.7	73.94	1974.9	2400.73	2	826.	.02000	.00	.00	0.	94	15	A26	.01
1	64A	50.0	86.95	2024.9	2409.78	2	1214.	.03000	.00	.00	0.	94	12	A26	.01
1	65A	45.7	87.97	2070.6	2415.10	2	1165.	.02000	.00	.00	0.	94	10	A26	.01
1	66A	38.3	73.73	2108.9	2415.40	0	0.	.00000	.00	.00	0.	94	10	A26	.01

Program Package Serial Number: 2083
02/23/15 FILE: EX25 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:
Northlake, Exist. 25-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	26.65	200	27.24	300	28.56	400	30.05
500	31.80	600	34.05	700	36.90	800	40.65	900	61.78
1000	137.20	1050	219.78	1100	361.92	1110	407.63	1120	471.26
1130	568.27	1131	579.35	1132	590.56	1133	602.42	1134	615.04
1135	628.11	1136	641.92	1137	656.45	1138	671.66	1139	687.82
1140	704.60	1141	722.70	1142	741.54	1143	761.23	1144	781.87
1145	804.81	1146	829.13	1147	855.13	1148	882.78	1149	918.39
1150	959.09	1151	1005.99	1152	1059.94	1153	1121.87	1154	1185.47
1155	1251.92	1156	1319.30	1157	1387.42	1158	1456.68	1159	1519.95
1160	1581.88	1161	1643.09	1162	1705.17	1163	1767.43	1164	1835.93
1165	1908.74	1166	1986.39	1167	2066.41	1168	2147.27	1169	2226.43
1170	2298.28	1171	2356.89	1172	2397.16	1173	2415.40	1174	2409.64
1175	2380.50	1176	2330.06	1177	2261.38	1178	2178.69	1179	2086.40
1180	1987.94	1181	1886.67	1182	1785.04	1183	1684.72	1184	1587.68
1185	1494.54	1186	1405.77	1187	1322.15	1188	1243.82	1189	1171.06
1190	1103.45	1191	1040.53	1192	982.47	1193	928.98	1194	879.53
1195	834.22	1196	792.16	1197	753.52	1198	717.64	1199	684.45
1200	653.68	1201	625.59	1202	599.39	1203	575.13	1204	552.51
1205	530.34	1206	509.44	1207	489.76	1208	471.98	1209	455.62
1210	440.14	1211	425.15	1212	411.28	1213	398.57	1214	386.52
1215	375.30	1216	364.84	1217	355.24	1218	346.08	1219	337.11
1220	328.20	1221	319.50	1222	310.80	1223	302.51	1224	294.38
1225	286.25	1226	278.60	1227	271.40	1228	264.01	1229	257.13
1230	250.21	1231	243.72	1232	237.49	1233	231.64	1234	226.05
1235	221.41	1236	216.94	1237	213.02	1238	208.99	1239	204.67
1240	200.79	1241	196.43	1242	192.33	1243	188.22	1244	184.10
1245	179.88	1246	176.02	1247	171.86	1248	167.94	1249	164.08
1250	160.25	1251	156.55	1252	152.91	1253	149.34	1254	145.93
1255	142.71	1256	139.73	1257	137.05	1258	134.88	1259	132.68
1260	130.44	1261	128.16	1262	125.88	1263	123.59	1264	121.29
1265	118.99	1266	116.71	1267	114.42	1268	112.15	1269	109.90
1270	107.66	1271	105.45	1272	103.27	1273	101.11	1274	98.99
1275	96.91	1276	94.84	1277	92.84	1278	90.87	1279	88.94
1280	87.06	1281	85.20	1282	83.40	1283	81.64	1284	79.92
1285	78.25	1286	76.63	1287	75.05	1288	73.51	1289	72.01
1290	70.57	1291	69.21	1292	67.88	1293	66.61	1294	65.45
1295	64.38	1296	63.41	1297	62.54	1298	61.77	1299	61.11
1300	60.43	1310	53.68	1320	47.90	1330	43.63	1340	40.68
1350	38.68	1360	37.05	1370	35.78	1380	34.69	1390	33.70
1400	32.82	1420	31.26	1440	29.94	1460	26.98	1500	26.16

TOTAL VOLUME THIS HYDROGRAPH = 270.58(Ac.Ft)

EX10

G1

006	1	1A	94	140.916A20		
006	1	2A	94	150.613A202	1320	10000
006	1	3A	94	148.813A202	960	10000
006	1	4A	94	137.812A202	1272	08000
006	1	5A	94	146.914A20		
006	1	6A	94	99A20		
006	1	7A	94	99A20		
006	1	8B	94	155.412A201	1656	12000
006	1	9B	94	151.014A20		
006	1	10AB	94	A202	1663	08000
006	1	11A	94	146.315A20		
006	1	12A	94	146.715A20		
006	1	13A	94	155.014A202	1584	04000
006	1	14A	94	152.814A20		
006	1	15A	94	152.616A202	1085	05000
006	1	16A	94	123.512A20		
006	1	17A	94	99A20		
006	1	18A	94	99A20		
006	1	19C	94	126.010A202	1584	09000
006	1	20C	94	148.718A20		
006	1	21AC	94	A202	1337	05000
006	1	22A	94	149.721A20		
006	1	23A	94	99A20		
006	1	24A	94	99A20		
006	1	25D	94	145.015A20		
006	1	26D	94	131.115A202	1020	10000
006	1	27D	94	149.316A202	1290	10000
006	1	28D	94	147.518A20		
006	1	29D	94	129.214A202	1232	10000
006	1	30D	94	148.612A202	1423	08000
006	1	31D	94	141.117A20		
006	1	32AD	94	A202	827	03000
006	1	33A	94	99A20		
006	1	34A	94	99A20		
006	1	35A	94	141.317A202	488	04000
006	1	36A	94	146.415A202	1164	03000
006	1	37A	94	126.812A20		
006	1	38A	94	164.120A202	1779	04000
006	1	39A	94	141.615A20		
006	1	40A	94	99A20		
006	1	41A	94	99A20		
006	1	42E	94	161.922A20		
006	1	43E	94	150.115A202	1851	08000
006	1	44E	94	164.420A20		
006	1	45AE	94	A202	1975	03000
006	1	46A	94	147.518A20		
006	1	47A	94	138.825A20		
006	1	48A	94	138.823A202	888	04000
006	1	49A	94	125.911A202	1226	03000
006	1	50A	94	168.324A20		
006	1	51A	94	99A20		
006	1	52A	94	99A20		
006	1	53F	94	145.616A201	2348	11000
006	1	54F	94	153.120A20		
006	1	55AF	94	A202	1223	02000
006	1	56A	94	146.019A202	1272	02000
006	1	57A	94	150.820A20		
006	1	58A	94	99A20		
006	1	59A	94	99A20		
006	1	60B	94	153.025A201	1480	11000
006	1	61B	94	138.313A20		
006	1	62AB	94	A202	589	03000
006	1	63A	94	147.718A202	826	02000
006	1	64A	94	150.014A202	1214	03000
006	1	65A	94	145.712A202	1165	02000
006	1	66A	94	138.311A20		

2 2

Program Package Serial Number: 2083
02/23/15 FILE: EX10 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

Northlake, Exist. 10-yr CLEAR 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
1	1A	40.9	45.07	40.9	45.07	0	0.	.00000	.00	.00	0.	94	16	A20	.01
1	2A	50.6	62.14	91.5	107.21	2	1320.	.10000	.00	.00	0.	94	13	A20	.01
1	3A	48.8	59.93	140.3	165.26	2	960.	.10000	.00	.00	0.	94	13	A20	.01
1	4A	37.8	48.44	178.1	210.20	2	1272.	.08000	.00	.00	0.	94	12	A20	.01
1	5A	46.9	55.46	225.0	260.90	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	6A	.0	.00	225.0	260.90	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	7A	.0	.00	225.0	260.90	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	8B	55.4	71.00	55.4	71.00	1	1656.	.12000	.00	.00	0.	94	12	A20	.01
1	9B	51.0	60.31	106.4	123.00	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	10AB	106.4	123.00	331.4	383.90	2	1663.	.08000	.00	.00	0.	94	0	A20	.00
1	11A	46.3	52.94	377.7	428.44	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	12A	46.7	53.40	424.4	477.62	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	13A	55.0	65.04	479.4	536.46	2	1584.	.04000	.00	.00	0.	94	14	A20	.01
1	14A	52.8	62.44	532.2	583.40	0	0.	.00000	.00	.00	0.	94	14	A20	.01
1	15A	52.6	57.96	584.8	634.13	2	1085.	.05000	.00	.00	0.	94	16	A20	.01
1	16A	23.5	30.12	608.3	648.00	0	0.	.00000	.00	.00	0.	94	12	A20	.01
1	17A	.0	.00	608.3	648.00	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	18A	.0	.00	608.3	648.00	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	19C	26.0	37.08	26.0	37.08	2	1584.	.09000	.00	.00	0.	94	10	A20	.01
1	20C	48.7	50.16	74.7	84.66	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	21AC	74.7	84.66	683.0	723.72	2	1337.	.05000	.00	.00	0.	94	0	A20	.00
1	22A	49.7	47.02	732.7	762.47	0	0.	.00000	.00	.00	0.	94	21	A20	.01
1	23A	.0	.00	732.7	762.47	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	24A	.0	.00	732.7	762.47	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	25D	45.0	51.45	45.0	51.45	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	26D	31.1	35.56	76.1	87.01	2	1020.	.10000	.00	.00	0.	94	15	A20	.01
1	27D	49.3	54.33	125.4	140.37	2	1290.	.10000	.00	.00	0.	94	16	A20	.01
1	28D	47.5	48.92	172.9	187.79	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	29D	29.2	34.53	202.1	221.26	2	1232.	.10000	.00	.00	0.	94	14	A20	.01
1	30D	48.6	62.28	250.7	276.35	2	1423.	.08000	.00	.00	0.	94	12	A20	.01
1	31D	41.1	43.79	291.8	315.55	0	0.	.00000	.00	.00	0.	94	17	A20	.01
1	32AD	291.8	315.55	1024.5	1063.22	2	827.	.03000	.00	.00	0.	94	0	A20	.00
1	33A	.0	.00	1024.5	1059.35	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	34A	.0	.00	1024.5	1059.35	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	35A	41.3	44.00	1065.8	1097.33	2	488.	.04000	.00	.00	0.	94	17	A20	.01
1	36A	46.4	53.05	1112.2	1134.99	2	1164.	.03000	.00	.00	0.	94	15	A20	.01
1	37A	26.8	34.35	1139.0	1139.96	0	0.	.00000	.00	.00	0.	94	12	A20	.01
1	38A	64.1	62.50	1203.1	1193.77	2	1779.	.04000	.00	.00	0.	94	20	A20	.01
1	39A	41.6	47.56	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	15	A20	.01
1	40A	.0	.00	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	41A	.0	.00	1244.7	1210.25	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	42E	61.9	57.10	61.9	57.10	0	0.	.00000	.00	.00	0.	94	22	A20	.01
1	43E	50.1	57.28	112.0	114.06	2	1851.	.08000	.00	.00	0.	94	15	A20	.01
1	44E	64.4	62.79	176.4	173.93	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	45AE	176.4	173.93	1421.1	1360.37	2	1975.	.03000	.00	.00	0.	94	0	A20	.00
1	46A	47.5	48.92	1468.6	1378.29	0	0.	.00000	.00	.00	0.	94	18	A20	.01
1	47A	38.8	33.21	1507.4	1407.12	0	0.	.00000	.00	.00	0.	94	25	A20	.01
1	48A	38.8	34.86	1546.2	1436.16	2	888.	.04000	.00	.00	0.	94	23	A20	.01
1	49A	25.9	34.96	1572.1	1438.59	2	1226.	.03000	.00	.00	0.	94	11	A20	.01
1	50A	68.3	59.85	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	24	A20	.01
1	51A	.0	.00	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	52A	.0	.00	1640.4	1481.83	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	53F	45.6	50.25	45.6	50.25	1	2348.	.11000	.00	.00	0.	94	16	A20	.01

1	54F	53.1	51.77	98.7	92.62	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	55AF	98.7	92.62	1739.1	1555.11	2	1223.	.02000	.00	.00	0.	94	0	A20	.00
1	56A	46.0	46.05	1785.1	1566.02	2	1272.	.02000	.00	.00	0.	94	19	A20	.01
1	57A	50.8	49.53	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	20	A20	.01
1	58A	.0	.00	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	59A	.0	.00	1835.9	1574.84	0	0.	.00000	.00	.00	0.	94	99	A20	.00
1	60B	53.0	45.36	53.0	45.36	1	1480.	.11000	.00	.00	0.	94	25	A20	.01
1	61B	38.3	47.03	91.3	85.18	0	0.	.00000	.00	.00	0.	94	13	A20	.01
1	62AB	91.3	85.18	1927.2	1622.31	2	589.	.03000	.00	.00	0.	94	0	A20	.00
1	63A	47.7	49.13	1974.9	1629.89	2	826.	.02000	.00	.00	0.	94	18	A20	.01
1	64A	50.0	59.13	2024.9	1634.94	2	1214.	.03000	.00	.00	0.	94	14	A20	.01
1	65A	45.7	58.57	2070.6	1636.42	2	1165.	.02000	.00	.00	0.	94	12	A20	.01
1	66A	38.3	51.70	2108.9	1636.44	0	0.	.00000	.00	.00	0.	94	11	A20	.01

Program Package Serial Number: 2083
02/23/15 FILE: EX10 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:
Northlake, Exist. 10-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	20.50	200	20.95	300	21.92	400	23.00
500	24.38	600	26.15	700	28.30	800	31.15	900	35.15
1000	43.04	1050	81.65	1100	191.64	1110	226.10	1120	270.29
1130	333.96	1131	341.29	1132	348.58	1133	356.25	1134	364.29
1135	372.80	1136	381.48	1137	390.93	1138	400.80	1139	410.96
1140	421.77	1141	433.44	1142	445.71	1143	458.55	1144	471.97
1145	486.98	1146	502.68	1147	519.53	1148	537.24	1149	560.33
1150	585.95	1151	615.21	1152	648.02	1153	685.37	1154	722.79
1155	762.96	1156	803.20	1157	844.07	1158	885.13	1159	925.57
1160	962.17	1161	999.80	1162	1036.92	1163	1073.24	1164	1110.17
1165	1151.78	1166	1193.66	1167	1237.70	1168	1284.86	1169	1334.10
1170	1385.47	1171	1438.63	1172	1491.66	1173	1540.55	1174	1582.15
1175	1613.27	1176	1631.43	1177	1636.44	1178	1628.06	1179	1607.04
1180	1575.05	1181	1533.43	1182	1483.83	1183	1427.87	1184	1367.98
1185	1305.29	1186	1241.55	1187	1178.30	1188	1116.19	1189	1055.85
1190	997.92	1191	942.44	1192	889.97	1193	840.40	1194	793.55
1195	749.54	1196	708.52	1197	669.94	1198	634.13	1199	600.63
1200	569.64	1201	540.73	1202	513.59	1203	488.51	1204	464.96
1205	443.16	1206	422.54	1207	403.48	1208	385.72	1209	369.03
1210	353.47	1211	338.87	1212	325.14	1213	311.70	1214	298.72
1215	286.45	1216	274.99	1217	264.47	1218	254.63	1219	245.13
1220	236.11	1221	227.65	1222	219.97	1223	212.73	1224	205.85
1225	199.47	1226	193.51	1227	188.28	1228	183.13	1229	177.90
1230	172.62	1231	167.38	1232	162.19	1233	157.05	1234	152.04
1235	147.13	1236	142.32	1237	137.70	1238	133.18	1239	128.79
1240	124.58	1241	120.51	1242	116.59	1243	112.80	1244	109.21
1245	105.75	1246	102.48	1247	99.40	1248	96.52	1249	93.82
1250	91.42	1251	89.21	1252	87.29	1253	85.55	1254	83.98
1255	82.49	1256	81.26	1257	79.92	1258	78.52	1259	77.05
1260	75.59	1261	74.06	1262	72.55	1263	71.05	1264	69.54
1265	68.06	1266	66.60	1267	65.16	1268	63.73	1269	62.36
1270	61.05	1271	59.72	1272	58.46	1273	57.24	1274	56.04
1275	54.92	1276	53.82	1277	52.74	1278	51.72	1279	50.75
1280	49.84	1281	48.92	1282	48.06	1283	47.25	1284	46.49
1285	45.76	1286	45.06	1287	44.44	1288	43.89	1289	43.38
1290	42.91	1291	42.49	1292	42.10	1293	41.72	1294	41.33
1295	40.95	1296	40.57	1297	40.21	1298	39.85	1299	39.48
1300	39.13	1310	36.24	1320	34.14	1330	32.51	1340	31.12
1350	29.97	1360	28.90	1370	27.97	1380	27.15	1390	26.37
1400	25.67	1420	24.43	1440	23.37	1460	21.04	1500	20.13

TOTAL VOLUME THIS HYDROGRAPH = 175.23(AC.Ft)

EX5

G1

006	1	1A	94	140.919A17			
006	1	2A	94	150.616A172	1320	10000	
006	1	3A	94	148.816A172	960	10000	
006	1	4A	94	137.814A172	1272	08000	
006	1	5A	94	146.917A17			
006	1	6A	94	99A17			
006	1	7A	94	99A17			
006	1	8B	94	155.415A171	1656	12000	
006	1	9B	94	151.017A17			
006	1	10AB	94	A172	1663	08000	
006	1	11A	94	146.318A17			
006	1	12A	94	146.718A17			
006	1	13A	94	155.017A172	1584	04000	
006	1	14A	94	152.817A17			
006	1	15A	94	152.619A172	1085	05000	
006	1	16A	94	123.515A17			
006	1	17A	94	99A17			
006	1	18A	94	99A17			
006	1	19C	94	126.011A172	1584	09000	
006	1	20C	94	148.722A17			
006	1	21AC	94	A172	1337	05000	
006	1	22A	94	149.724A17			
006	1	23A	94	99A17			
006	1	24A	94	99A17			
006	1	25D	94	145.017A17			
006	1	26D	94	131.118A172	1020	10000	
006	1	27D	94	149.318A172	1290	10000	
006	1	28D	94	147.522A17			
006	1	29D	94	129.217A172	1232	10000	
006	1	30D	94	148.615A172	1423	08000	
006	1	31D	94	141.120A17			
006	1	32AD	94	A172	827	03000	
006	1	33A	94	99A17			
006	1	34A	94	99A17			
006	1	35A	94	141.320A172	488	04000	
006	1	36A	94	146.417A172	1164	03000	
006	1	37A	94	126.815A17			
006	1	38A	94	164.124A172	1779	04000	
006	1	39A	94	141.617A17			
006	1	40A	94	99A17			
006	1	41A	94	99A17			
006	1	42E	94	161.926A17			
006	1	43E	94	150.118A172	1851	08000	
006	1	44E	94	164.424A17			
006	1	45AE	94	A172	1975	03000	
006	1	46A	94	147.521A17			
006	1	47A	94	138.829A17			
006	1	48A	94	138.828A172	888	04000	
006	1	49A	94	125.913A172	1226	03000	
006	1	50A	94	168.328A17			
006	1	51A	94	99A17			
006	1	52A	94	99A17			
006	1	53F	94	145.620A171	2348	11000	
006	1	54F	94	153.124A17			
006	1	55AF	94	A172	1223	02000	
006	1	56A	94	146.022A172	1272	02000	
006	1	57A	94	150.824A17			
006	1	58A	94	99A17			
006	1	59A	94	99A17			
006	1	60B	94	153.029A171	1480	11000	
006	1	61B	94	138.316A17			
006	1	62AB	94	A172	589	03000	
006	1	63A	94	147.721A172	826	02000	
006	1	64A	94	150.016A172	1214	03000	
006	1	65A	94	145.714A172	1165	02000	
006	1	66A	94	138.313A17			2 2

Program Package Serial Number: 2083
02/23/15 FILE: EX5 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

Northlake, Exist. 5-yr CLEAR 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
1	1A	40.9	33.65	40.9	33.65	0	0.	.00000	.00	.00	0.	94	19	A17	.01
1	2A	50.6	45.94	91.5	79.60	2	1320.	.10000	.00	.00	0.	94	16	A17	.01
1	3A	48.8	44.31	140.3	122.19	2	960.	.10000	.00	.00	0.	94	16	A17	.01
1	4A	37.8	36.93	178.1	157.00	2	1272.	.08000	.00	.00	0.	94	14	A17	.01
1	5A	46.9	41.10	225.0	194.79	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	6A	.0	.00	225.0	194.79	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	7A	.0	.00	225.0	194.79	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	8B	55.4	52.30	55.4	52.30	1	1656.	.12000	.00	.00	0.	94	15	A17	.01
1	9B	51.0	44.69	106.4	90.98	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	10AB	106.4	90.98	331.4	285.78	2	1663.	.08000	.00	.00	0.	94	0	A17	.00
1	11A	46.3	39.26	377.7	319.94	0	0.	.00000	.00	.00	0.	94	18	A17	.01
1	12A	46.7	39.60	424.4	356.17	0	0.	.00000	.00	.00	0.	94	18	A17	.01
1	13A	55.0	48.19	479.4	400.62	2	1584.	.04000	.00	.00	0.	94	17	A17	.01
1	14A	52.8	46.27	532.2	435.80	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	15A	52.6	43.28	584.8	474.71	2	1085.	.05000	.00	.00	0.	94	19	A17	.01
1	16A	23.5	22.18	608.3	488.17	0	0.	.00000	.00	.00	0.	94	15	A17	.01
1	17A	.0	.00	608.3	488.17	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	18A	.0	.00	608.3	488.17	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	19C	26.0	29.05	26.0	29.05	2	1584.	.09000	.00	.00	0.	94	11	A17	.01
1	20C	48.7	36.68	74.7	63.96	0	0.	.00000	.00	.00	0.	94	22	A17	.01
1	21AC	74.7	63.96	683.0	543.67	2	1337.	.05000	.00	.00	0.	94	0	A17	.00
1	22A	49.7	35.62	732.7	573.97	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	23A	.0	.00	732.7	573.97	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	24A	.0	.00	732.7	573.97	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	25D	45.0	39.43	45.0	39.43	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	26D	31.1	26.37	76.1	65.81	2	1020.	.10000	.00	.00	0.	94	18	A17	.01
1	27D	49.3	41.81	125.4	106.90	2	1290.	.10000	.00	.00	0.	94	18	A17	.01
1	28D	47.5	35.77	172.9	141.74	0	0.	.00000	.00	.00	0.	94	22	A17	.01
1	29D	29.2	25.59	202.1	166.45	2	1232.	.10000	.00	.00	0.	94	17	A17	.01
1	30D	48.6	45.88	250.7	207.97	2	1423.	.08000	.00	.00	0.	94	15	A17	.01
1	31D	41.1	32.77	291.8	237.72	0	0.	.00000	.00	.00	0.	94	20	A17	.01
1	32AD	291.8	237.72	1024.5	802.96	2	827.	.03000	.00	.00	0.	94	0	A17	.00
1	33A	.0	.00	1024.5	800.19	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	34A	.0	.00	1024.5	800.19	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	35A	41.3	32.93	1065.8	828.49	2	488.	.04000	.00	.00	0.	94	20	A17	.01
1	36A	46.4	40.66	1112.2	857.51	2	1164.	.03000	.00	.00	0.	94	17	A17	.01
1	37A	26.8	25.30	1139.0	863.13	0	0.	.00000	.00	.00	0.	94	15	A17	.01
1	38A	64.1	45.95	1203.1	903.91	2	1779.	.04000	.00	.00	0.	94	24	A17	.01
1	39A	41.6	36.45	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	17	A17	.01
1	40A	.0	.00	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	41A	.0	.00	1244.7	915.99	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	42E	61.9	42.21	61.9	42.21	0	0.	.00000	.00	.00	0.	94	26	A17	.01
1	43E	50.1	42.49	112.0	84.41	2	1851.	.08000	.00	.00	0.	94	18	A17	.01
1	44E	64.4	46.16	176.4	128.96	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	45AE	176.4	128.96	1421.1	1029.75	2	1975.	.03000	.00	.00	0.	94	0	A17	.00

1	46A	47.5	36.77	1468.6	1045.23	0	0.	.00000	.00	.00	0.	94	21	A17	.01
1	47A	38.8	24.78	1507.4	1066.88	0	0.	.00000	.00	.00	0.	94	29	A17	.01
1	48A	38.8	25.30	1546.2	1088.72	2	888.	.04000	.00	.00	0.	94	28	A17	.01
1	49A	25.9	26.41	1572.1	1090.45	2	1226.	.03000	.00	.00	0.	94	13	A17	.01
1	50A	68.3	44.53	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	28	A17	.01
1	51A	.0	.00	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	52A	.0	.00	1640.4	1123.15	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	53F	45.6	36.35	45.6	36.35	1	2348.	.11000	.00	.00	0.	94	20	A17	.01
1	54F	53.1	38.06	98.7	68.23	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	55AF	98.7	68.23	1739.1	1181.92	2	1223.	.02000	.00	.00	0.	94	0	A17	.00
1	56A	46.0	34.64	1785.1	1189.42	2	1272.	.02000	.00	.00	0.	94	22	A17	.01
1	57A	50.8	36.41	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	24	A17	.01
1	58A	.0	.00	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	59A	.0	.00	1835.9	1200.52	0	0.	.00000	.00	.00	0.	94	99	A17	.00
1	60B	53.0	33.85	53.0	33.85	1	1480.	.11000	.00	.00	0.	94	29	A17	.01
1	61B	38.3	34.78	91.3	63.89	0	0.	.00000	.00	.00	0.	94	16	A17	.01
1	62AB	91.3	63.89	1927.2	1235.22	2	589.	.03000	.00	.00	0.	94	0	A17	.00
1	63A	47.7	36.93	1974.9	1240.10	2	826.	.02000	.00	.00	0.	94	21	A17	.01
1	64A	50.0	45.40	2024.9	1243.36	2	1214.	.03000	.00	.00	0.	94	16	A17	.01
1	65A	45.7	44.65	2070.6	1244.20	2	1165.	.02000	.00	.00	0.	94	14	A17	.01
1	66A	38.3	39.05	2108.9	1243.49	0	0.	.00000	.00	.00	0.	94	13	A17	.01

Program Package Serial Number: 2083
02/23/15 FILE: EX5 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:
Northlake, Exist. 5-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	17.49	200	17.76	300	18.56	400	19.57
500	20.70	600	22.17	700	23.99	800	26.39	900	29.83
1000	35.16	1050	47.01	1100	106.86	1110	130.87	1120	163.14
1130	210.78	1131	216.32	1132	221.87	1133	227.65	1134	233.74
1135	240.10	1136	246.73	1137	253.79	1138	261.15	1139	268.89
1140	277.02	1141	285.85	1142	294.96	1143	304.74	1144	314.94
1145	326.17	1146	338.06	1147	350.56	1148	363.87	1149	381.09
1150	399.54	1151	420.56	1152	444.13	1153	470.46	1154	496.39
1155	524.46	1156	553.17	1157	582.62	1158	611.70	1159	640.78
1160	669.56	1161	698.32	1162	724.68	1163	751.78	1164	778.53
1165	804.66	1166	831.08	1167	860.93	1168	891.33	1169	923.42
1170	957.22	1171	992.56	1172	1029.04	1173	1067.09	1174	1105.55
1175	1142.73	1176	1177.04	1177	1205.64	1178	1226.82	1179	1239.66
1180	1243.49	1181	1238.46	1182	1225.62	1183	1206.02	1184	1180.11
1185	1149.45	1186	1114.08	1187	1075.52	1188	1034.06	1189	990.73
1190	946.36	1191	901.86	1192	857.52	1193	814.10	1194	772.07
1195	731.43	1196	692.73	1197	655.86	1198	620.74	1199	587.50
1200	556.10	1201	526.56	1202	498.78	1203	472.70	1204	448.19
1205	425.27	1206	403.82	1207	383.74	1208	364.92	1209	347.34
1210	330.86	1211	315.37	1212	300.89	1213	287.28	1214	274.50
1215	262.52	1216	251.26	1217	240.73	1218	230.81	1219	221.43
1220	212.59	1221	204.07	1222	195.70	1223	187.65	1224	180.04
1225	172.93	1226	166.26	1227	160.18	1228	154.46	1229	148.89
1230	143.55	1231	138.56	1232	133.84	1233	129.50	1234	125.49
1235	121.65	1236	117.97	1237	114.56	1238	111.36	1239	108.35
1240	105.67	1241	102.94	1242	100.19	1243	97.41	1244	94.63
1245	91.90	1246	89.20	1247	86.55	1248	83.94	1249	81.42
1250	78.97	1251	76.60	1252	74.28	1253	72.07	1254	69.95
1255	67.91	1256	65.95	1257	64.07	1258	62.27	1259	60.56
1260	58.95	1261	57.41	1262	55.97	1263	54.61	1264	53.35
1265	52.18	1266	51.11	1267	50.13	1268	49.26	1269	48.48
1270	47.76	1271	47.11	1272	46.56	1273	45.96	1274	45.38
1275	44.79	1276	44.20	1277	43.61	1278	43.03	1279	42.45
1280	41.86	1281	41.30	1282	40.75	1283	40.21	1284	39.69
1285	39.18	1286	38.68	1287	38.21	1288	37.74	1289	37.30
1290	36.85	1291	36.45	1292	36.06	1293	35.72	1294	35.35
1295	35.03	1296	34.74	1297	34.45	1298	34.15	1299	33.90
1300	33.63	1310	31.32	1320	29.58	1330	28.18	1340	26.95
1350	25.94	1360	25.00	1370	24.18	1380	23.44	1390	22.76
1400	22.11	1420	21.04	1440	20.10	1460	18.14	1500	17.17

TOTAL VOLUME THIS HYDROGRAPH = 136.00(Ac.Ft)

EX2

G1

006	1	1A	94	140.930	A11		
006	1	2A	94	150.624	A112	1320	10000
006	1	3A	94	148.824	A112	960	10000
006	1	4A	94	137.821	A112	1272	08000
006	1	5A	94	146.927	A11		
006	1	6A	94	99	A11		
006	1	7A	94	99	A11		
006	1	8B	94	155.423	A111	1656	12000
006	1	9B	94	151.026	A11		
006	1	10AB	94		A112	1663	08000
006	1	11A	94	146.329	A11		
006	1	12A	94	146.729	A11		
006	1	13A	94	155.026	A112	1584	04000
006	1	14A	94	152.827	A11		
006	1	15A	94	152.630	A112	1085	05000
006	1	16A	94	123.522	A11		
006	1	17A	94	99	A11		
006	1	18A	94	99	A11		
006	1	19C	94	126.017	A112	1584	09000
006	1	20C	94	148.730	A11		
006	1	21AC	94		A112	1337	05000
006	1	22A	94	149.730	A11		
006	1	23A	94	99	A11		
006	1	24A	94	99	A11		
006	1	25D	94	145.028	A11		
006	1	26D	94	131.129	A112	1020	10000
006	1	27D	94	149.329	A112	1290	10000
006	1	28D	94	147.530	A11		
006	1	29D	94	129.227	A112	1232	10000
006	1	30D	94	148.623	A112	1423	08000
006	1	31D	94	141.130	A11		
006	1	32AD	94		A112	827	03000
006	1	33A	94	99	A11		
006	1	34A	94	99	A11		
006	1	35A	94	141.330	A112	488	04000
006	1	36A	94	146.427	A112	1164	03000
006	1	37A	94	126.823	A11		
006	1	38A	94	164.130	A112	1779	04000
006	1	39A	94	141.627	A11		
006	1	40A	94	99	A11		
006	1	41A	94	99	A11		
006	1	42E	94	161.930	A11		
006	1	43E	94	150.128	A112	1851	08000
006	1	44E	94	164.430	A11		
006	1	45AE	94		A112	1975	03000
006	1	46A	94	147.530	A11		
006	1	47A	94	138.830	A11		
006	1	48A	94	138.830	A112	888	04000
006	1	49A	94	125.920	A112	1226	03000
006	1	50A	94	168.330	A11		
006	1	51A	94	99	A11		
006	1	52A	94	99	A11		
006	1	53F	94	145.630	A111	2348	11000
006	1	54F	94	153.130	A11		
006	1	55AF	94		A112	1223	02000
006	1	56A	94	146.030	A112	1272	02000
006	1	57A	94	150.830	A11		
006	1	58A	94	99	A11		
006	1	59A	94	99	A11		
006	1	60B	94	153.030	A111	1480	11000
006	1	61B	94	138.324	A11		
006	1	62AB	94		A112	589	03000
006	1	63A	94	147.730	A112	826	02000
006	1	64A	94	150.025	A112	1214	03000
006	1	65A	94	145.721	A112	1165	02000
006	1	66A	94	138.320	A11		

2 2

Program Package Serial Number: 2083
02/23/15 FILE: EX2 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

Northlake, Exist. 2-yr CLEAR 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
1	1A	40.9	14.19	40.9	14.19	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	2A	50.6	20.40	91.5	34.58	2	1320.	.10000	.00	.00	0.	94	24	A11	.01
1	3A	48.8	19.67	140.3	53.65	2	960.	.10000	.00	.00	0.	94	24	A11	.01
1	4A	37.8	16.63	178.1	69.44	2	1272.	.08000	.00	.00	0.	94	21	A11	.01
1	5A	46.9	17.56	225.0	85.81	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	6A	.0	.00	225.0	85.81	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	7A	.0	.00	225.0	85.81	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	8B	55.4	23.04	55.4	23.04	1	1656.	.12000	.00	.00	0.	94	23	A11	.01
1	9B	51.0	19.51	106.4	40.12	0	0.	.00000	.00	.00	0.	94	26	A11	.01
1	10AB	106.4	40.12	331.4	125.87	2	1663.	.08000	.00	.00	0.	94	0	A11	.00
1	11A	46.3	16.46	377.7	140.47	0	0.	.00000	.00	.00	0.	94	29	A11	.01
1	12A	46.7	16.61	424.4	156.02	0	0.	.00000	.00	.00	0.	94	29	A11	.01
1	13A	55.0	21.04	479.4	175.46	2	1584.	.04000	.00	.00	0.	94	26	A11	.01
1	14A	52.8	19.77	532.2	191.32	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	15A	52.6	18.24	584.8	207.95	2	1085.	.05000	.00	.00	0.	94	30	A11	.01
1	16A	23.5	10.04	608.3	214.87	0	0.	.00000	.00	.00	0.	94	22	A11	.01
1	17A	.0	.00	608.3	214.87	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	18A	.0	.00	608.3	214.87	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	19C	26.0	13.05	26.0	13.05	2	1584.	.09000	.00	.00	0.	94	17	A11	.01
1	20C	48.7	16.89	74.7	29.26	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	21AC	74.7	29.26	683.0	240.31	2	1337.	.05000	.00	.00	0.	94	0	A11	.00
1	22A	49.7	17.24	732.7	254.27	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	23A	.0	.00	732.7	254.27	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	24A	.0	.00	732.7	254.27	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	25D	45.0	16.42	45.0	16.42	0	0.	.00000	.00	.00	0.	94	28	A11	.01
1	26D	31.1	11.06	76.1	27.48	2	1020.	.10000	.00	.00	0.	94	29	A11	.01
1	27D	49.3	17.53	125.4	44.79	2	1290.	.10000	.00	.00	0.	94	29	A11	.01
1	28D	47.5	16.47	172.9	60.71	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	29D	29.2	10.93	202.1	71.35	2	1232.	.10000	.00	.00	0.	94	27	A11	.01
1	30D	48.6	20.21	250.7	90.04	2	1423.	.08000	.00	.00	0.	94	23	A11	.01
1	31D	41.1	14.25	291.8	103.05	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	32AD	291.8	103.05	1024.5	353.13	2	827.	.03000	.00	.00	0.	94	0	A11	.00
1	33A	.0	.00	1024.5	352.51	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	34A	.0	.00	1024.5	352.51	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	35A	41.3	14.32	1065.8	364.66	2	488.	.04000	.00	.00	0.	94	30	A11	.01
1	36A	46.4	17.37	1112.2	378.12	2	1164.	.03000	.00	.00	0.	94	27	A11	.01
1	37A	26.8	11.15	1139.0	382.41	0	0.	.00000	.00	.00	0.	94	23	A11	.01
1	38A	64.1	22.23	1203.1	400.40	2	1779.	.04000	.00	.00	0.	94	30	A11	.01
1	39A	41.6	15.58	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	27	A11	.01
1	40A	.0	.00	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	41A	.0	.00	1244.7	408.61	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	42E	61.9	21.47	61.9	21.47	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	43E	50.1	18.28	112.0	39.75	2	1851.	.08000	.00	.00	0.	94	28	A11	.01
1	44E	64.4	22.34	176.4	61.01	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	45AE	176.4	61.01	1421.1	459.32	2	1975.	.03000	.00	.00	0.	94	0	A11	.00

1	46A	47.5	16.47	1468.6	466.31	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	47A	38.8	13.46	1507.4	475.30	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	48A	38.8	13.46	1546.2	484.29	2	888.	.04000	.00	.00	0.	94	30	A11	.01
1	49A	25.9	11.76	1572.1	484.17	2	1226.	.03000	.00	.00	0.	94	20	A11	.01
1	50A	68.3	23.69	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	51A	.0	.00	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	52A	.0	.00	1640.4	494.28	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	53F	45.6	15.82	45.6	15.82	1	2348.	.11000	.00	.00	0.	94	30	A11	.01
1	54F	53.1	18.42	98.7	30.56	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	55AF	98.7	30.56	1739.1	518.64	2	1223.	.02000	.00	.00	0.	94	0	A11	.00
1	56A	46.0	15.95	1785.1	521.25	2	1272.	.02000	.00	.00	0.	94	30	A11	.01
1	57A	50.8	17.62	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	30	A11	.01
1	58A	.0	.00	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	59A	.0	.00	1835.9	521.04	0	0.	.00000	.00	.00	0.	94	99	A11	.00
1	60B	53.0	18.38	53.0	18.38	1	1480.	.11000	.00	.00	0.	94	30	A11	.01
1	61B	38.3	15.44	91.3	31.83	0	0.	.00000	.00	.00	0.	94	24	A11	.01
1	62AB	91.3	31.83	1927.2	535.39	2	589.	.03000	.00	.00	0.	94	0	A11	.00
1	63A	47.7	16.54	1974.9	536.86	2	826.	.02000	.00	.00	0.	94	30	A11	.01
1	64A	50.0	19.68	2024.9	536.63	2	1214.	.03000	.00	.00	0.	94	25	A11	.01
1	65A	45.7	20.11	2070.6	536.11	2	1165.	.02000	.00	.00	0.	94	21	A11	.01
1	66A	38.3	17.38	2108.9	535.05	0	0.	.00000	.00	.00	0.	94	20	A11	.01

Program Package Serial Number: 2083
02/23/15 FILE: EX2 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:
Northlake, Exist. 2-yr CLEAR, OUTLET HYD.
HYDROGRAPH AT 1 66A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	11.34	200	11.49	300	11.95	400	12.60
500	13.33	600	14.25	700	15.43	800	16.95	900	19.11
1000	22.47	1050	25.54	1100	31.06	1110	32.57	1120	36.85
1130	44.71	1131	45.71	1132	46.80	1133	47.84	1134	49.05
1135	50.34	1136	51.72	1137	53.20	1138	54.77	1139	56.54
1140	58.32	1141	60.36	1142	62.53	1143	64.74	1144	67.23
1145	69.97	1146	72.98	1147	76.21	1148	79.60	1149	84.56
1150	89.83	1151	95.68	1152	102.25	1153	109.71	1154	116.70
1155	124.26	1156	132.52	1157	141.14	1158	150.51	1159	160.17
1160	170.54	1161	180.98	1162	191.73	1163	202.94	1164	214.48
1165	226.37	1166	238.93	1167	252.01	1168	265.74	1169	278.59
1170	291.96	1171	305.56	1172	319.10	1173	332.71	1174	347.69
1175	363.08	1176	378.99	1177	395.48	1178	412.12	1179	428.80
1180	445.11	1181	460.91	1182	476.20	1183	490.65	1184	503.74
1185	514.98	1186	523.93	1187	530.32	1188	534.00	1189	535.05
1190	533.63	1191	529.88	1192	524.00	1193	516.21	1194	506.78
1195	496.03	1196	484.23	1197	471.65	1198	458.48	1199	444.95
1200	431.15	1201	417.24	1202	403.32	1203	389.43	1204	375.66
1205	362.04	1206	348.65	1207	335.51	1208	322.66	1209	310.11
1210	297.89	1211	286.00	1212	274.45	1213	263.31	1214	252.54
1215	242.13	1216	232.09	1217	222.48	1218	213.25	1219	204.36
1220	195.86	1221	187.74	1222	179.97	1223	172.51	1224	165.45
1225	158.70	1226	152.24	1227	146.14	1228	140.28	1229	134.77
1230	129.47	1231	124.46	1232	119.69	1233	115.16	1234	110.86
1235	106.76	1236	102.89	1237	99.18	1238	95.68	1239	92.33
1240	89.18	1241	86.15	1242	83.28	1243	80.55	1244	77.94
1245	75.46	1246	73.10	1247	70.84	1248	68.71	1249	66.65
1250	64.70	1251	62.85	1252	61.07	1253	59.38	1254	57.76
1255	56.20	1256	54.72	1257	53.32	1258	51.95	1259	50.65
1260	49.41	1261	48.21	1262	47.04	1263	45.93	1264	44.87
1265	43.80	1266	42.77	1267	41.77	1268	40.80	1269	39.86
1270	38.97	1271	38.10	1272	37.31	1273	36.52	1274	35.81
1275	35.13	1276	34.49	1277	33.84	1278	33.24	1279	32.67
1280	32.11	1281	31.60	1282	31.10	1283	30.63	1284	30.15
1285	29.69	1286	29.25	1287	28.81	1288	28.39	1289	27.98
1290	27.59	1291	27.21	1292	26.84	1293	26.49	1294	26.16
1295	25.85	1296	25.54	1297	25.26	1298	24.99	1299	24.72
1300	24.46	1310	22.32	1320	20.82	1330	19.59	1340	18.59
1350	17.77	1360	17.04	1370	16.42	1380	15.87	1390	15.36
1400	14.89	1420	14.11	1440	13.41	1460	12.22	1500	11.14

TOTAL VOLUME THIS HYDROGRAPH = 69.41(Ac.Ft)

Section 4

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

Mixed 50 & 25-yr Design 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)
DESIGN	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
DESIGN	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
DESIGN	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
DESIGN	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
DESIGN	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
DESIGN	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
DESIGN	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
DESIGN	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
DESIGN	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
DESIGN	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
DESIGN	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
DESIGN	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
DESIGN	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
DESIGN	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
DESIGN	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
DESIGN	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
DESIGN	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
DESIGN	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
DESIGN	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
DESIGN	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
DESIGN	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
DESIGN	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
DESIGN	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
DESIGN	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
DESIGN	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
DESIGN	37A	26	0.01	50	94	1890	0.24	5.8	10	2.5	0.86	0.86	57.62
DESIGN	38A	64.1	0.01	50	94	3294	0.14	5.8	15	2.06	0.85	0.85	112.24
DESIGN	39A	56.1	0.01	50	94	2202	0.1	5.8	12	2.29	0.86	0.86	114.62
DESIGN	42E	37.8	0.02	50	94	2151	0.07	5.8	13	2.21	0.85	0.85	71.01
DESIGN	43F	59.1	0.01	50	94	3511	0.15	5.8	16	2	0.85	0.85	100.47
DESIGN	44F	52.1	0.01	50	94	2154	0.17	5.8	11	2.39	0.86	0.86	107.09
DESIGN	50A	10.8	0.01	50	94	1130	0.27	5.8	7	2.95	0.88	0.88	28.04
DESIGN	51A	13.3	0.01	50	94	1030	0.43	5.8	6	3.18	0.89	0.89	37.64
DESIGN	52A	11.9	0.01	50	94	836	0.45	5.8	5	3.46	0.89	0.89	36.64
DESIGN	53A	15.4	0.01	50	94	1212	0.34	5.8	7	2.95	0.88	0.88	39.98
DESIGN	54A	9.7	0.01	50	94	833	0.26	5.8	6	3.18	0.89	0.89	27.45

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

DESIGN	55B	56.4	0.15	50	94	1150	0.05	5.8	9	2.63	0.87	0.87	129.05
DESIGN	57A	20.8	0.02	50	94	1272	0.25	5.8	7	2.95	0.88	0.88	54
DESIGN	58A	7	0.01	50	94	636	0.24	5.8	5	3.46	0.89	0.89	21.56
DESIGN	59A	9.6	0.01	50	94	180	0.11	5.8	5	3.46	0.89	0.89	29.56
DESIGN	60A	4.2	0.01	50	94	1103	0.19	5.8	7	2.95	0.88	0.88	10.9
DESIGN	61A	44.3	0.01	50	94	636	0.25	5.8	11	2.39	0.86	0.86	91.05
DESIGN	62A	37.9	0.01	50	94	1795	0.16	5.8	10	2.5	0.86	0.86	81.49
DESIGN	65C	40.4	0.75	25	94	2025	0.05	5.1	14	1.88	0.84	0.89	67.6
DESIGN	66C	39.8	0.5	25	94	4356	0.03	5.1	26	1.4	0.8	0.85	47.36
DESIGN	67C	51	0.6	25	94	3142	0.06	5.1	18	1.67	0.82	0.87	74.1
DESIGN	68C	34.8	0.4	25	94	3412	0.02	5.1	24	1.46	0.8	0.84	42.68
DESIGN	69C	13.1	0.5	25	94	1145	0.04	5.1	10	2.2	0.85	0.88	25.36
DESIGN	70C	63.7	0.75	25	94	4485	0.04	5.1	25	1.43	0.8	0.88	80.16
DESIGN	71C	10	0.5	25	94	1322	0.07	5.1	10	2.2	0.85	0.88	19.36
DESIGN	73D	7	0.4	25	94	564	0.02	5.1	7	2.6	0.87	0.88	16.02
DESIGN	74D	3.4	0.7	25	94	1762	0.07	5.1	12	2.02	0.85	0.89	6.11
DESIGN	75D	23.6	0.6	25	94	2254	0.03	5.1	17	1.71	0.82	0.87	35.11
DESIGN	76D	29.3	0.86	50	94	1926	0.02	5.8	15	2.06	0.85	0.89	53.72
DESIGN	78E	15.8	0.5	25	94	2787	0.07	5.1	17	1.71	0.82	0.86	23.24
DESIGN	79E	17.4	0.1	25	94	2252	0.08	5.1	14	1.88	0.84	0.85	27.81
DESIGN	80E	5	0.7	25	94	1611	0.05	5.1	12	2.02	0.85	0.89	8.99
DESIGN	84F	21.4	0.5	25	94	1683	0.06	5.1	12	2.02	0.85	0.88	38.04
DESIGN	85F	27.1	0.5	25	94	1439	0.06	5.1	11	2.1	0.85	0.88	50.08
DESIGN	86F	14.6	0.5	25	94	968	0.04	5.1	9	2.31	0.86	0.88	29.68
DESIGN	88C	34.4	0.5	50	94	1818	0.03	5.8	13	2.21	0.85	0.88	66.9
DESIGN	89C	23.7	0.7	25	94	2887	0.04	5.1	19	1.62	0.82	0.88	33.79
DESIGN	90C	6.9	0.02	50	94	1127	0.15	5.8	7	2.95	0.88	0.88	17.91
DESIGN	93C	2.8	0.02	50	94	409	0.1	5.8	5	3.46	0.89	0.89	8.62
DESIGN	95C	1.9	0.02	50	94	216	0.1	5.8	5	3.46	0.89	0.89	5.85
DESIGN	97C	1.2	0.02	50	94	198	0.1	5.8	5	3.46	0.89	0.89	3.7
DESIGN	99C	4.3	0.02	50	94	424	0.1	5.8	5	3.46	0.89	0.89	13.24
DESIGN	102A	16	0.01	50	94	703	0.27	5.8	5	3.46	0.89	0.89	49.27
DESIGN	200A	26.7	0.5	25	94	3387	0.04	5.1	21	1.55	0.81	0.86	35.59
DESIGN	201A	21.3	0.82	25	94	1135	0.1145	5.1	8	2.43	0.86	0.89	46.34
DESIGN	OP1	2.5	0.91	50	94	250	0.05	5.8	5	3.46	0.89	0.9	7.78
DESIGN	OP5	5	0.30	50	94	750	0.28	5.8	5	3.46	0.89	0.89	15.48

Program Package Serial Number: 2083
12/07/16 FILE: prd 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\scr_soilx_34.dat
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn 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
1	1A	40.9	81.79	40.9	81.79	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	2A	50.6	111.78	91.5	193.57	2	1320.	.10000	.00	.00	0.	294	10	A29	.01
1	3A	48.8	107.80	140.3	295.20	2	960.	.10000	.00	.00	0.	294	10	A29	.01
1	4A	37.8	87.55	178.1	375.91	2	1272.	.08000	.00	.00	0.	294	9	A29	.01
1	5A	46.9	98.25	225.0	463.32	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	6A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	463.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	122.38	55.4	122.38	1	1656.	.12000	.00	.00	0.	294	10	A29	.01
1	9B	51.0	106.84	106.4	213.34	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	10AB	106.4	213.34	331.4	676.47	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	92.59	377.7	756.56	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	12A	46.7	93.39	424.4	841.37	0	0.	.00000	.00	.00	0.	294	12	A29	.01
1	13A	55.0	115.22	479.4	944.80	2	1584.	.04000	.00	.00	0.	294	11	A29	.01
1	14A	52.8	110.61	532.2	1023.37	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	15A	52.6	105.19	584.8	1118.22	2	1085.	.05000	.00	.00	0.	294	12	A29	.01
1	16A	23.5	51.91	608.3	1144.93	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	17A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1144.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	67.96	26.0	67.96	2	1584.	.09000	.00	.00	0.	294	7	A29	.01
1	20C	48.7	90.12	74.7	152.92	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	21AC	74.7	152.92	683.0	1274.91	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	89.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	294	15	A29	.01
1	23A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1347.23	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	94.27	45.0	94.27	0	0.	.00000	.00	.00	0.	294	11	A29	.01
1	26D	31.1	62.20	76.1	156.47	2	1020.	.10000	.00	.00	0.	294	12	A29	.01
1	27D	49.3	98.59	125.4	253.67	2	1290.	.10000	.00	.00	0.	294	12	A29	.01
1	28D	47.5	87.90	172.9	338.17	0	0.	.00000	.00	.00	0.	294	14	A29	.01
1	29D	29.2	61.17	202.1	396.41	2	1232.	.10000	.00	.00	0.	294	11	A29	.01
1	30D	48.6	107.36	250.7	491.82	2	1423.	.08000	.00	.00	0.	294	10	A29	.01
1	31D	41.1	78.89	291.8	561.36	0	0.	.00000	.00	.00	0.	294	13	A29	.01
1	32AD	291.8	561.36	1024.5	1889.29	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1882.66	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	79.27	1065.8	1950.89	2	488.	.04000	.00	.00	0.	294	13	A29	.01
1	36A	46.4	97.20	1112.2	2008.46	2	1107.	.02000	.00	.00	0.	294	11	A29	.01
1	37A	26.0	57.43	1138.2	2016.81	0	0.	.00000	.00	.00	0.	294	10	A29	.01
1	38A	64.1	114.78	1202.3	2115.57	2	1195.	.01000	.00	.00	0.	294	15	A29	.01
1	39A	56.1	112.19	1258.4	2141.40	5	175.	.02000	12.00	.00	0.	294	12	A29	.01
1	40A	.0	.00	1258.4	2140.49	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	2140.49	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	72.58	37.8	72.58	4	1519.	.03000	2.50	.00	0.	294	13	A29	.02
1	43F	59.1	102.10	59.1	102.10	0	0.	.00000	.00	.00	0.	294	16	A29	.01
1	44F	52.1	109.15	111.2	211.24	4	161.	.06000	3.25	.00	0.	294	11	A29	.01
1	45EF	111.2	210.88	149.0	279.10	4	1818.	.06000	3.75	.00	0.	94	0	A29	.00
1	46AE	149.0	276.95	1407.4	2352.80	5	625.	.02000	13.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	2352.06	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	28.23	1418.2	2357.23	5	618.	.02000	13.00	.00	0.	294	7	A29	.01
1	51A	13.3	37.68	1431.5	2355.46	5	728.	.02000	13.00	.00	0.	294	6	A29	.01
1	52A	11.9	37.50	1443.4	2358.34	5	795.	.02000	13.00	.00	0.	294	5	A29	.01
1	53A	15.4	40.26	1458.8	2356.54	5	943.	.02000	13.00	.00	0.	294	7	A29	.01
1	54A	9.7	27.48	1468.5	2354.67	5	320.	.02000	13.00	.00	0.	294	6	A29	.01
1	55B	56.4	130.87	56.4	130.87	4	1250.	.05000	3.00	.00	0.	294	9	A29	.15
1	56AB	56.4	129.15	1524.9	2379.73	5	1344.	.05000	11.00	.00	0.	94	0	A29	.00
1	57A	20.8	54.37	1545.7	2384.49	5	449.	.05000	11.00	.00	0.	294	7	A29	.02
1	58A	7.0	22.06	1552.7	2381.90	5	680.	.05000	11.00	.00	0.	294	5	A29	.01
1	59A	9.6	30.25	1562.3	2385.17	5	1215.	.05000	11.00	.00	0.	294	5	A29	.01
1	60A	4.2	10.98	1566.5	2378.63	5	567.	.05000	11.00	.00	0.	294	7	A29	.01
1	61A	44.3	92.80	1610.8	2396.11	5	803.	.05000	11.00	.00	0.	294	11	A29	.01
1	62A	37.9	83.72	1648.7	2406.79	5	642.	.05000	11.00	.00	0.	294	10	A29	.01
1	63A	.0	.00	1648.7	2402.55	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PRD							
1	64A	.0	.00	1648.7	2402.55	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	68.18	40.4	68.18	4	664.	.06000	2.25	.00	0.	94	14	A26	.75
1	66C	39.8	48.39	80.2	116.36	4	1491.	.06000	2.75	.00	0.	94	26	A26	.50
1	67C	51.0	75.31	131.2	190.47	0	0.	.00000	.00	.00	0.	94	18	A26	.60
1	68C	34.8	43.57	166.0	233.96	4	880.	.06000	3.50	.00	0.	94	24	A26	.40
1	69C	13.1	25.83	179.1	256.99	4	832.	.06000	3.50	.00	0.	94	10	A26	.50
1	70C	63.7	81.18	242.8	336.69	4	566.	.06000	4.00	.00	0.	94	25	A26	.75
1	71C	10.0	19.72	252.8	352.39	4	27.	.06000	4.00	.00	0.	94	10	A26	.50
1	72C	.0	.00	252.8	352.29	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	73D	7.0	16.16	7.0	16.16	4	1814.	.06000	2.00	.00	0.	94	7	A26	.40
1	74D	3.4	6.16	10.4	21.28	4	2106.	.02000	2.00	.00	0.	94	12	A26	.70
1	75D	23.6	35.87	34.0	53.26	4	1753.	.02000	2.50	.00	0.	94	17	A26	.60
1	76D	29.3	53.99	63.3	99.50	4	255.	.02000	3.00	.00	0.	94	15	A29	.86
1	77D	.0	.00	63.3	99.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	23.82	15.8	23.82	4	670.	.05000	2.00	.00	0.	94	17	A26	.50
1	79E	17.4	28.07	33.2	51.63	4	1024.	.05000	2.00	.00	0.	94	14	A26	.10
1	80E	5.0	9.06	38.2	60.04	4	81.	.05000	2.25	.00	0.	94	12	A26	.70
1	81DE	38.2	59.99	101.5	158.11	4	404.	.05000	3.00	.00	0.	94	0	A26	.00
1	82CD	101.5	157.98	354.3	509.75	4	947.	.05000	4.75	.00	0.	94	0	A26	.00
1	83C	.0	.00	354.3	508.81	0	0.	.00000	.00	.00	0.	94	99	A26	.00
1	84F	21.4	38.34	21.4	38.34	4	1656.	.06000	2.00	.00	0.	94	12	A26	.50
1	85F	27.1	50.77	48.5	87.01	4	1070.	.06000	2.50	.00	0.	94	11	A26	.50
1	86F	14.6	30.09	63.1	114.58	4	16.	.06000	2.75	.00	0.	94	9	A26	.50
1	87CF	63.1	114.55	417.4	613.40	4	585.	.05000	5.00	.00	0.	94	0	A26	.00
1	88C	34.4	66.32	451.8	673.88	4	523.	.05000	5.25	.00	0.	94	13	A29	.50
1	89C	23.7	34.38	475.5	705.90	4	449.	.20000	4.25	.00	0.	94	19	A26	.70
1	90C	6.9	17.72	482.4	712.26	0	0.	.00000	.00	.00	0.	94	7	A29	.02
1	91C	.0	.00	482.4	712.26	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	712.26	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	93C	2.8	8.68	485.2	713.31	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	713.31	4	85.	.05000	5.50	.00	0.	94	99	A29	.00
1	95C	1.9	5.89	487.1	714.47	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	714.47	4	76.	.05000	5.50	.00	0.	94	99	A29	.00
1	97C	1.2	3.72	488.3	715.18	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	715.18	4	283.	.05000	5.50	.00	0.	94	99	A29	.00
1	99C	4.3	7.54	492.6	722.09	0	0.	.00000	.00	.00	0.	94	15	A29	.02
1	100C	.0	.00	492.6	722.09	4	51.	.05000	5.50	.00	0.	94	99	A29	.00
1	101AC	492.6	722.05	2141.3	2900.79	5	36.	.05000	12.00	.00	0.	94	0	A29	.00
1	102A	16.0	50.42	2157.3	2906.12	0	0.	.00000	.00	.00	0.	294	5	A29	.01

Program Package Serial Number: 2083
12/07/16 FILE: prd 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:
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	37.02	200	37.97	300	39.99	400	42.14
500	44.71	600	48.03	700	52.21	800	66.45	900	110.11
1000	183.36	1050	258.14	1100	393.25	1110	439.99	1120	511.68
1130	618.03	1131	630.71	1132	643.22	1133	656.43	1134	670.32
1135	685.23	1136	700.60	1137	717.18	1138	735.21	1139	754.08
1140	773.20	1141	792.85	1142	813.38	1143	834.59	1144	856.51
1145	880.25	1146	906.57	1147	934.87	1148	964.70	1149	1002.67
1150	1052.43	1151	1110.29	1152	1176.64	1153	1254.94	1154	1338.43
1155	1422.35	1156	1505.68	1157	1585.07	1158	1659.50	1159	1725.75
1160	1784.74	1161	1842.44	1162	1903.27	1163	1970.77	1164	2048.47
1165	2136.00	1166	2225.54	1167	2305.83	1168	2366.13	1169	2399.52
1170	2402.55	1171	2375.15	1172	2318.41	1173	2236.62	1174	2135.38
1175	2020.49	1176	1899.04	1177	1778.00	1178	1656.66	1179	1536.07
1180	1423.27	1181	1319.53	1182	1227.04	1183	1143.72	1184	1065.22
1185	993.10	1186	928.40	1187	869.76	1188	816.23	1189	767.75
1190	725.24	1191	689.35	1192	659.58	1193	630.71	1194	601.59
1195	574.60	1196	549.68	1197	526.92	1198	506.16	1199	487.14
1200	469.39	1201	452.73	1202	437.13	1203	422.41	1204	408.65
1205	396.03	1206	384.30	1207	373.26	1208	362.89	1209	353.24
1210	344.05	1211	335.26	1212	326.82	1213	318.81	1214	311.18
1215	303.69	1216	296.50	1217	289.68	1218	283.05	1219	276.72
1220	270.79	1221	265.08	1222	259.80	1223	255.45	1224	251.27
1225	247.07	1226	242.80	1227	238.56	1228	234.35	1229	230.09
1230	225.76	1231	221.45	1232	217.32	1233	213.37	1234	209.54
1235	205.77	1236	202.01	1237	198.29	1238	194.59	1239	190.94
1240	187.67	1241	184.77	1242	182.19	1243	179.76	1244	177.41
1245	174.97	1246	172.39	1247	169.74	1248	167.12	1249	164.62
1250	162.05	1251	159.39	1252	156.75	1253	154.14	1254	151.54
1255	149.05	1256	146.60	1257	144.18	1258	141.82	1259	139.30
1260	136.83	1261	134.45	1262	132.03	1263	129.69	1264	127.46
1265	125.20	1266	122.97	1267	120.80	1268	118.62	1269	116.57
1270	114.59	1271	112.62	1272	110.78	1273	109.23	1274	107.82
1275	106.45	1276	105.02	1277	103.52	1278	102.02	1279	100.52
1280	99.02	1281	97.54	1282	96.05	1283	94.56	1284	93.07
1285	91.60	1286	90.15	1287	88.72	1288	87.31	1289	85.92
1290	84.54	1291	83.20	1292	81.87	1293	80.58	1294	79.31
1295	78.08	1296	76.87	1297	75.69	1298	74.54	1299	73.42
1300	72.33	1310	64.61	1320	59.71	1330	55.27	1340	52.31
1350	50.18	1360	48.45	1370	47.07	1380	45.76	1390	44.53
1400	43.52	1420	41.74	1440	40.06	1460	37.02	1500	37.02

TOTAL VOLUME THIS HYDROGRAPH = 294.93(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: prd INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	32.16	200	33.62	300	35.37	400	37.24
500	39.60	600	42.60	700	46.45	800	51.81	900	62.35
1000	82.73	1050	108.18	1100	146.74	1110	166.17	1120	195.76
1130	231.15	1131	235.25	1132	239.39	1133	243.82	1134	248.41
1135	253.03	1136	257.91	1137	263.40	1138	269.21	1139	275.49
1140	282.02	1141	289.43	1142	297.63	1143	306.29	1144	315.35
1145	325.68	1146	337.60	1147	350.80	1148	365.09	1149	386.65
1150	416.06	1151	452.26	1152	496.10	1153	546.38	1154	594.09
1155	635.32	1156	667.32	1157	690.99	1158	705.89	1159	712.26
1160	710.84	1161	705.14	1162	690.39	1163	667.28	1164	639.48
1165	609.36	1166	577.28	1167	545.92	1168	514.91	1169	483.11
1170	450.55	1171	417.79	1172	385.77	1173	357.07	1174	331.61
1175	308.32	1176	287.22	1177	267.22	1178	248.60	1179	231.08
1180	214.93	1181	200.45	1182	188.17	1183	177.71	1184	168.69
1185	161.05	1186	154.25	1187	148.34	1188	143.26	1189	138.92
1190	135.03	1191	131.40	1192	128.00	1193	124.95	1194	122.08
1195	119.31	1196	116.76	1197	114.45	1198	112.21	1199	110.07
1200	107.95	1201	106.09	1202	104.36	1203	102.42	1204	100.64
1205	99.08	1206	97.54	1207	95.95	1208	94.47	1209	93.11
1210	91.84	1211	90.61	1212	89.35	1213	88.18	1214	87.05
1215	85.90	1216	84.87	1217	83.86	1218	82.69	1219	81.72
1220	80.74	1221	79.83	1222	78.84	1223	77.74	1224	76.81
1225	75.87	1226	75.00	1227	74.19	1228	73.35	1229	72.56
1230	71.64	1231	70.82	1232	70.01	1233	69.13	1234	68.33
1235	67.61	1236	66.97	1237	66.39	1238	65.65	1239	64.90
1240	64.23	1241	63.68	1242	63.01	1243	62.41	1244	61.93
1245	61.38	1246	60.79	1247	60.18	1248	59.60	1249	59.17
1250	58.60	1251	58.14	1252	57.71	1253	57.23	1254	56.75
1255	56.30	1256	55.83	1257	55.46	1258	55.01	1259	54.59
1260	54.20	1261	53.87	1262	53.39	1263	53.04	1264	52.71
1265	52.36	1266	52.07	1267	51.77	1268	51.49	1269	51.27
1270	50.99	1271	50.74	1272	50.54	1273	50.38	1274	50.22
1275	50.06	1276	49.86	1277	49.66	1278	49.51	1279	49.35
1280	49.17	1281	48.97	1282	48.78	1283	48.59	1284	48.40
1285	48.23	1286	48.01	1287	47.79	1288	47.60	1289	47.40
1290	47.21	1291	47.05	1292	46.86	1293	46.62	1294	46.40
1295	46.28	1296	46.12	1297	45.94	1298	45.77	1299	45.58
1300	45.45	1310	44.14	1320	42.79	1330	41.41	1340	40.12
1350	39.23	1360	38.04	1370	37.01	1380	36.42	1390	35.74
1400	35.12	1420	33.75	1440	32.40	1460	32.05	1500	32.05

TOTAL VOLUME THIS HYDROGRAPH = 132.98(Ac.Ft)

♀
Program Package Serial Number: 2083
08/20/16 FILE: PRO 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:
Northlake Phase 1, Prop. 50- & 25-yr Mixed Burn, NATURAL HYO.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.35	200	.37	300	.39	400	.41
500	.44	600	.47	700	.51	800	.72	900	1.23
1000	1.98	1050	2.98	1100	4.41	1110	6.05	1120	7.02
1130	8.69	1131	8.94	1132	9.20	1133	9.63	1134	10.06
1135	10.49	1136	10.67	1137	11.22	1138	11.58	1139	11.94
1140	12.30	1141	13.21	1142	13.76	1143	14.31	1144	14.86
1145	16.32	1146	17.42	1147	18.52	1148	19.44	1149	26.43
1150	32.56	1151	38.32	1152	44.27	1153	50.42	1154	44.27
1155	37.20	1156	29.77	1157	21.83	1158	13.76	1159	11.58
1160	10.13	1161	9.05	1162	8.16	1163	7.63	1164	6.93
1165	6.58	1166	6.23	1167	5.87	1168	5.52	1169	5.35
1170	4.99	1171	4.82	1172	4.65	1173	4.48	1174	4.31
1175	4.14	1176	3.97	1177	3.97	1178	3.63	1179	3.63
1180	3.46	1181	3.46	1182	3.28	1183	3.28	1184	3.11
1185	3.11	1186	2.94	1187	2.94	1188	2.77	1189	2.77
1190	2.77	1191	2.60	1192	2.43	1193	2.60	1194	2.43
1195	2.26	1196	2.43	1197	2.43	1198	2.26	1199	2.26
1200	2.26	1201	2.09	1202	2.09	1203	1.92	1204	1.92
1205	1.92	1206	1.92	1207	1.75	1208	1.92	1209	1.92
1210	1.75	1211	1.75	1212	1.75	1213	1.75	1214	1.58
1215	1.58	1216	1.58	1217	1.58	1218	1.41	1219	1.58
1220	1.58	1221	1.41	1222	1.41	1223	1.41	1224	1.21
1225	1.21	1226	1.41	1227	1.41	1228	1.41	1229	1.41
1230	1.21	1231	1.01	1232	1.01	1233	1.01	1234	1.01
1235	1.21	1236	1.21	1237	1.21	1238	1.01	1239	1.01
1240	1.01	1241	1.01	1242	.81	1243	1.01	1244	1.01
1245	.81	1246	.81	1247	.81	1248	.81	1249	.81
1250	.81	1251	.81	1252	.81	1253	.81	1254	.61
1255	.81	1256	.61	1257	.81	1258	.61	1259	.61
1260	.61	1261	.61	1262	.52	1263	.61	1264	.61
1265	.52	1266	.61	1267	.61	1268	.52	1269	.61
1270	.61	1271	.52	1272	.52	1273	.61	1274	.52
1275	.52	1276	.52	1277	.52	1278	.49	1279	.52
1280	.52	1281	.52	1282	.52	1283	.52	1284	.49
1285	.49	1286	.49	1287	.49	1288	.49	1289	.49
1290	.49	1291	.49	1292	.49	1293	.49	1294	.49
1295	.49	1296	.49	1297	.49	1298	.49	1299	.49
1300	.49	1310	.47	1320	.45	1330	.44	1340	.42
1350	.42	1360	.40	1370	.40	1380	.39	1390	.37
1400	.39	1420	.36	1440	.35	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 2.77(Ac.Ft)

Program Package Serial Number: 2083
02/27/17 FILE: BD 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\scr_soilx_34.dat
Northlake Phase 1, Area B, Prop. 25-yr 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
1	200A	26.7	36.20	26.7	36.20	4	610.	.01500	2.25	.00	0.	94	21	A26	.50
1	201A	21.3	46.84	48.0	81.05	0	0.	.00000	.00	.00	0.	94	8	A26	.82
1	202A	.0	.00	48.0	81.05	0	0.	.00000	.00	.00	0.	94	99	A26	.00

♀
Program Package Serial Number: 2083
02/27/17 FILE: BD 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:
Northlake Phase 1, Area B, Prop. 25-yr HYD.
HYDROGRAPH AT 1 202A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	3.45	200	3.62	300	3.80	400	4.01
500	4.26	600	4.59	700	5.00	800	5.56	900	6.60
1000	8.65	1050	11.29	1100	15.11	1110	17.99	1120	20.87
1130	24.79	1131	25.09	1132	25.54	1133	26.02	1134	26.65
1135	27.15	1136	27.81	1137	28.62	1138	29.48	1139	30.42
1140	31.11	1141	32.25	1142	33.30	1143	34.38	1144	35.41
1145	37.03	1146	38.83	1147	40.62	1148	42.59	1149	48.51
1150	55.28	1151	62.86	1152	70.57	1153	77.53	1154	80.08
1155	81.05	1156	80.63	1157	75.28	1158	69.72	1159	63.85
1160	57.73	1161	51.36	1162	48.98	1163	47.20	1164	45.73
1165	44.41	1166	43.02	1167	41.72	1168	40.27	1169	38.78
1170	37.22	1171	34.80	1172	31.60	1173	28.43	1174	25.15
1175	21.99	1176	19.71	1177	18.37	1178	17.42	1179	16.68
1180	15.89	1181	15.30	1182	14.92	1183	14.45	1184	14.03
1185	13.64	1186	13.26	1187	12.89	1188	12.67	1189	12.47
1190	12.15	1191	11.86	1192	11.55	1193	11.39	1194	11.24
1195	11.11	1196	10.85	1197	10.60	1198	10.34	1199	10.36
1200	10.10	1201	10.00	1202	9.77	1203	9.56	1204	9.59
1205	9.36	1206	9.29	1207	9.06	1208	9.13	1209	8.93
1210	8.89	1211	8.82	1212	8.58	1213	8.52	1214	8.48
1215	8.42	1216	8.22	1217	8.01	1218	7.94	1219	7.88
1220	7.83	1221	7.78	1222	7.60	1223	7.54	1224	7.47
1225	7.44	1226	7.39	1227	7.33	1228	7.14	1229	7.11
1230	7.06	1231	7.00	1232	6.80	1233	6.90	1234	6.71
1235	6.68	1236	6.64	1237	6.60	1238	6.56	1239	6.40
1240	6.52	1241	6.34	1242	6.31	1243	6.25	1244	6.22
1245	6.08	1246	6.17	1247	6.14	1248	6.00	1249	5.97
1250	5.92	1251	5.89	1252	5.86	1253	5.85	1254	5.71
1255	5.69	1256	5.67	1257	5.65	1258	5.63	1259	5.49
1260	5.47	1261	5.46	1262	5.45	1263	5.43	1264	5.42
1265	5.41	1266	5.40	1267	5.39	1268	5.37	1269	5.36
1270	5.35	1271	5.34	1272	5.34	1273	5.33	1274	5.32
1275	5.31	1276	5.18	1277	5.18	1278	5.16	1279	5.15
1280	5.15	1281	5.02	1282	5.02	1283	5.00	1284	5.11
1285	5.11	1286	4.99	1287	4.98	1288	4.96	1289	4.95
1290	4.94	1291	4.93	1292	4.92	1293	4.79	1294	4.90
1295	4.89	1296	4.76	1297	4.87	1298	4.86	1299	4.74
1300	4.74	1310	4.66	1320	4.50	1330	4.31	1340	4.26
1350	4.12	1360	3.96	1370	3.90	1380	3.89	1390	3.77
1400	3.72	1420	3.55	1440	3.45	1460	1.56	1500	1.56

TOTAL VOLUME THIS HYDROGRAPH = 13.63(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

50-yr Clear 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)
50	1A	40.9	0.01	50	94	2501	0.2	5.8	12	2.29	0.86	0.86	80.55
50	2A	50.6	0.01	50	94	2085	0.24	5.8	10	2.5	0.86	0.86	108.79
50	3A	48.8	0.01	50	94	1886	0.17	5.8	10	2.5	0.86	0.86	104.92
50	4A	37.8	0.01	50	94	1577	0.19	5.8	9	2.63	0.87	0.87	86.49
50	5A	46.9	0.01	50	94	2013	0.15	5.8	11	2.39	0.86	0.86	96.4
50	8B	55.4	0.01	50	94	1990	0.29	5.8	10	2.5	0.86	0.86	119.11
50	9B	51	0.01	50	94	2230	0.22	5.8	11	2.39	0.86	0.86	104.83
50	11A	46.3	0.01	50	94	2402	0.19	5.8	12	2.29	0.86	0.86	91.18
50	12A	46.7	0.01	50	94	2523	0.24	5.8	12	2.29	0.86	0.86	91.97
50	13A	55	0.01	50	94	2188	0.21	5.8	11	2.39	0.86	0.86	113.05
50	14A	52.8	0.01	50	94	2314	0.24	5.8	11	2.39	0.86	0.86	108.53
50	15A	52.6	0.01	50	94	2494	0.18	5.8	12	2.29	0.86	0.86	103.59
50	16A	23.5	0.01	50	94	1862	0.24	5.8	10	2.5	0.86	0.86	50.53
50	19C	26	0.01	50	94	1296	0.28	5.8	7	2.95	0.88	0.88	67.5
50	20C	48.7	0.01	50	94	2971	0.16	5.8	14	2.13	0.85	0.85	88.17
50	22A	49.7	0.01	50	94	3412	0.15	5.8	15	2.06	0.85	0.85	87.02
50	25D	45	0.01	50	94	2381	0.23	5.8	11	2.39	0.86	0.86	92.49
50	26D	31.1	0.01	50	94	2454	0.22	5.8	12	2.29	0.86	0.86	61.25
50	27D	49.3	0.01	50	94	2374	0.18	5.8	12	2.29	0.86	0.86	97.09
50	28D	47.5	0.01	50	94	2966	0.16	5.8	14	2.13	0.85	0.85	86
50	29D	29.2	0.01	50	94	2182	0.19	5.8	11	2.39	0.86	0.86	60.02
50	30D	48.6	0.01	50	94	1877	0.24	5.8	10	2.5	0.86	0.86	104.49
50	31D	41.1	0.01	50	94	2744	0.19	5.8	13	2.21	0.85	0.85	77.21
50	35A	41.3	0.01	50	94	2799	0.18	5.8	13	2.21	0.85	0.85	77.58
50	36A	46.4	0.01	50	94	2330	0.22	5.8	11	2.39	0.86	0.86	95.37
50	37A	26	0.01	50	94	1890	0.24	5.8	10	2.5	0.86	0.86	57.62
50	38A	64.1	0.01	50	94	3294	0.14	5.8	15	2.06	0.85	0.85	112.24
50	39A	56.1	0.01	50	94	2202	0.1	5.8	12	2.29	0.86	0.86	114.62
50	42E	37.8	0.02	50	94	2151	0.07	5.8	13	2.21	0.85	0.85	71.01
50	43F	59.1	0.01	50	94	3511	0.15	5.8	16	2	0.85	0.85	100.47
50	44F	52.1	0.01	50	94	2154	0.17	5.8	11	2.39	0.86	0.86	107.09
50	50A	10.8	0.01	50	94	1130	0.27	5.8	7	2.95	0.88	0.88	28.04
50	51A	13.3	0.01	50	94	1030	0.43	5.8	6	3.18	0.89	0.89	37.64
50	52A	11.9	0.01	50	94	836	0.45	5.8	5	3.46	0.89	0.89	36.64

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

50	53A	15.4	0.01	50	94	1212	0.34	5.8	7	2.95	0.88	0.88	39.98
50	54A	9.7	0.01	50	94	833	0.26	5.8	6	3.18	0.89	0.89	27.45
50	55B	56.4	0.15	50	94	1150	0.05	5.8	9	2.63	0.87	0.87	129.05
50	57A	20.8	0.02	50	94	1272	0.25	5.8	7	2.95	0.88	0.88	54
50	58A	7	0.01	50	94	636	0.24	5.8	5	3.46	0.89	0.89	21.56
50	59A	9.6	0.01	50	94	180	0.11	5.8	5	3.46	0.89	0.89	29.56
50	60A	4.2	0.01	50	94	1103	0.19	5.8	7	2.95	0.88	0.88	10.9
50	61A	44.3	0.01	50	94	636	0.25	5.8	11	2.39	0.86	0.86	91.05
50	62A	37.9	0.01	50	94	1795	0.16	5.8	10	2.5	0.86	0.86	81.49
50	65C	40.4	0.75	50	94	2025	0.05	5.8	13	2.21	0.85	0.89	79.46
50	66C	39.8	0.5	50	94	4356	0.03	5.8	24	1.66	0.82	0.86	56.82
50	67C	51	0.6	50	94	3142	0.06	5.8	17	1.95	0.84	0.88	87.52
50	68C	34.8	0.4	50	94	3412	0.02	5.8	22	1.72	0.83	0.86	51.48
50	69C	13.1	0.5	50	94	1145	0.04	5.8	10	2.5	0.86	0.88	28.82
50	70C	63.7	0.75	50	94	4485	0.04	5.8	23	1.69	0.82	0.88	94.73
50	71C	10	0.5	50	94	1322	0.07	5.8	10	2.5	0.86	0.88	22
50	73D	7	0.4	50	94	564	0.02	5.8	7	2.95	0.88	0.89	18.38
50	74D	3.4	0.7	50	94	1762	0.07	5.8	11	2.39	0.86	0.89	7.23
50	75D	23.6	0.6	50	94	2254	0.03	5.8	15	2.06	0.85	0.88	42.78
50	76D	29.3	0.86	50	94	1926	0.02	5.8	15	2.06	0.85	0.89	53.72
50	78E	15.8	0.5	50	94	2787	0.07	5.8	15	2.06	0.85	0.88	28.64
50	79E	17.4	0.1	50	94	2252	0.08	5.8	13	2.21	0.85	0.86	33.07
50	80E	5	0.7	50	94	1611	0.05	5.8	11	2.39	0.86	0.89	10.64
50	84F	21.4	0.5	50	94	1683	0.06	5.8	11	2.39	0.86	0.88	45.01
50	85F	27.1	0.5	50	94	1439	0.06	5.8	10	2.5	0.86	0.88	59.62
50	86F	14.6	0.5	50	94	968	0.04	5.8	8	2.77	0.87	0.89	35.99
50	88C	34.4	0.5	50	94	1818	0.03	5.8	13	2.21	0.85	0.88	66.9
50	89C	23.7	0.7	50	94	2887	0.04	5.8	17	1.95	0.84	0.88	40.67
50	90C	6.9	0.02	50	94	1127	0.15	5.8	7	2.95	0.88	0.88	17.91
50	93C	2.8	0.02	50	94	409	0.1	5.8	5	3.46	0.89	0.89	8.62
50	95C	1.9	0.02	50	94	216	0.1	5.8	5	3.46	0.89	0.89	5.85
50	97C	1.2	0.02	50	94	198	0.1	5.8	5	3.46	0.89	0.89	3.7
50	99C	4.3	0.02	50	94	424	0.1	5.8	5	3.46	0.89	0.89	13.24
50	102A	16	0.01	50	94	703	0.27	5.8	5	3.46	0.89	0.89	49.27

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

25-yr Clear 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)
25	1A	40.9	0.01	25	94	2501	0.2	5.1	13	1.94	0.84	0.84	66.65
25	2A	50.6	0.01	25	94	2085	0.24	5.1	11	2.1	0.85	0.85	90.32
25	3A	48.8	0.01	25	94	1886	0.17	5.1	11	2.1	0.85	0.85	87.11
25	4A	37.8	0.01	25	94	1577	0.19	5.1	10	2.2	0.85	0.85	70.69
25	5A	46.9	0.01	25	94	2013	0.15	5.1	12	2.02	0.85	0.85	80.53
25	8B	55.4	0.01	25	94	1990	0.29	5.1	11	2.1	0.85	0.85	98.89
25	9B	51	0.01	25	94	2230	0.22	5.1	12	2.02	0.85	0.85	87.57
25	11A	46.3	0.01	25	94	2402	0.19	5.1	13	1.94	0.84	0.84	75.45
25	12A	46.7	0.01	25	94	2523	0.24	5.1	13	1.94	0.84	0.84	76.1
25	13A	55	0.01	25	94	2188	0.21	5.1	12	2.02	0.85	0.85	94.44
25	14A	52.8	0.01	25	94	2314	0.24	5.1	12	2.02	0.85	0.85	90.66
25	15A	52.6	0.01	25	94	2494	0.18	5.1	13	1.94	0.84	0.84	85.72
25	16A	23.5	0.01	25	94	1862	0.24	5.1	11	2.1	0.85	0.85	41.95
25	19C	26	0.01	25	94	1296	0.28	5.1	8	2.44	0.86	0.86	54.56
25	20C	48.7	0.01	25	94	2971	0.16	5.1	15	1.82	0.83	0.83	73.57
25	22A	49.7	0.01	25	94	3412	0.15	5.1	17	1.71	0.82	0.82	69.69
25	25D	45	0.01	25	94	2381	0.23	5.1	12	2.02	0.85	0.85	77.27
25	26D	31.1	0.01	25	94	2454	0.22	5.1	13	1.94	0.84	0.84	50.68
25	27D	49.3	0.01	25	94	2374	0.18	5.1	13	1.94	0.84	0.84	80.34
25	28D	47.5	0.01	25	94	2966	0.16	5.1	15	1.82	0.83	0.83	71.75
25	29D	29.2	0.01	25	94	2182	0.19	5.1	12	2.02	0.85	0.85	50.14
25	30D	48.6	0.01	25	94	1877	0.24	5.1	11	2.1	0.85	0.85	86.75
25	31D	41.1	0.01	25	94	2744	0.19	5.1	14	1.88	0.84	0.84	64.91
25	35A	41.3	0.01	25	94	2799	0.18	5.1	14	1.88	0.84	0.84	65.22
25	36A	46.4	0.01	25	94	2330	0.22	5.1	12	2.02	0.85	0.85	79.67
25	37A	26	0.01	25	94	1890	0.24	5.1	11	2.1	0.85	0.85	47.84
25	38A	64.1	0.01	25	94	3294	0.14	5.1	17	1.71	0.82	0.82	89.88
25	39A	56.1	0.01	25	94	2202	0.1	5.1	14	1.88	0.84	0.84	91.91
25	42E	37.8	0.02	25	94	2151	0.07	5.1	14	1.88	0.84	0.84	59.69
25	43F	59.1	0.01	25	94	3511	0.15	5.1	17	1.71	0.82	0.82	82.87
25	44F	52.1	0.01	25	94	2154	0.17	5.1	12	2.02	0.85	0.85	89.46
25	50A	10.8	0.01	25	94	1130	0.27	5.1	7	2.6	0.87	0.87	24.43
25	51A	13.3	0.01	25	94	1030	0.43	5.1	6	2.79	0.88	0.88	32.65
25	52A	11.9	0.01	25	94	836	0.45	5.1	6	2.79	0.88	0.88	29.22

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

25	53A	15.4	0.01	25	94	1212	0.34	5.1	7	2.6	0.87	0.87	34.83
25	54A	9.7	0.01	25	94	833	0.26	5.1	6	2.79	0.88	0.88	23.82
25	55B	56.4	0.15	25	94	1150	0.05	5.1	10	2.2	0.85	0.86	106.71
25	57A	20.8	0.02	25	94	1272	0.25	5.1	8	2.44	0.86	0.86	43.65
25	58A	7	0.01	25	94	636	0.24	5.1	5	3.04	0.88	0.88	18.73
25	59A	9.6	0.01	25	94	180	0.11	5.1	5	3.04	0.88	0.88	25.68
25	60A	4.2	0.01	25	94	1103	0.19	5.1	8	2.44	0.86	0.86	8.81
25	61A	44.3	0.01	25	94	636	0.25	5.1	12	2.02	0.85	0.85	76.06
25	62A	37.9	0.01	25	94	1795	0.16	5.1	11	2.1	0.85	0.85	67.65
25	65C	40.4	0.75	25	94	2025	0.05	5.1	14	1.88	0.84	0.89	67.6
25	66C	39.8	0.5	25	94	4356	0.03	5.1	26	1.4	0.8	0.85	47.36
25	67C	51	0.6	25	94	3142	0.06	5.1	18	1.67	0.82	0.87	74.1
25	68C	34.8	0.4	25	94	3412	0.02	5.1	24	1.46	0.8	0.84	42.68
25	69C	13.1	0.5	25	94	1145	0.04	5.1	10	2.2	0.85	0.88	25.36
25	70C	63.7	0.75	25	94	4485	0.04	5.1	25	1.43	0.8	0.88	80.16
25	71C	10	0.5	25	94	1322	0.07	5.1	10	2.2	0.85	0.88	19.36
25	73D	7	0.4	25	94	564	0.02	5.1	7	2.6	0.87	0.88	16.02
25	74D	3.4	0.7	25	94	1762	0.07	5.1	12	2.02	0.85	0.89	6.11
25	75D	23.6	0.6	25	94	2254	0.03	5.1	17	1.71	0.82	0.87	35.11
25	76D	29.3	0.86	25	94	1926	0.02	5.1	16	1.76	0.83	0.89	45.9
25	78E	15.8	0.5	25	94	2787	0.07	5.1	17	1.71	0.82	0.86	23.24
25	79E	17.4	0.1	25	94	2252	0.08	5.1	14	1.88	0.84	0.85	27.81
25	80E	5	0.7	25	94	1611	0.05	5.1	12	2.02	0.85	0.89	8.99
25	84F	21.4	0.5	25	94	1683	0.06	5.1	12	2.02	0.85	0.88	38.04
25	85F	27.1	0.5	25	94	1439	0.06	5.1	11	2.1	0.85	0.88	50.08
25	86F	14.6	0.5	25	94	968	0.04	5.1	9	2.31	0.86	0.88	29.68
25	88C	34.4	0.5	25	94	1818	0.03	5.1	15	1.82	0.83	0.87	54.47
25	89C	23.7	0.7	25	94	2887	0.04	5.1	19	1.62	0.82	0.88	33.79
25	90C	6.9	0.02	25	94	1127	0.15	5.1	8	2.44	0.86	0.86	14.48
25	93C	2.8	0.02	25	94	409	0.1	5.1	5	3.04	0.88	0.88	7.49
25	95C	1.9	0.02	25	94	216	0.1	5.1	5	3.04	0.88	0.88	5.08
25	97C	1.2	0.02	25	94	198	0.1	5.1	5	3.04	0.88	0.88	3.21
25	99C	4.3	0.02	25	94	424	0.1	5.1	5	3.04	0.88	0.88	11.5
25	102A	16	0.01	25	94	703	0.27	5.1	5	3.04	0.88	0.88	42.8

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

10-yr Clear 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)
10	1A	40.9	0.01	10	94	2501	0.2	4.1	16	1.42	0.8	0.8	46.46
10	2A	50.6	0.01	10	94	2085	0.24	4.1	13	1.56	0.81	0.81	63.94
10	3A	48.8	0.01	10	94	1886	0.17	4.1	13	1.56	0.81	0.81	61.66
10	4A	37.8	0.01	10	94	1577	0.19	4.1	12	1.62	0.82	0.82	50.21
10	5A	46.9	0.01	10	94	2013	0.15	4.1	14	1.51	0.81	0.81	57.36
10	8B	55.4	0.01	10	94	1990	0.29	4.1	12	1.62	0.82	0.82	73.59
10	9B	51	0.01	10	94	2230	0.22	4.1	14	1.51	0.81	0.81	62.38
10	11A	46.3	0.01	10	94	2402	0.19	4.1	15	1.46	0.8	0.8	54.08
10	12A	46.7	0.01	10	94	2523	0.24	4.1	15	1.46	0.8	0.8	54.55
10	13A	55	0.01	10	94	2188	0.21	4.1	14	1.51	0.81	0.81	67.27
10	14A	52.8	0.01	10	94	2314	0.24	4.1	14	1.51	0.81	0.81	64.58
10	15A	52.6	0.01	10	94	2494	0.18	4.1	16	1.42	0.8	0.8	59.75
10	16A	23.5	0.01	10	94	1862	0.24	4.1	12	1.62	0.82	0.82	31.22
10	19C	26	0.01	10	94	1296	0.28	4.1	10	1.77	0.83	0.83	38.2
10	20C	48.7	0.01	10	94	2971	0.16	4.1	18	1.34	0.79	0.79	51.55
10	22A	49.7	0.01	10	94	3412	0.15	4.1	21	1.25	0.78	0.78	48.46
10	25D	45	0.01	10	94	2381	0.23	4.1	15	1.46	0.8	0.8	52.56
10	26D	31.1	0.01	10	94	2454	0.22	4.1	15	1.46	0.8	0.8	36.32
10	27D	49.3	0.01	10	94	2374	0.18	4.1	16	1.42	0.8	0.8	56
10	28D	47.5	0.01	10	94	2966	0.16	4.1	18	1.34	0.79	0.79	50.28
10	29D	29.2	0.01	10	94	2182	0.19	4.1	14	1.51	0.81	0.81	35.71
10	30D	48.6	0.01	10	94	1877	0.24	4.1	12	1.62	0.82	0.82	64.56
10	31D	41.1	0.01	10	94	2744	0.19	4.1	17	1.38	0.79	0.79	44.81
10	35A	41.3	0.01	10	94	2799	0.18	4.1	17	1.38	0.79	0.79	45.03
10	36A	46.4	0.01	10	94	2330	0.22	4.1	15	1.46	0.8	0.8	54.2
10	37A	26	0.01	10	94	1890	0.24	4.1	12	1.62	0.82	0.82	35.6
10	38A	64.1	0.01	10	94	3294	0.14	4.1	20	1.28	0.78	0.78	64
10	39A	56.1	0.01	10	94	2202	0.1	4.1	16	1.42	0.8	0.8	66.12
10	42E	37.8	0.02	10	94	2151	0.07	4.1	17	1.38	0.79	0.79	41.21
10	43F	59.1	0.01	10	94	3511	0.15	4.1	21	1.25	0.78	0.78	57.62
10	44F	52.1	0.01	10	94	2154	0.17	4.1	15	1.46	0.8	0.8	60.85
10	50A	10.8	0.01	10	94	1130	0.27	4.1	9	1.86	0.84	0.84	16.87
10	51A	13.3	0.01	10	94	1030	0.43	4.1	8	1.96	0.84	0.84	21.9
10	52A	11.9	0.01	10	94	836	0.45	4.1	7	2.09	0.85	0.85	21.14
10	53A	15.4	0.01	10	94	1212	0.34	4.1	9	1.86	0.84	0.84	24.06

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

10	54A	9.7	0.01	10	94	833	0.26	4.1	7	2.09	0.85	0.85	17.23
10	55B	56.4	0.15	10	94	1150	0.05	4.1	12	1.62	0.82	0.83	75.84
10	57A	20.8	0.02	10	94	1272	0.25	4.1	10	1.77	0.83	0.83	30.56
10	58A	7	0.01	10	94	636	0.24	4.1	6	2.25	0.85	0.85	13.39
10	59A	9.6	0.01	10	94	180	0.11	4.1	5	2.45	0.86	0.86	20.23
10	60A	4.2	0.01	10	94	1103	0.19	4.1	9	1.86	0.84	0.84	6.56
10	61A	44.3	0.01	10	94	636	0.25	4.1	15	1.46	0.8	0.8	51.74
10	62A	37.9	0.01	10	94	1795	0.16	4.1	13	1.56	0.81	0.81	47.89
10	65C	40.4	0.75	10	94	2025	0.05	4.1	16	1.42	0.8	0.88	50.48
10	66C	39.8	0.5	10	94	4356	0.03	4.1	30	1.05	0.75	0.83	34.69
10	67C	51	0.6	10	94	3142	0.06	4.1	22	1.22	0.77	0.85	52.89
10	68C	34.8	0.4	10	94	3412	0.02	4.1	29	1.07	0.75	0.81	30.16
10	69C	13.1	0.5	10	94	1145	0.04	4.1	12	1.62	0.82	0.86	18.25
10	70C	63.7	0.75	10	94	4485	0.04	4.1	29	1.07	0.75	0.86	58.62
10	71C	10	0.5	10	94	1322	0.07	4.1	12	1.62	0.82	0.86	13.93
10	73D	7	0.4	10	94	564	0.02	4.1	9	1.86	0.84	0.86	11.2
10	74D	3.4	0.7	10	94	1762	0.07	4.1	14	1.51	0.81	0.87	4.47
10	75D	23.6	0.6	10	94	2254	0.03	4.1	20	1.28	0.78	0.85	25.68
10	76D	29.3	0.86	10	94	1926	0.02	4.1	19	1.31	0.78	0.88	33.78
10	78E	15.8	0.5	10	94	2787	0.07	4.1	20	1.28	0.78	0.84	16.99
10	79E	17.4	0.1	10	94	2252	0.08	4.1	17	1.38	0.79	0.8	19.21
10	80E	5	0.7	10	94	1611	0.05	4.1	14	1.51	0.81	0.87	6.57
10	84F	21.4	0.5	10	94	1683	0.06	4.1	14	1.51	0.81	0.86	27.79
10	85F	27.1	0.5	10	94	1439	0.06	4.1	13	1.56	0.81	0.86	36.36
10	86F	14.6	0.5	10	94	968	0.04	4.1	11	1.69	0.82	0.86	21.22
10	88C	34.4	0.5	10	94	1818	0.03	4.1	17	1.38	0.79	0.85	40.35
10	89C	23.7	0.7	10	94	2887	0.04	4.1	22	1.22	0.77	0.86	24.87
10	90C	6.9	0.02	10	94	1127	0.15	4.1	10	1.77	0.83	0.83	10.14
10	93C	2.8	0.02	10	94	409	0.1	4.1	5	2.45	0.86	0.86	5.9
10	95C	1.9	0.02	10	94	216	0.1	4.1	5	2.45	0.86	0.86	4
10	97C	1.2	0.02	10	94	198	0.1	4.1	5	2.45	0.86	0.86	2.53
10	99C	4.3	0.02	10	94	424	0.1	4.1	6	2.25	0.85	0.85	8.22
10	102A	16	0.01	10	94	703	0.27	4.1	6	2.25	0.85	0.85	30.6

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

5-yr Clear 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)
5	1A	40.9	0.01	5	94	2501	0.2	3.4	19	1.08	0.75	0.75	33.13
5	2A	50.6	0.01	5	94	2085	0.24	3.4	16	1.17	0.77	0.77	45.59
5	3A	48.8	0.01	5	94	1886	0.17	3.4	16	1.17	0.77	0.77	43.96
5	4A	37.8	0.01	5	94	1577	0.19	3.4	14	1.25	0.78	0.78	36.86
5	5A	46.9	0.01	5	94	2013	0.15	3.4	17	1.14	0.76	0.76	40.63
5	8B	55.4	0.01	5	94	1990	0.29	3.4	15	1.21	0.77	0.77	51.62
5	9B	51	0.01	5	94	2230	0.22	3.4	17	1.14	0.76	0.76	44.19
5	11A	46.3	0.01	5	94	2402	0.19	3.4	18	1.11	0.76	0.76	39.06
5	12A	46.7	0.01	5	94	2523	0.24	3.4	18	1.11	0.76	0.76	39.4
5	13A	55	0.01	5	94	2188	0.21	3.4	17	1.14	0.76	0.76	47.65
5	14A	52.8	0.01	5	94	2314	0.24	3.4	17	1.14	0.76	0.76	45.75
5	15A	52.6	0.01	5	94	2494	0.18	3.4	19	1.08	0.75	0.75	42.61
5	16A	23.5	0.01	5	94	1862	0.24	3.4	15	1.21	0.77	0.77	21.89
5	19C	26	0.01	5	94	1296	0.28	3.4	11	1.4	0.8	0.8	29.12
5	20C	48.7	0.01	5	94	2971	0.16	3.4	22	1.01	0.74	0.74	36.4
5	22A	49.7	0.01	5	94	3412	0.15	3.4	24	0.97	0.74	0.74	35.67
5	25D	45	0.01	5	94	2381	0.23	3.4	17	1.14	0.76	0.76	38.99
5	26D	31.1	0.01	5	94	2454	0.22	3.4	18	1.11	0.76	0.76	26.24
5	27D	49.3	0.01	5	94	2374	0.18	3.4	18	1.11	0.76	0.76	41.59
5	28D	47.5	0.01	5	94	2966	0.16	3.4	22	1.01	0.74	0.74	35.5
5	29D	29.2	0.01	5	94	2182	0.19	3.4	17	1.14	0.76	0.76	25.3
5	30D	48.6	0.01	5	94	1877	0.24	3.4	15	1.21	0.77	0.77	45.28
5	31D	41.1	0.01	5	94	2744	0.19	3.4	20	1.06	0.75	0.75	32.67
5	35A	41.3	0.01	5	94	2799	0.18	3.4	20	1.06	0.75	0.75	32.83
5	36A	46.4	0.01	5	94	2330	0.22	3.4	17	1.14	0.76	0.76	40.2
5	37A	26	0.01	5	94	1890	0.24	3.4	15	1.21	0.77	0.77	24.97
5	38A	64.1	0.01	5	94	3294	0.14	3.4	24	0.97	0.74	0.74	46.01
5	39A	56.1	0.01	5	94	2202	0.1	3.4	20	1.06	0.75	0.75	46.27
5	42E	37.8	0.02	5	94	2151	0.07	3.4	20	1.06	0.75	0.75	30.05
5	43F	59.1	0.01	5	94	3511	0.15	3.4	25	0.95	0.73	0.73	40.99
5	44F	52.1	0.01	5	94	2154	0.17	3.4	17	1.14	0.76	0.76	45.14
5	50A	10.8	0.01	5	94	1130	0.27	3.4	10	1.46	0.8	0.8	12.61
5	51A	13.3	0.01	5	94	1030	0.43	3.4	9	1.54	0.81	0.81	16.59
5	52A	11.9	0.01	5	94	836	0.45	3.4	8	1.63	0.82	0.82	15.91
5	53A	15.4	0.01	5	94	1212	0.34	3.4	10	1.46	0.8	0.8	17.99
5	54A	9.7	0.01	5	94	833	0.26	3.4	8	1.63	0.82	0.82	12.97

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

5	55B	56.4	0.15	5	94	7606	0.06	3.4	14	1.25	0.78	0.8	56.4
5	57A	20.8	0.02	5	94	1272	0.25	3.4	11	1.4	0.8	0.8	23.3
5	58A	7	0.01	5	94	636	0.24	3.4	7	1.73	0.83	0.83	10.05
5	59A	9.6	0.01	5	94	180	0.11	3.4	5	2.03	0.85	0.85	16.56
5	60A	4.2	0.01	5	94	1103	0.19	3.4	11	1.4	0.8	0.8	4.7
5	61A	44.3	0.01	5	94	636	0.25	3.4	18	1.4	0.8	0.8	4.7
5	62A	37.9	0.01	5	94	1795	0.16	3.4	16	1.17	0.77	0.77	34.14
5	65C	40.4	0.75	5	94	2025	0.05	3.4	19	1.08	0.75	0.86	37.52
5	66C	39.8	0.5	5	94	4356	0.03	3.4	30	0.87	0.71	0.81	28.05
5	67C	51	0.6	5	94	3142	0.06	3.4	25	0.95	0.73	0.83	40.21
5	68C	34.8	0.4	5	94	3412	0.02	3.4	30	0.87	0.71	0.79	23.92
5	69C	13.1	0.5	5	94	1145	0.04	3.4	14	1.25	0.78	0.84	13.76
5	70C	63.7	0.75	5	94	4485	0.04	3.4	30	0.87	0.71	0.85	47.11
5	71C	10	0.5	5	94	1322	0.07	3.4	14	1.25	0.78	0.84	10.5
5	73D	7	0.4	5	94	564	0.02	3.4	10	1.46	0.8	0.84	8.58
5	74D	3.4	0.7	5	94	1762	0.07	3.4	16	1.17	0.77	0.86	3.42
5	75D	23.6	0.6	5	94	2254	0.03	3.4	23	0.99	0.74	0.84	19.63
5	76D	29.3	0.86	5	94	1926	0.02	3.4	22	1.01	0.74	0.88	26.04
5	78E	15.8	0.5	5	94	2787	0.07	3.4	23	0.99	0.74	0.82	12.83
5	79E	17.4	0.1	5	94	2252	0.08	3.4	20	1.06	0.75	0.77	14.2
5	80E	5	0.7	5	94	1611	0.05	3.4	17	1.14	0.76	0.86	4.9
5	84F	21.4	0.5	5	94	1683	0.06	3.4	17	1.14	0.76	0.83	20.25
5	85F	27.1	0.5	5	94	1439	0.06	3.4	15	1.21	0.77	0.84	27.54
5	86F	14.6	0.5	5	94	968	0.04	3.4	12	1.34	0.79	0.85	16.63
5	88C	34.4	0.5	5	94	1818	0.03	3.4	20	1.06	0.75	0.83	30.27
5	89C	23.7	0.7	5	94	2887	0.04	3.4	25	0.95	0.73	0.85	19.14
5	90C	6.9	0.02	5	94	1127	0.15	3.4	12	1.34	0.79	0.79	7.3
5	93C	2.8	0.02	5	94	409	0.1	3.4	6	1.86	0.84	0.84	4.37
5	95C	1.9	0.02	5	94	216	0.1	3.4	5	2.03	0.85	0.85	3.28
5	97C	1.2	0.02	5	94	198	0.1	3.4	5	2.03	0.85	0.85	2.07
5	99C	4.3	0.02	5	94	424	0.1	3.4	6	1.86	0.84	0.84	6.72
5	102A	16	0.01	5	94	703	0.27	3.4	8	1.63	0.82	0.82	21.39

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

2-yr Clear 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)
2	1A	40.9	0.01	2	94	2501	0.2	2.2	30	0.57	0.6	0.6	13.99
2	2A	50.6	0.01	2	94	2085	0.24	2.2	24	0.63	0.63	0.63	20.08
2	3A	48.8	0.01	2	94	1886	0.17	2.2	24	0.63	0.63	0.63	19.37
2	4A	37.8	0.01	2	94	1577	0.19	2.2	21	0.67	0.65	0.65	16.46
2	5A	46.9	0.01	2	94	2013	0.15	2.2	27	0.59	0.62	0.62	17.16
2	8B	55.4	0.01	2	94	1990	0.29	2.2	23	0.64	0.63	0.63	22.34
2	9B	51	0.01	2	94	2230	0.22	2.2	26	0.6	0.62	0.62	18.97
2	11A	46.3	0.01	2	94	2402	0.19	2.2	29	0.57	0.61	0.61	16.1
2	12A	46.7	0.01	2	94	2523	0.24	2.2	29	0.57	0.61	0.61	16.24
2	13A	55	0.01	2	94	2188	0.21	2.2	26	0.6	0.62	0.62	20.46
2	14A	52.8	0.01	2	94	2314	0.24	2.2	27	0.59	0.62	0.62	19.31
2	15A	52.6	0.01	2	94	2494	0.18	2.2	30	0.57	0.6	0.6	17.99
2	16A	23.5	0.01	2	94	1862	0.24	2.2	22	0.65	0.64	0.64	9.78
2	19C	26	0.01	2	94	1296	0.28	2.2	17	0.74	0.68	0.68	13.08
2	20C	48.7	0.01	2	94	2971	0.16	2.2	30	0.57	0.6	0.6	16.66
2	22A	49.7	0.01	2	94	3412	0.15	2.2	30	0.57	0.6	0.6	17
2	25D	45	0.01	2	94	2381	0.23	2.2	28	0.58	0.61	0.61	15.92
2	26D	31.1	0.01	2	94	2454	0.22	2.2	29	0.57	0.61	0.61	10.81
2	27D	49.3	0.01	2	94	2374	0.18	2.2	29	0.57	0.61	0.61	17.14
2	28D	47.5	0.01	2	94	2966	0.16	2.2	30	0.57	0.6	0.6	16.25
2	29D	29.2	0.01	2	94	2182	0.19	2.2	27	0.59	0.61	0.61	10.51
2	30D	48.6	0.01	2	94	1877	0.24	2.2	23	0.64	0.63	0.63	19.6
2	31D	41.1	0.01	2	94	2744	0.19	2.2	30	0.57	0.6	0.6	14.06
2	35A	41.3	0.01	2	94	2799	0.18	2.2	30	0.57	0.6	0.6	14.12
2	36A	46.4	0.01	2	94	2330	0.22	2.2	27	0.59	0.61	0.61	16.7
2	37A	26	0.01	2	94	1890	0.24	2.2	23	0.64	0.63	0.63	10.81
2	38A	64.1	0.01	2	94	3294	0.14	2.2	30	0.57	0.6	0.6	21.92
2	39A	56.1	0.01	2	94	2202	0.1	2.2	30	0.57	0.6	0.6	19.9
2	42E	37.8	0.02	2	94	2151	0.07	2.2	30	0.57	0.6	0.61	13.14
2	43F	59.1	0.01	2	94	3511	0.15	2.2	30	0.57	0.6	0.6	20.21
2	44F	52.1	0.01	2	94	2154	0.17	2.2	27	0.59	0.61	0.61	18.75
2	50A	10.8	0.01	2	94	1130	0.27	2.2	15	0.78	0.69	0.69	5.81
2	51A	13.3	0.01	2	94	1030	0.43	2.2	13	0.84	0.7	0.7	7.82
2	52A	11.9	0.01	2	94	836	0.45	2.2	11	0.91	0.72	0.72	7.8
2	53A	15.4	0.01	2	94	1212	0.34	2.2	15	0.78	0.69	0.69	8.29
2	54A	9.7	0.01	2	94	833	0.26	2.2	12	0.87	0.71	0.71	5.99

TC Calculator Results

VTM 73336, Northlake Phase 1

Proposed Condition

2	55B	56.4	0.15	2	94	7606	0.06	2.2	21	0.67	0.65	0.69	26.07
2	57A	20.8	0.02	2	94	1272	0.25	2.2	17	0.74	0.68	0.68	10.47
2	58A	7	0.01	2	94	636	0.24	2.2	11	0.91	0.72	0.72	4.59
2	59A	9.6	0.01	2	94	180	0.11	2.2	5	1.31	0.78	0.78	9.81
2	60A	4.2	0.01	2	94	1103	0.19	2.2	16	0.76	0.68	0.68	2.17
2	61A	44.3	0.01	2	94	636	0.25	2.2	28	0.58	0.61	0.61	15.67
2	62A	37.9	0.01	2	94	1795	0.16	2.2	24	0.63	0.63	0.63	15.04
2	65C	40.4	0.75	2	94	2025	0.05	2.2	26	0.6	0.62	0.83	20.12
2	66C	39.8	0.5	2	94	4356	0.03	2.2	30	0.57	0.6	0.75	17.01
2	67C	51	0.6	2	94	3142	0.06	2.2	30	0.57	0.6	0.78	22.67
2	68C	34.8	0.4	2	94	3412	0.02	2.2	30	0.57	0.6	0.72	14.28
2	69C	13.1	0.5	2	94	1145	0.04	2.2	20	0.68	0.65	0.78	6.95
2	70C	63.7	0.75	2	94	4485	0.04	2.2	30	0.57	0.6	0.83	30.14
2	71C	10	0.5	2	94	1322	0.07	2.2	20	0.68	0.65	0.78	5.3
2	73D	7	0.4	2	94	564	0.02	2.2	14	0.81	0.7	0.78	4.42
2	74D	3.4	0.7	2	94	1762	0.07	2.2	23	0.64	0.63	0.82	1.78
2	75D	23.6	0.6	2	94	2254	0.03	2.2	30	0.57	0.6	0.78	10.49
2	76D	29.3	0.86	2	94	1926	0.02	2.2	29	0.57	0.6	0.86	14.36
2	78E	15.8	0.5	2	94	2787	0.07	2.2	30	0.57	0.6	0.75	6.75
2	79E	17.4	0.1	2	94	2252	0.08	2.2	30	0.57	0.6	0.63	6.25
2	80E	5	0.7	2	94	1611	0.05	2.2	23	0.64	0.63	0.82	2.62
2	84F	21.4	0.5	2	94	1683	0.06	2.2	24	0.63	0.63	0.77	10.38
2	85F	27.1	0.5	2	94	1439	0.06	2.2	21	0.67	0.65	0.78	14.16
2	86F	14.6	0.5	2	94	968	0.04	2.2	18	0.72	0.67	0.79	8.3
2	88C	34.4	0.5	2	94	1818	0.03	2.2	29	0.57	0.6	0.75	14.71
2	89C	23.7	0.7	2	94	2887	0.04	2.2	30	0.57	0.6	0.81	10.94
2	90C	6.9	0.02	2	94	1127	0.15	2.2	17	0.74	0.68	0.68	3.47
2	93C	2.8	0.02	2	94	409	0.1	2.2	9	1	0.74	0.74	2.07
2	95C	1.9	0.02	2	94	216	0.1	2.2	6	1.2	0.77	0.77	1.76
2	97C	1.2	0.02	2	94	198	0.1	2.2	6	1.2	0.77	0.77	1.11
2	99C	4.3	0.02	2	94	424	0.1	2.2	9	1	0.74	0.74	3.18
2	102A	16	0.01	2	94	703	0.27	2.2	11	0.91	0.72	0.72	10.48

LID Clear Frequency

Program Package Serial Number: 2083
12/07/16 FILE: pr50 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\scr_soilx_34.dat
Northlake Phase 1, Prop. 50-yr

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
1	1A	40.9	80.14	40.9	80.14	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	2A	50.6	109.62	91.5	189.77	2	1320.	.10000	.00	.00	0.	94	10	A29	.01
1	3A	48.8	105.72	140.3	289.36	2	960.	.10000	.00	.00	0.	94	10	A29	.01
1	4A	37.8	85.90	178.1	368.33	2	1272.	.08000	.00	.00	0.	94	9	A29	.01
1	5A	46.9	96.31	225.0	453.97	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	6A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	453.97	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	120.02	55.4	120.02	1	1656.	.12000	.00	.00	0.	94	10	A29	.01
1	9B	51.0	104.73	106.4	208.82	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	10AB	106.4	208.82	331.4	662.70	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	90.72	377.7	740.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	12A	46.7	91.51	424.4	823.79	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	13A	55.0	112.95	479.4	924.54	2	1584.	.04000	.00	.00	0.	94	11	A29	.01
1	14A	52.8	108.43	532.2	1001.20	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	15A	52.6	103.07	584.8	1093.26	2	1085.	.05000	.00	.00	0.	94	12	A29	.01
1	16A	23.5	50.91	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	17A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	1119.04	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	66.75	26.0	66.75	2	1584.	.09000	.00	.00	0.	94	7	A29	.01
1	20C	48.7	88.22	74.7	149.78	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	21AC	74.7	149.78	683.0	1246.29	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	87.10	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	23A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1316.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	92.41	45.0	92.41	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	26D	31.1	60.94	76.1	153.35	2	1020.	.10000	.00	.00	0.	94	12	A29	.01
1	27D	49.3	96.60	125.4	248.57	2	1290.	.10000	.00	.00	0.	94	12	A29	.01
1	28D	47.5	86.05	172.9	331.19	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	29D	29.2	59.96	202.1	388.26	2	1232.	.10000	.00	.00	0.	94	11	A29	.01
1	30D	48.6	105.29	250.7	481.67	2	1423.	.08000	.00	.00	0.	94	10	A29	.01
1	31D	41.1	77.26	291.8	549.56	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	32AD	291.8	549.56	1024.5	1846.33	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1839.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	77.64	1065.8	1906.54	2	488.	.04000	.00	.00	0.	94	13	A29	.01
1	36A	46.4	95.28	1112.2	1961.87	2	1107.	.02000	.00	.00	0.	94	11	A29	.01
1	37A	26.0	56.33	1138.2	1968.79	0	0.	.00000	.00	.00	0.	94	10	A29	.01
1	38A	64.1	112.33	1202.3	2065.22	2	1195.	.01000	.00	.00	0.	94	15	A29	.01
1	39A	56.1	109.93	1258.4	2088.87	5	175.	.02000	12.00	.00	0.	94	12	A29	.01
1	40A	.0	.00	1258.4	2087.51	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	2087.51	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	71.09	37.8	71.09	4	1519.	.03000	2.50	.00	0.	94	13	A29	.02
1	43F	59.1	99.87	59.1	99.87	0	0.	.00000	.00	.00	0.	94	16	A29	.01
1	44F	52.1	106.99	111.2	206.86	4	161.	.06000	3.25	.00	0.	94	11	A29	.01
1	45EF	111.2	206.51	149.0	273.39	4	1818.	.06000	3.75	.00	0.	94	0	A29	.00
1	46AE	149.0	271.20	1407.4	2293.44	5	625.	.02000	13.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	2292.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	27.73	1418.2	2297.84	5	618.	.02000	13.00	.00	0.	94	7	A29	.01
1	51A	13.3	37.03	1431.5	2294.49	5	728.	.02000	13.00	.00	0.	94	6	A29	.01
1	52A	11.9	36.89	1443.4	2298.25	5	795.	.02000	13.00	.00	0.	94	5	A29	.01
1	53A	15.4	39.54	1458.8	2297.10	5	943.	.02000	13.00	.00	0.	94	7	A29	.01
1	54A	9.7	27.01	1468.5	2293.22	5	320.	.02000	13.00	.00	0.	94	6	A29	.01
1	55B	56.4	128.76	56.4	128.76	4	1250.	.05000	3.00	.00	0.	94	9	A29	.15
1	56AB	56.4	127.08	1524.9	2318.15	5	1344.	.05000	11.00	.00	0.	94	0	A29	.00
1	57A	20.8	53.41	1545.7	2321.23	5	449.	.05000	11.00	.00	0.	94	7	A29	.02
1	58A	7.0	21.70	1552.7	2320.20	5	680.	.05000	11.00	.00	0.	94	5	A29	.01
1	59A	9.6	29.76	1562.3	2322.90	5	1215.	.05000	11.00	.00	0.	94	5	A29	.01
1	60A	4.2	10.78	1566.5	2317.11	5	567.	.05000	11.00	.00	0.	94	7	A29	.01
1	61A	44.3	90.97	1610.8	2333.24	5	803.	.05000	11.00	.00	0.	94	11	A29	.01
1	62A	37.9	82.11	1648.7	2341.80	5	642.	.05000	11.00	.00	0.	94	10	A29	.01
1	63A	.0	.00	1648.7	2337.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR50							
1	64A	.0	.00	1648.7	2337.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	78.89	40.4	78.89	4	664.	.06000	2.25	.00	0.	94	13	A29	.75
1	66C	39.8	56.64	80.2	135.39	4	1491.	.06000	2.75	.00	0.	94	24	A29	.50
1	67C	51.0	86.79	131.2	220.10	0	0.	.00000	.00	.00	0.	94	17	A29	.60
1	68C	34.8	51.29	166.0	271.39	4	880.	.06000	3.75	.00	0.	94	22	A29	.40
1	69C	13.1	28.90	179.1	297.27	4	832.	.06000	3.75	.00	0.	94	10	A29	.50
1	70C	63.7	94.60	242.8	390.21	4	566.	.06000	4.25	.00	0.	94	23	A29	.75
1	71C	10.0	22.06	252.8	408.33	4	27.	.06000	4.25	.00	0.	94	10	A29	.50
1	72C	.0	.00	252.8	408.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	18.12	7.0	18.12	4	1814.	.06000	2.00	.00	0.	94	7	A29	.40
1	74D	3.4	7.19	10.4	24.12	4	2106.	.02000	2.00	.00	0.	94	11	A29	.70
1	75D	23.6	42.84	34.0	61.72	4	1753.	.02000	2.50	.00	0.	94	15	A29	.60
1	76D	29.3	53.99	63.3	107.61	4	255.	.02000	3.25	.00	0.	94	15	A29	.86
1	77D	.0	.00	63.3	107.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	28.51	15.8	28.51	4	670.	.05000	2.00	.00	0.	94	15	A29	.50
1	79E	17.4	32.86	33.2	61.10	4	1024.	.05000	2.25	.00	0.	94	13	A29	.10
1	80E	5.0	10.57	38.2	70.97	4	81.	.05000	2.25	.00	0.	94	11	A29	.70
1	81DE	38.2	70.94	101.5	176.38	4	404.	.05000	3.25	.00	0.	94	0	A29	.00
1	82CD	101.5	176.27	354.3	584.02	4	947.	.05000	5.00	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	582.65	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	44.87	21.4	44.87	4	1656.	.06000	2.00	.00	0.	94	11	A29	.50
1	85F	27.1	59.78	48.5	101.44	4	1070.	.06000	2.50	.00	0.	94	10	A29	.50
1	86F	14.6	35.59	63.1	133.53	4	16.	.06000	2.75	.00	0.	94	8	A29	.50
1	87CF	63.1	133.50	417.4	702.28	4	585.	.05000	5.25	.00	0.	94	0	A29	.00
1	88C	34.4	66.32	451.8	763.18	4	523.	.05000	5.50	.00	0.	94	13	A29	.50
1	89C	23.7	40.60	475.5	801.40	4	449.	.20000	4.25	.00	0.	94	17	A29	.70
1	90C	6.9	17.72	482.4	807.56	0	0.	.00000	.00	.00	0.	94	7	A29	.02
1	91C	.0	.00	482.4	807.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	807.56	4	85.	.05000	5.75	.00	0.	94	99	A29	.00
1	93C	2.8	8.68	485.2	809.19	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	809.19	4	85.	.05000	5.75	.00	0.	94	99	A29	.00
1	95C	1.9	5.89	487.1	810.20	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	810.20	4	76.	.05000	5.75	.00	0.	94	99	A29	.00
1	97C	1.2	3.72	488.3	810.75	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	810.75	4	283.	.05000	5.75	.00	0.	94	99	A29	.00
1	99C	4.3	13.33	492.6	812.62	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	100C	.0	.00	492.6	812.62	4	51.	.05000	5.75	.00	0.	94	99	A29	.00
1	101AC	492.6	812.62	2141.3	2876.37	5	36.	.05000	12.00	.00	0.	94	0	A29	.00
1	102A	16.0	49.60	2157.3	2881.27	0	0.	.00000	.00	.00	0.	94	5	A29	.01

♀
Program Package Serial Number: 2083
12/07/16 FILE: pr50 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:
Northlake Phase 1, Prop. 50-yr, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	24.18	200	24.70	300	25.94	400	27.38
500	29.00	600	31.11	700	33.74	800	46.08	900	87.25
1000	160.21	1050	231.04	1100	363.56	1110	408.55	1120	477.72
1130	579.77	1131	591.95	1132	603.87	1133	616.47	1134	629.69
1135	643.62	1136	658.22	1137	674.07	1138	691.35	1139	709.45
1140	728.53	1141	748.88	1142	770.18	1143	791.73	1144	813.60
1145	837.03	1146	862.89	1147	890.67	1148	919.96	1149	957.25
1150	1006.17	1151	1063.07	1152	1128.11	1153	1203.11	1154	1284.16
1155	1365.35	1156	1447.58	1157	1526.96	1158	1601.21	1159	1666.36
1160	1723.59	1161	1778.63	1162	1836.54	1163	1902.19	1164	1979.04
1165	2065.89	1166	2155.21	1167	2236.20	1168	2297.98	1169	2333.61
1170	2337.56	1171	2315.62	1172	2261.29	1173	2183.92	1174	2086.39
1175	1975.72	1176	1858.49	1177	1740.76	1178	1620.07	1179	1502.07
1180	1391.30	1181	1289.82	1182	1199.67	1183	1117.17	1184	1038.51
1185	967.06	1186	902.70	1187	844.20	1188	790.89	1189	743.11
1190	702.19	1191	668.55	1192	638.18	1193	607.14	1194	578.58
1195	552.23	1196	527.83	1197	505.01	1198	483.74	1199	464.11
1200	445.93	1201	429.10	1202	413.51	1203	398.86	1204	385.20
1205	372.69	1206	361.15	1207	350.41	1208	340.29	1209	330.81
1210	321.78	1211	313.14	1212	304.86	1213	297.00	1214	289.50
1215	282.14	1216	275.08	1217	268.35	1218	261.81	1219	255.55
1220	249.67	1221	243.95	1222	238.53	1223	233.56	1224	229.48
1225	225.85	1226	222.19	1227	218.44	1228	214.55	1229	210.52
1230	206.37	1231	202.22	1232	198.21	1233	194.35	1234	190.58
1235	186.88	1236	183.18	1237	179.50	1238	175.84	1239	172.21
1240	168.89	1241	165.84	1242	162.84	1243	160.01	1244	157.67
1245	155.34	1246	152.99	1247	150.56	1248	148.13	1249	145.79
1250	143.36	1251	140.84	1252	138.31	1253	135.81	1254	133.30
1255	130.88	1256	128.51	1257	126.17	1258	123.89	1259	121.45
1260	119.05	1261	116.73	1262	114.36	1263	112.06	1264	109.86
1265	107.66	1266	105.47	1267	103.35	1268	101.23	1269	99.20
1270	97.24	1271	95.26	1272	93.33	1273	91.49	1274	89.75
1275	88.15	1276	86.84	1277	85.71	1278	84.64	1279	83.54
1280	82.38	1281	81.15	1282	79.86	1283	78.54	1284	77.20
1285	75.85	1286	74.50	1287	73.15	1288	71.81	1289	70.49
1290	69.17	1291	67.87	1292	66.59	1293	65.32	1294	64.08
1295	62.86	1296	61.66	1297	60.48	1298	59.33	1299	58.20
1300	57.09	1310	48.27	1320	42.71	1330	38.65	1340	35.64
1350	33.62	1360	32.16	1370	31.07	1380	30.18	1390	29.33
1400	28.65	1420	27.48	1440	26.47	1460	24.22	1500	24.18

TOTAL VOLUME THIS HYDROGRAPH = 256.88(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr50 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE:
Northlake Phase 1, Prop. 50-yr, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	35.32	200	36.78	300	38.78	400	40.81
500	43.42	600	46.72	700	50.95	800	58.33	900	72.09
1000	93.72	1050	121.39	1100	163.99	1110	186.36	1120	220.22
1130	259.22	1131	263.79	1132	268.38	1133	273.36	1134	278.55
1135	283.86	1136	289.44	1137	295.62	1138	302.18	1139	309.16
1140	316.52	1141	324.77	1142	333.89	1143	343.69	1144	354.08
1145	366.02	1146	379.67	1147	394.91	1148	411.33	1149	435.87
1150	469.41	1151	511.24	1152	562.27	1153	620.57	1154	675.72
1155	723.20	1156	760.21	1157	786.61	1158	802.12	1159	807.56
1160	805.27	1161	795.88	1162	775.23	1163	745.55	1164	711.76
1165	675.66	1166	636.19	1167	596.66	1168	558.64	1169	518.63
1170	477.27	1171	438.80	1172	403.94	1173	372.35	1174	343.74
1175	317.14	1176	293.11	1177	270.87	1178	250.65	1179	233.10
1180	217.98	1181	205.70	1182	194.75	1183	185.33	1184	177.44
1185	170.60	1186	164.69	1187	159.71	1188	155.05	1189	150.91
1190	147.09	1191	143.48	1192	140.07	1193	136.95	1194	133.93
1195	131.07	1196	128.49	1197	126.09	1198	123.76	1199	121.54
1200	119.54	1201	117.68	1202	115.88	1203	113.86	1204	112.00
1205	110.37	1206	108.73	1207	106.94	1208	105.36	1209	103.93
1210	102.40	1211	101.01	1212	99.70	1213	98.42	1214	97.19
1215	95.88	1216	94.77	1217	93.72	1218	92.54	1219	91.51
1220	90.53	1221	89.56	1222	88.49	1223	87.40	1224	86.45
1225	85.48	1226	84.56	1227	83.77	1228	82.97	1229	82.22
1230	81.32	1231	80.48	1232	79.69	1233	78.74	1234	77.94
1235	77.23	1236	76.49	1237	75.88	1238	75.13	1239	74.37
1240	73.67	1241	73.04	1242	72.34	1243	71.72	1244	71.24
1245	70.66	1246	69.98	1247	69.30	1248	68.66	1249	68.09
1250	67.38	1251	66.80	1252	66.28	1253	65.69	1254	65.07
1255	64.58	1256	64.09	1257	63.62	1258	63.04	1259	62.51
1260	62.03	1261	61.51	1262	60.87	1263	60.36	1264	59.85
1265	59.33	1266	58.85	1267	58.38	1268	57.87	1269	57.51
1270	57.08	1271	56.67	1272	56.29	1273	55.98	1274	55.66
1275	55.31	1276	55.00	1277	54.64	1278	54.32	1279	54.08
1280	53.79	1281	53.52	1282	53.30	1283	53.02	1284	52.80
1285	52.63	1286	52.37	1287	52.09	1288	51.85	1289	51.63
1290	51.39	1291	51.15	1292	50.91	1293	50.65	1294	50.43
1295	50.24	1296	50.04	1297	49.85	1298	49.70	1299	49.55
1300	49.42	1310	48.24	1320	46.93	1330	45.41	1340	43.81
1350	42.67	1360	41.77	1370	40.95	1380	40.13	1390	38.85
1400	38.27	1420	37.27	1440	35.47	1460	35.21	1500	35.21

TOTAL VOLUME THIS HYDROGRAPH = 147.82(Ac.Ft)

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Program Package Serial Number: 2083
08/19/16 FILE: PR50 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:
Northlake Phase 1, Prop. 50-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.23	200	.24	300	.25	400	.26
500	.28	600	.30	700	.33	800	.52	900	1.02
1000	1.75	1050	2.72	1100	4.11	1110	5.71	1120	6.66
1130	8.30	1131	8.55	1132	8.80	1133	9.22	1134	9.65
1135	10.08	1136	10.25	1137	10.79	1138	11.14	1139	11.50
1140	11.85	1141	12.76	1142	13.30	1143	13.84	1144	14.38
1145	15.83	1146	16.91	1147	17.99	1148	18.90	1149	25.84
1150	31.90	1151	37.61	1152	43.50	1153	49.60	1154	43.50
1155	36.50	1156	29.14	1157	21.27	1158	13.30	1159	11.14
1160	9.72	1161	8.65	1162	7.78	1163	7.26	1164	6.57
1165	6.23	1166	5.88	1167	5.54	1168	5.19	1169	5.02
1170	4.68	1171	4.51	1172	4.34	1173	4.18	1174	4.01
1175	3.85	1176	3.68	1177	3.68	1178	3.35	1179	3.35
1180	3.18	1181	3.18	1182	3.02	1183	3.02	1184	2.85
1185	2.85	1186	2.69	1187	2.69	1188	2.52	1189	2.52
1190	2.52	1191	2.36	1192	2.19	1193	2.36	1194	2.19
1195	2.02	1196	2.19	1197	2.19	1198	2.02	1199	2.02
1200	2.02	1201	1.86	1202	1.86	1203	1.69	1204	1.69
1205	1.69	1206	1.69	1207	1.53	1208	1.69	1209	1.69
1210	1.53	1211	1.53	1212	1.53	1213	1.53	1214	1.36
1215	1.36	1216	1.36	1217	1.36	1218	1.20	1219	1.36
1220	1.36	1221	1.20	1222	1.20	1223	1.20	1224	1.00
1225	1.00	1226	1.20	1227	1.20	1228	1.20	1229	1.20
1230	1.00	1231	.81	1232	.81	1233	.81	1234	.81
1235	1.00	1236	1.00	1237	1.00	1238	.81	1239	.81
1240	.81	1241	.81	1242	.61	1243	.81	1244	.81
1245	.61	1246	.61	1247	.61	1248	.61	1249	.61
1250	.61	1251	.61	1252	.61	1253	.61	1254	.41
1255	.61	1256	.41	1257	.61	1258	.41	1259	.41
1260	.41	1261	.41	1262	.33	1263	.41	1264	.41
1265	.33	1266	.41	1267	.41	1268	.33	1269	.41
1270	.41	1271	.33	1272	.33	1273	.41	1274	.33
1275	.33	1276	.33	1277	.33	1278	.31	1279	.33
1280	.33	1281	.33	1282	.33	1283	.33	1284	.31
1285	.31	1286	.31	1287	.31	1288	.31	1289	.31
1290	.31	1291	.31	1292	.31	1293	.31	1294	.31
1295	.31	1296	.31	1297	.31	1298	.31	1299	.31
1300	.31	1310	.30	1320	.29	1330	.28	1340	.27
1350	.27	1360	.26	1370	.26	1380	.25	1390	.24
1400	.25	1420	.23	1440	.22	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 2.41(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr25 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 = 25 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 25-yr CLEAR

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	40.9	66.40	40.9	66.40	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	2A	50.6	89.84	91.5	156.24	2	1320.	.10000	.00	.00	0.	94	11	A29	.01
1	3A	48.8	86.64	140.3	239.55	2	960.	.10000	.00	.00	0.	94	11	A29	.01
1	4A	37.8	70.86	178.1	304.41	2	1272.	.08000	.00	.00	0.	94	10	A29	.01
1	5A	46.9	79.40	225.0	376.25	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	6A	.0	.00	225.0	376.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	376.25	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	98.36	55.4	98.36	1	1656.	.12000	.00	.00	0.	94	11	A29	.01
1	9B	51.0	86.34	106.4	172.70	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	10AB	106.4	172.70	331.4	548.95	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	75.16	377.7	611.81	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	12A	46.7	75.81	424.4	681.85	0	0.	.00000	.00	.00	0.	94	13	A29	.01
1	13A	55.0	93.11	479.4	766.22	2	1584.	.04000	.00	.00	0.	94	12	A29	.01
1	14A	52.8	89.38	532.2	832.51	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	15A	52.6	85.39	584.8	908.56	2	1085.	.05000	.00	.00	0.	94	13	A29	.01
1	16A	23.5	41.72	608.3	929.42	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	17A	.0	.00	608.3	929.42	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	929.42	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	54.19	26.0	54.19	2	1584.	.09000	.00	.00	0.	94	8	A29	.01
1	20C	48.7	73.65	74.7	123.60	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	21AC	74.7	123.60	683.0	1033.42	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	70.05	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	23A	.0	.00	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	1092.32	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	76.18	45.0	76.18	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	26D	31.1	50.49	76.1	126.67	2	1020.	.10000	.00	.00	0.	94	13	A29	.01
1	27D	49.3	80.03	125.4	205.60	2	1290.	.10000	.00	.00	0.	94	13	A29	.01
1	28D	47.5	71.83	172.9	274.20	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	29D	29.2	49.43	202.1	322.04	2	1232.	.10000	.00	.00	0.	94	12	A29	.01
1	30D	48.6	86.29	250.7	399.38	2	1423.	.08000	.00	.00	0.	94	11	A29	.01
1	31D	41.1	64.27	291.8	456.34	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	32AD	291.8	456.34	1024.5	1533.05	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1527.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1527.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	64.59	1065.8	1581.40	2	488.	.04000	.00	.00	0.	94	14	A29	.01
1	36A	46.4	78.55	1112.2	1628.28	2	1107.	.02000	.00	.00	0.	94	12	A29	.01
1	37A	26.0	46.16	1138.2	1636.14	0	0.	.00000	.00	.00	0.	94	11	A29	.01
1	38A	64.1	90.35	1202.3	1714.76	2	1195.	.01000	.00	.00	0.	94	17	A29	.01
1	39A	56.1	87.73	1258.4	1740.59	5	175.	.02000	11.00	.00	0.	94	14	A29	.01
1	40A	.0	.00	1258.4	1739.72	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	1739.72	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	59.16	37.8	59.16	4	1519.	.03000	2.50	.00	0.	94	14	A29	.02
1	43F	59.1	83.30	59.1	83.30	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	44F	52.1	88.20	111.2	171.50	4	161.	.06000	3.00	.00	0.	94	12	A29	.01
1	45EF	111.2	171.25	149.0	228.06	4	1818.	.06000	3.50	.00	0.	94	0	A29	.00
1	46AE	149.0	226.46	1407.4	1908.92	5	625.	.02000	12.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1908.81	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	24.05	1418.2	1912.63	5	618.	.02000	12.00	.00	0.	94	7	A29	.01
1	51A	13.3	32.14	1431.5	1910.63	5	728.	.02000	12.00	.00	0.	94	6	A29	.01
1	52A	11.9	28.76	1443.4	1913.40	5	795.	.02000	12.00	.00	0.	94	6	A29	.01
1	53A	15.4	34.29	1458.8	1912.77	5	823.	.02000	12.00	.00	0.	94	7	A29	.01
1	54A	9.7	23.44	1468.5	1910.39	5	443.	.02000	12.00	.00	0.	94	6	A29	.01
1	55B	56.4	106.51	56.4	106.51	4	1197.	.05000	2.75	.00	0.	94	10	A29	.15
1	56AB	56.4	105.16	1524.9	1930.57	4	1344.	.05000	7.75	.00	0.	94	0	A29	.00
1	57A	20.8	43.37	1545.7	1930.58	4	449.	.05000	7.75	.00	0.	94	8	A29	.02
1	58A	7.0	18.85	1552.7	1931.49	4	680.	.05000	7.75	.00	0.	94	5	A29	.01
1	59A	9.6	25.85	1562.3	1928.46	4	1215.	.05000	7.75	.00	0.	94	5	A29	.01
1	60A	4.2	8.75	1566.5	1923.70	4	567.	.05000	7.75	.00	0.	94	8	A29	.01
1	61A	44.3	74.99	1610.8	1935.69	4	803.	.05000	7.75	.00	0.	94	12	A29	.01
1	62A	37.9	67.29	1648.7	1940.77	4	642.	.05000	7.75	.00	0.	94	11	A29	.01
1	63A	.0	.00	1648.7	1939.48	0	0.	.00000	.00	.00	0.	94	99	A29	.00

1	64A	.0	.00	1648.7	1939.48	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	66.68	40.4	66.68	4	664.	.06000	2.25	.00	0.	94	14	A29	.75
1	66C	39.8	47.28	80.2	113.77	4	1491.	.06000	2.75	.00	0.	94	26	A29	.50
1	67C	51.0	73.56	131.2	186.22	0	0.	.00000	.00	.00	0.	94	18	A29	.60
1	68C	34.8	42.55	166.0	228.73	4	880.	.06000	3.50	.00	0.	94	24	A29	.40
1	69C	13.1	25.19	179.1	251.32	4	832.	.06000	3.50	.00	0.	94	10	A29	.50
1	70C	63.7	79.44	242.8	329.39	4	566.	.06000	4.00	.00	0.	94	25	A29	.75
1	71C	10.0	19.23	252.8	344.93	4	27.	.06000	4.00	.00	0.	94	10	A29	.50
1	72C	.0	.00	252.8	344.85	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	15.80	7.0	15.80	4	1814.	.06000	2.00	.00	0.	94	7	A29	.40
1	74D	3.4	6.01	10.4	20.76	4	2106.	.02000	2.00	.00	0.	94	12	A29	.70
1	75D	23.6	35.01	34.0	52.00	4	1753.	.02000	2.50	.00	0.	94	17	A29	.60
1	76D	29.3	45.77	63.3	91.63	4	255.	.02000	3.00	.00	0.	94	16	A29	.86
1	77D	.0	.00	63.3	91.56	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	23.24	15.8	23.24	4	670.	.05000	2.00	.00	0.	94	17	A29	.50
1	79E	17.4	27.39	33.2	50.41	4	1024.	.05000	2.00	.00	0.	94	14	A29	.10
1	80E	5.0	8.84	38.2	58.70	4	81.	.05000	2.25	.00	0.	94	12	A29	.70
1	81DE	38.2	58.64	101.5	148.29	4	404.	.05000	3.00	.00	0.	94	0	A29	.00
1	82CD	101.5	148.19	354.3	492.29	4	947.	.05000	4.75	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	491.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	37.38	21.4	37.38	4	1656.	.06000	2.00	.00	0.	94	12	A29	.50
1	85F	27.1	49.51	48.5	85.02	4	1070.	.06000	2.50	.00	0.	94	11	A29	.50
1	86F	14.6	29.39	63.1	111.99	4	16.	.06000	2.75	.00	0.	94	9	A29	.50
1	87CF	63.1	111.94	417.4	593.68	4	585.	.05000	5.00	.00	0.	94	0	A29	.00
1	88C	34.4	54.04	451.8	644.65	4	523.	.05000	5.25	.00	0.	94	15	A29	.50
1	89C	23.7	33.61	475.5	675.86	4	449.	.20000	4.00	.00	0.	94	19	A29	.70
1	90C	6.9	14.39	482.4	681.98	0	0.	.00000	.00	.00	0.	94	8	A29	.02
1	91C	.0	.00	482.4	681.98	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	681.98	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	93C	2.8	7.54	485.2	683.31	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	683.31	4	85.	.05000	5.25	.00	0.	94	99	A29	.00
1	95C	1.9	5.12	487.1	684.28	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	684.28	4	76.	.05000	5.25	.00	0.	94	99	A29	.00
1	97C	1.2	3.23	488.3	684.87	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	684.87	4	283.	.05000	5.25	.00	0.	94	99	A29	.00
1	99C	4.3	11.58	492.6	686.92	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	100C	.0	.00	492.6	686.92	4	51.	.05000	5.25	.00	0.	94	99	A29	.00
1	101AC	492.6	686.85	2141.3	2363.71	5	36.	.05000	11.00	.00	0.	94	0	A29	.00
1	102A	16.0	43.08	2157.3	2367.38	0	0.	.00000	.00	.00	0.	94	5	A29	.01

Program Package Serial Number: 2083
12/07/16 FILE: pr25 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 = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	21.23	200	21.74	300	22.84	400	24.04
500	25.47	600	27.31	700	29.63	800	32.67	900	47.06
1000	105.37	1050	172.95	1100	286.62	1110	325.96	1120	382.87
1130	467.91	1131	478.24	1132	488.38	1133	498.95	1134	509.83
1135	521.09	1136	532.79	1137	545.36	1138	559.17	1139	574.06
1140	589.98	1141	607.05	1142	624.95	1143	643.31	1144	661.85
1145	681.65	1146	703.50	1147	727.04	1148	751.82	1149	783.08
1150	823.72	1151	871.20	1152	925.57	1153	987.30	1154	1051.45
1155	1114.32	1156	1176.71	1157	1237.67	1158	1296.29	1159	1351.05
1160	1399.28	1161	1441.69	1162	1482.72	1163	1525.44	1164	1572.94
1165	1627.43	1166	1688.82	1167	1751.57	1168	1811.29	1169	1864.63
1170	1905.62	1171	1931.51	1172	1939.48	1173	1926.60	1174	1885.82
1175	1816.75	1176	1726.83	1177	1622.55	1178	1515.28	1179	1409.92
1180	1309.04	1181	1213.95	1182	1124.85	1183	1042.41	1184	967.35
1185	899.89	1186	839.13	1187	783.48	1188	732.50	1189	685.71
1190	642.88	1191	605.13	1192	570.63	1193	540.46	1194	513.93
1195	489.35	1196	467.43	1197	447.21	1198	427.24	1199	407.95
1200	389.86	1201	373.47	1202	358.36	1203	344.07	1204	330.64
1205	318.57	1206	307.35	1207	296.74	1208	287.00	1209	278.63
1210	270.48	1211	262.56	1212	254.80	1213	247.31	1214	240.20
1215	233.31	1216	226.68	1217	220.29	1218	214.04	1219	208.10
1220	202.39	1221	196.82	1222	191.40	1223	186.22	1224	181.30
1225	176.69	1226	172.73	1227	169.39	1228	166.15	1229	163.00
1230	159.59	1231	156.01	1232	152.48	1233	149.00	1234	145.58
1235	142.22	1236	138.92	1237	135.59	1238	132.16	1239	128.75
1240	125.49	1241	122.47	1242	119.51	1243	116.52	1244	113.65
1245	110.85	1246	108.14	1247	105.66	1248	103.72	1249	101.90
1250	100.19	1251	98.43	1252	96.61	1253	94.73	1254	92.81
1255	90.88	1256	88.96	1257	87.06	1258	85.17	1259	83.30
1260	81.44	1261	79.60	1262	77.77	1263	75.96	1264	74.19
1265	72.44	1266	70.75	1267	69.09	1268	67.48	1269	65.91
1270	64.40	1271	62.92	1272	61.47	1273	60.08	1274	58.73
1275	57.41	1276	56.13	1277	54.89	1278	53.70	1279	52.56
1280	51.47	1281	50.43	1282	49.46	1283	48.55	1284	47.74
1285	47.07	1286	46.55	1287	46.06	1288	45.57	1289	45.05
1290	44.50	1291	43.93	1292	43.36	1293	42.79	1294	42.23
1295	41.68	1296	41.15	1297	40.63	1298	40.12	1299	39.62
1300	39.14	1310	35.36	1320	32.94	1330	31.29	1340	29.95
1350	28.91	1360	28.01	1370	27.22	1380	26.48	1390	25.76
1400	25.16	1420	24.12	1440	23.13	1460	21.23	1500	21.23

TOTAL VOLUME THIS HYDROGRAPH = 205.66(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr25 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	31.01	200	32.29	300	34.04	400	35.83
500	38.12	600	41.01	700	44.72	800	49.58	900	58.77
1000	78.46	1050	102.94	1100	140.15	1110	158.36	1120	186.74
1130	220.55	1131	224.42	1132	228.34	1133	232.54	1134	236.96
1135	241.61	1136	246.41	1137	251.56	1138	257.14	1139	263.02
1140	269.16	1141	275.95	1142	283.49	1143	291.60	1144	300.25
1145	310.08	1146	321.30	1147	333.81	1148	347.44	1149	367.19
1150	393.97	1151	427.35	1152	468.26	1153	515.23	1154	560.84
1155	601.37	1156	634.88	1157	658.93	1158	674.26	1159	681.98
1160	681.87	1161	675.36	1162	662.68	1163	644.65	1164	621.59
1165	594.68	1166	565.88	1167	536.94	1168	505.14	1169	472.73
1170	441.00	1171	408.60	1172	376.63	1173	347.91	1174	322.63
1175	299.78	1176	278.93	1177	259.47	1178	241.15	1179	223.79
1180	208.05	1181	193.77	1182	181.74	1183	171.49	1184	162.57
1185	154.89	1186	148.38	1187	142.62	1188	137.70	1189	133.39
1190	129.61	1191	126.12	1192	122.77	1193	119.77	1194	116.97
1195	114.23	1196	111.80	1197	109.49	1198	107.29	1199	105.27
1200	103.32	1201	101.51	1202	99.87	1203	98.15	1204	96.46
1205	94.87	1206	93.33	1207	91.84	1208	90.40	1209	89.01
1210	87.65	1211	86.45	1212	85.15	1213	84.01	1214	82.89
1215	81.71	1216	80.62	1217	79.57	1218	78.52	1219	77.61
1220	76.70	1221	75.69	1222	74.80	1223	73.90	1224	72.87
1225	71.90	1226	71.11	1227	70.28	1228	69.46	1229	68.72
1230	67.88	1231	67.10	1232	66.32	1233	65.57	1234	64.80
1235	64.02	1236	63.33	1237	62.73	1238	62.05	1239	61.38
1240	60.80	1241	60.22	1242	59.55	1243	58.96	1244	58.49
1245	57.95	1246	57.43	1247	56.91	1248	56.38	1249	55.93
1250	55.45	1251	54.98	1252	54.55	1253	54.16	1254	53.79
1255	53.42	1256	53.05	1257	52.76	1258	52.50	1259	52.17
1260	51.88	1261	51.63	1262	51.32	1263	51.02	1264	50.74
1265	50.43	1266	50.19	1267	49.96	1268	49.67	1269	49.45
1270	49.23	1271	49.00	1272	48.77	1273	48.58	1274	48.41
1275	48.22	1276	48.00	1277	47.79	1278	47.60	1279	47.40
1280	47.22	1281	47.04	1282	46.84	1283	46.66	1284	46.50
1285	46.28	1286	46.08	1287	45.91	1288	45.69	1289	45.46
1290	45.26	1291	45.08	1292	44.87	1293	44.66	1294	44.47
1295	44.28	1296	44.11	1297	43.97	1298	43.80	1299	43.65
1300	43.53	1310	42.43	1320	41.30	1330	40.00	1340	38.58
1350	37.56	1360	36.74	1370	36.02	1380	35.31	1390	34.22
1400	33.66	1420	32.74	1440	31.18	1460	30.92	1500	30.92

TOTAL VOLUME THIS HYDROGRAPH = 127.35(Ac.Ft)

♀
Program Package Serial Number: 2083
08/21/16 FILE: PR25 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 = 25 SOIL DATA FILE:
Northlake Phase 1, Prop. 25-yr CLEAR, NATURAL HYO.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.20	200	.21	300	.22	400	.23
500	.24	600	.26	700	.29	800	.32	900	.54
1000	1.26	1050	2.11	1100	3.33	1110	4.70	1120	5.53
1130	6.97	1131	7.18	1132	7.39	1133	7.76	1134	8.12
1135	8.49	1136	8.65	1137	9.12	1138	9.43	1139	9.74
1140	10.05	1141	10.83	1142	11.30	1143	11.77	1144	12.24
1145	13.51	1146	14.46	1147	15.42	1148	16.21	1149	22.27
1150	27.57	1151	32.58	1152	37.75	1153	43.08	1154	37.75
1155	31.61	1156	25.16	1157	18.27	1158	11.30	1159	9.43
1160	8.18	1161	7.27	1162	6.52	1163	6.06	1164	5.46
1165	5.15	1166	4.85	1167	4.55	1168	4.26	1169	4.12
1170	3.82	1171	3.68	1172	3.53	1173	3.39	1174	3.24
1175	3.10	1176	2.95	1177	2.95	1178	2.66	1179	2.66
1180	2.52	1181	2.52	1182	2.37	1183	2.37	1184	2.23
1185	2.23	1186	2.08	1187	2.08	1188	1.93	1189	1.93
1190	1.93	1191	1.79	1192	1.64	1193	1.79	1194	1.64
1195	1.50	1196	1.64	1197	1.64	1198	1.50	1199	1.50
1200	1.50	1201	1.35	1202	1.35	1203	1.21	1204	1.21
1205	1.21	1206	1.21	1207	1.04	1208	1.21	1209	1.21
1210	1.04	1211	1.04	1212	1.04	1213	1.04	1214	.87
1215	.87	1216	.87	1217	.87	1218	.70	1219	.87
1220	.87	1221	.70	1222	.70	1223	.70	1224	.52
1225	.52	1226	.70	1227	.70	1228	.70	1229	.70
1230	.52	1231	.35	1232	.35	1233	.35	1234	.35
1235	.52	1236	.52	1237	.52	1238	.35	1239	.35
1240	.35	1241	.35	1242	.33	1243	.35	1244	.35
1245	.33	1246	.33	1247	.33	1248	.33	1249	.33
1250	.33	1251	.33	1252	.33	1253	.33	1254	.31
1255	.33	1256	.31	1257	.33	1258	.31	1259	.31
1260	.31	1261	.31	1262	.29	1263	.31	1264	.31
1265	.29	1266	.31	1267	.31	1268	.29	1269	.31
1270	.31	1271	.29	1272	.29	1273	.31	1274	.29
1275	.29	1276	.29	1277	.29	1278	.27	1279	.29
1280	.29	1281	.29	1282	.29	1283	.29	1284	.27
1285	.27	1286	.27	1287	.27	1288	.27	1289	.27
1290	.27	1291	.27	1292	.27	1293	.27	1294	.27
1295	.27	1296	.27	1297	.27	1298	.27	1299	.27
1300	.27	1310	.26	1320	.25	1330	.25	1340	.24
1350	.24	1360	.23	1370	.23	1380	.22	1390	.21
1400	.22	1420	.20	1440	.20	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 1.92(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr10 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 = 10 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 10-yr CLEAR 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
1	1A	40.9	46.88	40.9	46.88	0	0.	.00000	.00	.00	0.	94	16	A29	.01
1	2A	50.6	64.78	91.5	111.66	2	1320.	.10000	.00	.00	0.	94	13	A29	.01
1	3A	48.8	62.47	140.3	172.11	2	960.	.10000	.00	.00	0.	94	13	A29	.01
1	4A	37.8	50.53	178.1	219.27	2	1272.	.08000	.00	.00	0.	94	12	A29	.01
1	5A	46.9	57.77	225.0	272.05	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	6A	.0	.00	225.0	272.05	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	272.05	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	74.05	55.4	74.05	1	1656.	.12000	.00	.00	0.	94	12	A29	.01
1	9B	51.0	62.82	106.4	128.35	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	10AB	106.4	128.35	331.4	400.40	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	55.10	377.7	447.24	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	12A	46.7	55.58	424.4	498.55	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	13A	55.0	67.75	479.4	559.96	2	1584.	.04000	.00	.00	0.	94	14	A29	.01
1	14A	52.8	65.04	532.2	609.16	0	0.	.00000	.00	.00	0.	94	14	A29	.01
1	15A	52.6	60.30	584.8	662.04	2	1085.	.05000	.00	.00	0.	94	16	A29	.01
1	16A	23.5	31.41	608.3	677.46	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	17A	.0	.00	608.3	677.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	677.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	38.57	26.0	38.57	2	1584.	.09000	.00	.00	0.	94	10	A29	.01
1	20C	48.7	52.27	74.7	88.19	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	21AC	74.7	88.19	683.0	756.11	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	49.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	21	A29	.01
1	23A	.0	.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	797.35	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	53.56	45.0	53.56	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	26D	31.1	37.01	76.1	90.57	2	1020.	.10000	.00	.00	0.	94	15	A29	.01
1	27D	49.3	56.51	125.4	146.12	2	1290.	.10000	.00	.00	0.	94	16	A29	.01
1	28D	47.5	50.98	172.9	195.57	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	29D	29.2	35.97	202.1	230.36	2	1232.	.10000	.00	.00	0.	94	14	A29	.01
1	30D	48.6	64.96	250.7	287.76	2	1423.	.08000	.00	.00	0.	94	12	A29	.01
1	31D	41.1	45.52	291.8	329.13	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	32AD	291.8	329.13	1024.5	1111.48	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	1107.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	1107.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	45.75	1065.8	1147.29	2	488.	.04000	.00	.00	0.	94	17	A29	.01
1	36A	46.4	55.22	1112.2	1187.23	2	1107.	.02000	.00	.00	0.	94	15	A29	.01
1	37A	26.0	34.75	1138.2	1190.76	0	0.	.00000	.00	.00	0.	94	12	A29	.01
1	38A	64.1	65.05	1202.3	1247.03	2	1195.	.01000	.00	.00	0.	94	20	A29	.01
1	39A	56.1	64.31	1258.4	1265.77	4	175.	.02000	7.75	.00	0.	94	16	A29	.01
1	40A	.0	.00	1258.4	1265.09	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	1265.09	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	41.92	37.8	41.92	4	1519.	.03000	2.00	.00	0.	94	17	A29	.02
1	43F	59.1	58.27	59.1	58.27	0	0.	.00000	.00	.00	0.	94	21	A29	.01
1	44F	52.1	62.01	111.2	120.05	4	161.	.06000	2.75	.00	0.	94	15	A29	.01
1	45EF	111.2	119.95	149.0	159.20	4	1818.	.06000	3.00	.00	0.	94	0	A29	.00
1	46AE	149.0	158.45	1407.4	1393.18	5	625.	.02000	11.00	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1392.75	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	16.84	1418.2	1395.33	5	618.	.02000	11.00	.00	0.	94	9	A29	.01
1	51A	13.3	21.98	1431.5	1394.66	5	728.	.02000	11.00	.00	0.	94	8	A29	.01
1	52A	11.9	21.05	1443.4	1396.14	5	795.	.02000	11.00	.00	0.	94	7	A29	.01
1	53A	15.4	24.01	1458.8	1396.15	5	823.	.02000	11.00	.00	0.	94	9	A29	.01
1	54A	9.7	17.15	1468.5	1394.50	5	443.	.02000	11.00	.00	0.	94	7	A29	.01
1	55B	56.4	84.63	56.4	84.63	4	1197.	.05000	2.50	.00	0.	94	10	A29	.15
1	56AB	56.4	83.51	1524.9	1408.85	4	1344.	.05000	7.00	.00	0.	94	0	A29	.00
1	57A	20.8	30.88	1545.7	1409.28	4	449.	.05000	7.00	.00	0.	94	10	A29	.02
1	58A	7.0	13.46	1552.7	1408.59	4	680.	.05000	7.00	.00	0.	94	6	A29	.01
1	59A	9.6	20.62	1562.3	1407.76	4	1215.	.05000	7.00	.00	0.	94	5	A29	.01
1	60A	4.2	6.55	1566.5	1405.39	4	567.	.05000	7.00	.00	0.	94	9	A29	.01
1	61A	44.3	52.72	1610.8	1413.37	4	803.	.05000	7.00	.00	0.	94	15	A29	.01
1	62A	37.9	48.52	1648.7	1417.41	4	642.	.05000	7.00	.00	0.	94	13	A29	.01
1	63A	.0	.00	1648.7	1416.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00

1	64A	.0	.00	1648.7	1416.34	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	50.48	40.4	50.48	4	664.	.06000	2.00	.00	0.	94	16	A29	.75
1	66C	39.8	34.96	80.2	85.22	4	1491.	.06000	2.50	.00	0.	94	30	A29	.50
1	67C	51.0	53.39	131.2	138.20	0	0.	.00000	.00	.00	0.	94	22	A29	.60
1	68C	34.8	30.61	166.0	168.79	4	880.	.06000	3.00	.00	0.	94	29	A29	.40
1	69C	13.1	18.34	179.1	185.11	4	832.	.06000	3.25	.00	0.	94	12	A29	.50
1	70C	63.7	59.46	242.8	244.18	4	566.	.06000	3.50	.00	0.	94	29	A29	.75
1	71C	10.0	14.00	252.8	256.38	4	27.	.06000	3.50	.00	0.	94	12	A29	.50
1	72C	.0	.00	252.8	256.37	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	11.23	7.0	11.23	4	1814.	.06000	2.00	.00	0.	94	9	A29	.40
1	74D	3.4	4.51	10.4	15.10	4	2106.	.02000	2.00	.00	0.	94	14	A29	.70
1	75D	23.6	25.97	34.0	38.61	4	1753.	.02000	2.25	.00	0.	94	20	A29	.60
1	76D	29.3	34.13	63.3	68.88	4	255.	.02000	2.75	.00	0.	94	19	A29	.86
1	77D	.0	.00	63.3	68.79	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	17.16	15.8	17.16	4	670.	.05000	2.00	.00	0.	94	20	A29	.50
1	79E	17.4	19.49	33.2	36.55	4	1024.	.05000	2.00	.00	0.	94	17	A29	.10
1	80E	5.0	6.63	38.2	42.89	4	81.	.05000	2.00	.00	0.	94	14	A29	.70
1	81DE	38.2	42.89	101.5	109.73	4	404.	.05000	2.75	.00	0.	94	0	A29	.00
1	82CD	101.5	109.73	354.3	365.92	4	947.	.05000	4.25	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	365.18	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	27.78	21.4	27.78	4	1656.	.06000	2.00	.00	0.	94	14	A29	.50
1	85F	27.1	36.46	48.5	63.20	4	1070.	.06000	2.25	.00	0.	94	13	A29	.50
1	86F	14.6	21.39	63.1	82.98	4	16.	.06000	2.50	.00	0.	94	11	A29	.50
1	87CF	63.1	82.94	417.4	442.41	4	585.	.05000	4.50	.00	0.	94	0	A29	.00
1	88C	34.4	40.48	451.8	480.79	4	523.	.05000	4.75	.00	0.	94	17	A29	.50
1	89C	23.7	25.16	475.5	504.46	4	449.	.20000	3.75	.00	0.	94	22	A29	.70
1	90C	6.9	10.25	482.4	510.17	0	0.	.00000	.00	.00	0.	94	10	A29	.02
1	91C	.0	.00	482.4	510.17	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	510.17	4	85.	.05000	4.75	.00	0.	94	99	A29	.00
1	93C	2.8	6.02	485.2	510.95	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	94C	.0	.00	485.2	510.95	4	85.	.05000	4.75	.00	0.	94	99	A29	.00
1	95C	1.9	4.08	487.1	511.60	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	511.60	4	76.	.05000	4.75	.00	0.	94	99	A29	.00
1	97C	1.2	2.58	488.3	512.00	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	512.00	4	283.	.05000	4.75	.00	0.	94	99	A29	.00
1	99C	4.3	8.27	492.6	513.51	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	100C	.0	.00	492.6	513.51	4	51.	.05000	4.75	.00	0.	94	99	A29	.00
1	101AC	492.6	513.47	2141.3	1740.60	4	36.	.05000	7.50	.00	0.	94	0	A29	.00
1	102A	16.0	30.77	2157.3	1742.88	0	0.	.00000	.00	.00	0.	94	6	A29	.01

Program Package Serial Number: 2083
12/07/16 FILE: pr10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
PAGE 3

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F06(

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE:
Northlake Phase 1, Prop. 10-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	17.26	200	17.63	300	18.50	400	19.53
500	20.67	600	22.17	700	24.04	800	26.50	900	29.98
1000	43.18	1050	84.37	1100	182.83	1110	213.69	1120	256.39
1130	317.23	1131	324.26	1132	331.47	1133	339.27	1134	347.35
1135	355.71	1136	364.39	1137	373.49	1138	383.06	1139	392.99
1140	403.29	1141	414.30	1142	426.29	1143	439.00	1144	452.34
1145	466.74	1146	482.51	1147	499.42	1148	517.47	1149	540.12
1150	569.31	1151	603.33	1152	641.68	1153	684.79	1154	729.24
1155	772.61	1156	815.48	1157	857.04	1158	896.91	1159	935.12
1160	972.15	1161	1008.25	1162	1041.01	1163	1070.72	1164	1098.93
1165	1126.38	1166	1156.35	1167	1193.03	1168	1235.14	1169	1279.00
1170	1321.70	1171	1358.54	1172	1387.90	1173	1407.90	1174	1416.34
1175	1411.59	1176	1392.75	1177	1359.31	1178	1311.15	1179	1252.55
1180	1188.45	1181	1120.48	1182	1051.22	1183	982.22	1184	915.57
1185	852.85	1186	794.61	1187	740.58	1188	690.16	1189	643.02
1190	599.20	1191	559.19	1192	522.95	1193	490.44	1194	462.22
1195	436.74	1196	413.78	1197	392.38	1198	371.17	1199	351.31
1200	333.37	1201	317.11	1202	301.12	1203	286.14	1204	272.13
1205	259.28	1206	247.82	1207	236.88	1208	226.56	1209	216.88
1210	208.03	1211	199.89	1212	192.24	1213	185.19	1214	179.31
1215	173.93	1216	168.74	1217	163.56	1218	158.34	1219	153.11
1220	147.93	1221	142.83	1222	137.85	1223	133.01	1224	128.33
1225	123.80	1226	119.44	1227	115.25	1228	111.23	1229	107.37
1230	103.67	1231	100.13	1232	96.78	1233	93.62	1234	90.70
1235	88.07	1236	85.76	1237	83.95	1238	82.37	1239	80.79
1240	79.13	1241	77.36	1242	75.50	1243	73.61	1244	71.73
1245	69.86	1246	68.01	1247	66.21	1248	64.43	1249	62.71
1250	61.03	1251	59.39	1252	57.80	1253	56.26	1254	54.77
1255	53.34	1256	51.97	1257	50.65	1258	49.39	1259	48.19
1260	47.06	1261	45.99	1262	45.00	1263	44.09	1264	43.29
1265	42.60	1266	41.97	1267	41.39	1268	40.82	1269	40.25
1270	39.69	1271	39.13	1272	38.59	1273	38.05	1274	37.53
1275	37.03	1276	36.54	1277	36.06	1278	35.61	1279	35.17
1280	34.75	1281	34.35	1282	33.96	1283	33.57	1284	33.21
1285	32.86	1286	32.53	1287	32.20	1288	31.88	1289	31.59
1290	31.30	1291	31.03	1292	30.76	1293	30.51	1294	30.27
1295	30.06	1296	29.90	1297	29.77	1298	29.63	1299	29.49
1300	29.34	1310	27.85	1320	26.63	1330	25.56	1340	24.60
1350	23.79	1360	23.04	1370	22.39	1380	21.77	1390	21.17
1400	20.66	1420	19.78	1440	18.99	1460	17.26	1500	17.26

TOTAL VOLUME THIS HYDROGRAPH = 146.52(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr10 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE:
Northlake Phase 1, Prop. 10-yr CLEAR, BASIN A HYO.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	25.22	200	26.25	300	27.68	400	29.13
500	30.99	600	33.35	700	36.36	800	40.30	900	46.10
1000	57.13	1050	77.65	1100	108.48	1110	121.15	1120	142.20
1130	168.85	1131	171.89	1132	174.99	1133	178.23	1134	181.60
1135	185.11	1136	188.72	1137	192.57	1138	196.66	1139	200.95
1140	205.54	1141	210.68	1142	216.33	1143	222.31	1144	228.62
1145	235.78	1146	243.88	1147	252.78	1148	262.45	1149	276.18
1150	294.61	1151	317.31	1152	345.09	1153	377.26	1154	409.10
1155	438.13	1156	463.34	1157	483.17	1158	497.58	1159	506.12
1160	510.17	1161	509.86	1162	505.91	1163	497.99	1164	487.49
1165	474.09	1166	458.07	1167	439.41	1168	420.19	1169	401.09
1170	381.71	1171	361.50	1172	341.10	1173	320.59	1174	299.70
1175	279.12	1176	260.30	1177	243.45	1178	227.80	1179	213.75
1180	200.74	1181	188.32	1182	176.59	1183	165.25	1184	154.48
1185	144.40	1186	135.56	1187	127.84	1188	121.03	1189	115.27
1190	110.23	1191	105.83	1192	102.01	1193	98.70	1194	95.76
1195	93.02	1196	90.58	1197	88.29	1198	86.15	1199	84.12
1200	82.26	1201	80.53	1202	78.86	1203	77.18	1204	75.68
1205	74.26	1206	72.87	1207	71.44	1208	70.06	1209	68.81
1210	67.57	1211	66.36	1212	65.18	1213	64.09	1214	63.01
1215	61.95	1216	61.00	1217	60.11	1218	59.19	1219	58.35
1220	57.59	1221	56.85	1222	56.17	1223	55.48	1224	54.82
1225	54.20	1226	53.62	1227	53.07	1228	52.56	1229	52.09
1230	51.63	1231	51.17	1232	50.76	1233	50.35	1234	49.94
1235	49.55	1236	49.20	1237	48.87	1238	48.51	1239	48.18
1240	47.89	1241	47.58	1242	47.25	1243	46.94	1244	46.65
1245	46.36	1246	46.09	1247	45.82	1248	45.55	1249	45.29
1250	45.01	1251	44.73	1252	44.47	1253	44.23	1254	43.97
1255	43.74	1256	43.51	1257	43.28	1258	43.04	1259	42.78
1260	42.59	1261	42.37	1262	42.12	1263	41.90	1264	41.70
1265	41.46	1266	41.23	1267	41.02	1268	40.80	1269	40.61
1270	40.43	1271	40.23	1272	40.04	1273	39.86	1274	39.71
1275	39.53	1276	39.36	1277	39.20	1278	39.02	1279	38.87
1280	38.72	1281	38.56	1282	38.39	1283	38.24	1284	38.10
1285	37.93	1286	37.76	1287	37.60	1288	37.43	1289	37.27
1290	37.12	1291	36.93	1292	36.76	1293	36.62	1294	36.48
1295	36.33	1296	36.16	1297	36.01	1298	35.88	1299	35.77
1300	35.67	1310	34.69	1320	33.74	1330	32.70	1340	31.56
1350	30.68	1360	30.00	1370	29.40	1380	28.82	1390	27.99
1400	27.46	1420	26.67	1440	25.46	1460	25.14	1500	25.14

TOTAL VOLUME THIS HYDROGRAPH = 101.08(Ac.Ft)

Program Package Serial Number: 2083
08/19/16 FILE: PR10 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 = 10 SOIL DATA FILE:
Northlake Phase 1, Prop. 10-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.16	200	.17	300	.18	400	.19
500	.20	600	.21	700	.23	800	.26	900	.30
1000	.49	1050	1.29	1100	2.28	1110	3.39	1120	4.04
1130	5.19	1131	5.33	1132	5.48	1133	5.72	1134	5.97
1135	6.22	1136	6.46	1137	6.77	1138	7.08	1139	7.28
1140	7.49	1141	8.00	1142	8.52	1143	8.84	1144	9.16
1145	10.00	1146	10.96	1147	11.59	1148	12.12	1149	16.21
1150	20.30	1151	23.78	1152	27.26	1153	30.77	1154	30.77
1155	26.61	1156	22.15	1157	17.60	1158	12.87	1159	8.10
1160	6.77	1161	5.85	1162	5.13	1163	4.72	1164	4.22
1165	3.93	1166	3.63	1167	3.33	1168	3.24	1169	2.94
1170	2.84	1171	2.64	1172	2.45	1173	2.45	1174	2.25
1175	2.15	1176	2.05	1177	1.96	1178	1.86	1179	1.76
1180	1.66	1181	1.66	1182	1.56	1183	1.46	1184	1.46
1185	1.36	1186	1.36	1187	1.27	1188	1.17	1189	1.17
1190	1.17	1191	1.05	1192	.93	1193	.93	1194	.93
1195	.81	1196	.81	1197	.81	1198	.81	1199	.70
1200	.70	1201	.70	1202	.58	1203	.46	1204	.46
1205	.46	1206	.46	1207	.35	1208	.35	1209	.46
1210	.35	1211	.35	1212	.33	1213	.35	1214	.33
1215	.32	1216	.33	1217	.32	1218	.32	1219	.32
1220	.32	1221	.32	1222	.31	1223	.31	1224	.31
1225	.30	1226	.31	1227	.31	1228	.31	1229	.31
1230	.30	1231	.30	1232	.28	1233	.28	1234	.28
1235	.28	1236	.30	1237	.30	1238	.28	1239	.28
1240	.28	1241	.28	1242	.27	1243	.27	1244	.28
1245	.27	1246	.27	1247	.26	1248	.27	1249	.27
1250	.26	1251	.27	1252	.26	1253	.27	1254	.26
1255	.26	1256	.26	1257	.26	1258	.26	1259	.25
1260	.26	1261	.25	1262	.25	1263	.25	1264	.25
1265	.25	1266	.25	1267	.25	1268	.25	1269	.25
1270	.25	1271	.25	1272	.23	1273	.25	1274	.25
1275	.23	1276	.23	1277	.23	1278	.23	1279	.23
1280	.23	1281	.23	1282	.23	1283	.23	1284	.23
1285	.22	1286	.22	1287	.22	1288	.22	1289	.22
1290	.22	1291	.22	1292	.22	1293	.22	1294	.22
1295	.22	1296	.22	1297	.22	1298	.22	1299	.22
1300	.22	1310	.21	1320	.21	1330	.20	1340	.19
1350	.19	1360	.19	1370	.19	1380	.18	1390	.17
1400	.18	1420	.17	1440	.16	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = 1.36(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: pr5 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 = 5 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 5-yr CLEAR

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	40.9	33.42	40.9	33.42	0	0.	.00000	.00	.00	0.	94	19	A29	.01
1	2A	50.6	45.64	91.5	79.05	2	1320.	.10000	.00	.00	0.	94	16	A29	.01
1	3A	48.8	44.01	140.3	121.64	2	960.	.10000	.00	.00	0.	94	16	A29	.01
1	4A	37.8	36.73	178.1	156.34	2	1272.	.08000	.00	.00	0.	94	14	A29	.01
1	5A	46.9	40.82	225.0	193.92	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	6A	.0	.00	225.0	193.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	193.92	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	51.95	55.4	51.95	1	1656.	.12000	.00	.00	0.	94	15	A29	.01
1	9B	51.0	44.38	106.4	90.54	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	10AB	106.4	90.54	331.4	284.46	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	38.99	377.7	318.45	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	12A	46.7	39.33	424.4	354.44	0	0.	.00000	.00	.00	0.	94	18	A29	.01
1	13A	55.0	47.87	479.4	398.87	2	1584.	.04000	.00	.00	0.	94	17	A29	.01
1	14A	52.8	45.95	532.2	433.88	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	15A	52.6	42.97	584.8	472.76	2	1085.	.05000	.00	.00	0.	94	19	A29	.01
1	16A	23.5	22.04	608.3	485.95	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	17A	.0	.00	608.3	485.95	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	485.95	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	28.87	26.0	28.87	2	1584.	.09000	.00	.00	0.	94	11	A29	.01
1	20C	48.7	36.49	74.7	63.70	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	21AC	74.7	63.70	683.0	541.26	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	35.40	732.7	571.36	0	0.	.00000	.00	.00	0.	94	24	A29	.01
1	23A	.0	.00	732.7	571.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	571.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	39.16	45.0	39.16	0	0.	.00000	.00	.00	0.	94	17	A29	.01
1	26D	31.1	26.19	76.1	65.35	2	1020.	.10000	.00	.00	0.	94	18	A29	.01
1	27D	49.3	41.52	125.4	106.40	2	1290.	.10000	.00	.00	0.	94	18	A29	.01
1	28D	47.5	35.59	172.9	141.10	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	29D	29.2	25.41	202.1	165.66	2	1232.	.10000	.00	.00	0.	94	17	A29	.01
1	30D	48.6	45.57	250.7	207.00	2	1423.	.08000	.00	.00	0.	94	15	A29	.01
1	31D	41.1	32.65	291.8	236.70	0	0.	.00000	.00	.00	0.	94	20	A29	.01
1	32AD	291.8	236.70	1024.5	799.31	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	796.57	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	796.57	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	32.81	1065.8	824.79	2	488.	.04000	.00	.00	0.	94	20	A29	.01
1	36A	46.4	40.38	1112.2	853.58	2	1107.	.02000	.00	.00	0.	94	17	A29	.01
1	37A	26.0	24.38	1138.2	858.33	0	0.	.00000	.00	.00	0.	94	15	A29	.01
1	38A	64.1	45.65	1202.3	898.26	2	1195.	.01000	.00	.00	0.	94	24	A29	.01
1	39A	56.1	44.56	1258.4	917.11	4	175.	.02000	7.00	.00	0.	94	20	A29	.01
1	40A	.0	.00	1258.4	916.67	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	916.67	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	30.09	37.8	30.09	4	1519.	.03000	2.00	.00	0.	94	20	A29	.02
1	43F	59.1	41.13	59.1	41.13	0	0.	.00000	.00	.00	0.	94	25	A29	.01
1	44F	52.1	45.34	111.2	86.40	4	161.	.06000	2.50	.00	0.	94	17	A29	.01
1	45EF	111.2	86.37	149.0	115.22	4	1818.	.06000	2.75	.00	0.	94	0	A29	.00
1	46AE	149.0	114.78	1407.4	1006.93	4	625.	.02000	7.25	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	1005.24	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	12.69	1418.2	1006.87	4	618.	.02000	7.25	.00	0.	94	10	A29	.01
1	51A	13.3	16.44	1431.5	1007.28	4	728.	.02000	7.25	.00	0.	94	9	A29	.01
1	52A	11.9	15.63	1443.4	1006.65	4	795.	.02000	7.25	.00	0.	94	8	A29	.01
1	53A	15.4	18.10	1458.8	1006.26	4	823.	.02000	7.25	.00	0.	94	10	A29	.01
1	54A	9.7	12.74	1468.5	1005.00	4	443.	.02000	7.25	.00	0.	94	8	A29	.01
1	55B	56.4	55.96	56.4	55.96	4	1197.	.05000	2.25	.00	0.	94	14	A29	.15
1	56AB	56.4	55.65	1524.9	1013.50	4	1344.	.05000	6.00	.00	0.	94	0	A29	.00
1	57A	20.8	23.12	1545.7	1011.70	4	449.	.05000	6.00	.00	0.	94	11	A29	.02
1	58A	7.0	9.85	1552.7	1010.94	4	680.	.05000	6.00	.00	0.	94	7	A29	.01
1	59A	9.6	16.47	1562.3	1010.83	4	1215.	.05000	6.00	.00	0.	94	5	A29	.01
1	60A	4.2	4.66	1566.5	1008.31	4	567.	.05000	6.00	.00	0.	94	11	A29	.01
1	61A	44.3	37.31	1610.8	1011.74	4	803.	.05000	6.00	.00	0.	94	18	A29	.01
1	62A	37.9	34.18	1648.7	1013.85	4	642.	.05000	6.00	.00	0.	94	16	A29	.01
1	63A	.0	.00	1648.7	1012.47	0	0.	.00000	.00	.00	0.	94	99	A29	.00

PR5

1	64A	.0	.00	1648.7	1012.47	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	37.61	40.4	37.61	4	664.	.06000	2.00	.00	0.	94	19	A29	.75
1	66C	39.8	27.92	80.2	65.41	4	1491.	.06000	2.25	.00	0.	94	30	A29	.50
1	67C	51.0	40.26	131.2	105.32	0	0.	.00000	.00	.00	0.	94	25	A29	.60
1	68C	34.8	23.85	166.0	129.17	4	880.	.06000	2.75	.00	0.	94	30	A29	.40
1	69C	13.1	13.67	179.1	141.73	4	832.	.06000	3.00	.00	0.	94	14	A29	.50
1	70C	63.7	47.24	242.8	188.78	4	566.	.06000	3.25	.00	0.	94	30	A29	.75
1	71C	10.0	10.44	252.8	197.95	4	27.	.06000	3.25	.00	0.	94	14	A29	.50
1	72C	.0	.00	252.8	197.93	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	8.60	7.0	8.60	4	1814.	.06000	2.00	.00	0.	94	10	A29	.40
1	74D	3.4	3.42	10.4	11.53	4	2106.	.02000	2.00	.00	0.	94	16	A29	.70
1	75D	23.6	19.42	34.0	29.29	4	1753.	.02000	2.00	.00	0.	94	23	A29	.60
1	76D	29.3	25.86	63.3	52.32	4	255.	.02000	2.50	.00	0.	94	22	A29	.86
1	77D	.0	.00	63.3	52.29	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	12.75	15.8	12.75	4	670.	.05000	2.00	.00	0.	94	23	A29	.50
1	79E	17.4	14.06	33.2	26.74	4	1024.	.05000	2.00	.00	0.	94	20	A29	.10
1	80E	5.0	4.87	38.2	31.47	4	81.	.05000	2.00	.00	0.	94	17	A29	.70
1	81DE	38.2	31.46	101.5	82.41	4	404.	.05000	2.50	.00	0.	94	0	A29	.00
1	82CD	101.5	82.35	354.3	279.86	4	947.	.05000	3.75	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	279.52	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	20.21	21.4	20.21	4	1656.	.06000	2.00	.00	0.	94	17	A29	.50
1	85F	27.1	27.39	48.5	46.77	4	1070.	.06000	2.00	.00	0.	94	15	A29	.50
1	86F	14.6	16.45	63.1	62.03	4	16.	.06000	2.25	.00	0.	94	12	A29	.50
1	87CF	63.1	62.03	417.4	337.74	4	585.	.05000	4.00	.00	0.	94	0	A29	.00
1	88C	34.4	29.94	451.8	365.90	4	523.	.05000	4.25	.00	0.	94	20	A29	.50
1	89C	23.7	19.08	475.5	383.95	4	449.	.20000	3.25	.00	0.	94	25	A29	.70
1	90C	6.9	7.30	482.4	388.63	0	0.	.00000	.00	.00	0.	94	12	A29	.02
1	91C	.0	.00	482.4	388.63	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	388.63	4	85.	.05000	4.25	.00	0.	94	99	A29	.00
1	93C	2.8	4.30	485.2	389.20	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	94C	.0	.00	485.2	389.20	4	85.	.05000	4.25	.00	0.	94	99	A29	.00
1	95C	1.9	3.26	487.1	389.57	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	96C	.0	.00	487.1	389.57	4	76.	.05000	4.25	.00	0.	94	99	A29	.00
1	97C	1.2	2.06	488.3	389.84	0	0.	.00000	.00	.00	0.	94	5	A29	.02
1	98C	.0	.00	488.3	389.84	4	283.	.05000	4.25	.00	0.	94	99	A29	.00
1	99C	4.3	6.60	492.6	390.81	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	100C	.0	.00	492.6	390.81	4	51.	.05000	4.25	.00	0.	94	99	A29	.00
1	101AC	492.6	390.78	2141.3	1244.12	4	36.	.05000	6.50	.00	0.	94	0	A29	.00
1	102A	16.0	21.01	2157.3	1245.50	0	0.	.00000	.00	.00	0.	94	8	A29	.01

Program Package Serial Number: 2083
12/07/16 FILE: pr5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units
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LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	14.12	200	14.44	300	15.16	400	15.96
500	16.90	600	18.11	700	19.63	800	21.67	900	24.54
1000	29.24	1050	40.21	1100	95.87	1110	118.32	1120	150.61
1130	197.14	1131	202.48	1132	207.94	1133	213.72	1134	219.76
1135	226.15	1136	232.79	1137	239.76	1138	247.15	1139	254.86
1140	262.75	1141	270.95	1142	279.77	1143	289.15	1144	299.13
1145	309.98	1146	321.90	1147	334.55	1148	347.79	1149	363.54
1150	383.20	1151	405.92	1152	431.61	1153	460.59	1154	490.84
1155	520.64	1156	550.21	1157	579.13	1158	607.26	1159	634.52
1160	660.87	1161	686.12	1162	710.19	1163	732.97	1164	754.71
1165	774.66	1166	794.14	1167	814.41	1168	835.16	1169	856.16
1170	878.54	1171	900.92	1172	922.95	1173	944.53	1174	964.06
1175	980.79	1176	993.99	1177	1004.08	1178	1009.97	1179	1012.47
1180	1009.95	1181	994.26	1182	960.25	1183	912.71	1184	860.23
1185	806.26	1186	754.35	1187	704.30	1188	656.67	1189	611.60
1190	569.48	1191	530.32	1192	493.96	1193	460.44	1194	429.63
1195	401.13	1196	375.06	1197	351.35	1198	329.40	1199	309.66
1200	291.57	1201	274.82	1202	259.57	1203	244.94	1204	231.53
1205	219.58	1206	208.62	1207	197.96	1208	188.13	1209	178.71
1210	169.71	1211	161.20	1212	153.31	1213	146.29	1214	139.72
1215	133.43	1216	127.44	1217	121.86	1218	116.90	1219	112.42
1220	108.11	1221	103.93	1222	99.96	1223	96.34	1224	93.24
1225	90.14	1226	87.10	1227	84.07	1228	81.09	1229	78.20
1230	75.40	1231	72.70	1232	70.10	1233	67.61	1234	65.23
1235	62.94	1236	60.75	1237	58.67	1238	56.69	1239	54.79
1240	53.01	1241	51.32	1242	49.73	1243	48.22	1244	46.81
1245	45.49	1246	44.26	1247	43.13	1248	42.09	1249	41.18
1250	40.40	1251	39.84	1252	39.28	1253	38.73	1254	38.14
1255	37.55	1256	36.94	1257	36.34	1258	35.76	1259	35.18
1260	34.62	1261	34.08	1262	33.56	1263	33.06	1264	32.57
1265	32.11	1266	31.66	1267	31.23	1268	30.82	1269	30.43
1270	30.06	1271	29.70	1272	29.35	1273	29.00	1274	28.67
1275	28.36	1276	28.07	1277	27.80	1278	27.55	1279	27.31
1280	27.09	1281	26.88	1282	26.68	1283	26.48	1284	26.29
1285	26.10	1286	25.92	1287	25.74	1288	25.57	1289	25.40
1290	25.23	1291	25.07	1292	24.92	1293	24.77	1294	24.62
1295	24.48	1296	24.34	1297	24.21	1298	24.10	1299	24.00
1300	23.90	1310	22.92	1320	21.93	1330	21.14	1340	20.37
1350	19.65	1360	19.11	1370	18.50	1380	17.99	1390	17.48
1400	17.04	1420	16.27	1440	15.58	1460	14.12	1500	14.12

TOTAL VOLUME THIS HYDROGRAPH = 106.85(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr5 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, BASIN A HYD.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	20.62	200	21.46	300	22.63	400	23.82
500	25.35	600	27.27	700	29.73	800	32.95	900	37.68
1000	45.49	1050	57.43	1100	82.62	1110	92.50	1120	108.36
1130	129.81	1131	132.23	1132	134.67	1133	137.23	1134	139.88
1135	142.59	1136	145.36	1137	148.32	1138	151.51	1139	154.83
1140	158.33	1141	162.17	1142	166.35	1143	170.80	1144	175.58
1145	180.95	1146	186.96	1147	193.56	1148	200.71	1149	210.61
1150	223.63	1151	239.54	1152	258.93	1153	281.47	1154	304.09
1155	325.28	1156	344.24	1157	359.69	1158	371.80	1159	380.26
1160	386.01	1161	388.63	1162	388.42	1163	386.17	1164	381.82
1165	375.69	1166	367.87	1167	358.44	1168	348.20	1169	336.57
1170	323.45	1171	310.17	1172	297.11	1173	283.66	1174	269.36
1175	254.72	1176	239.96	1177	224.78	1178	209.64	1179	195.52
1180	182.39	1181	169.69	1182	157.45	1183	145.73	1184	134.82
1185	124.78	1186	115.78	1187	107.76	1188	101.04	1189	95.10
1190	90.16	1191	85.83	1192	82.11	1193	78.99	1194	76.18
1195	73.66	1196	71.35	1197	69.24	1198	67.24	1199	65.41
1200	63.73	1201	62.18	1202	60.73	1203	59.37	1204	58.09
1205	56.94	1206	55.88	1207	54.85	1208	53.90	1209	53.04
1210	52.22	1211	51.47	1212	50.78	1213	50.15	1214	49.55
1215	48.95	1216	48.41	1217	47.90	1218	47.38	1219	46.91
1220	46.46	1221	46.00	1222	45.56	1223	45.15	1224	44.76
1225	44.36	1226	43.98	1227	43.61	1228	43.26	1229	42.92
1230	42.55	1231	42.20	1232	41.88	1233	41.55	1234	41.22
1235	40.92	1236	40.63	1237	40.35	1238	40.06	1239	39.78
1240	39.51	1241	39.25	1242	38.99	1243	38.75	1244	38.51
1245	38.26	1246	38.02	1247	37.77	1248	37.54	1249	37.35
1250	37.15	1251	36.94	1252	36.71	1253	36.50	1254	36.28
1255	36.08	1256	35.90	1257	35.70	1258	35.51	1259	35.31
1260	35.12	1261	34.92	1262	34.71	1263	34.55	1264	34.39
1265	34.19	1266	34.01	1267	33.84	1268	33.66	1269	33.48
1270	33.32	1271	33.16	1272	33.00	1273	32.87	1274	32.72
1275	32.57	1276	32.42	1277	32.27	1278	32.13	1279	32.01
1280	31.89	1281	31.75	1282	31.61	1283	31.47	1284	31.35
1285	31.22	1286	31.09	1287	30.95	1288	30.80	1289	30.67
1290	30.54	1291	30.40	1292	30.27	1293	30.15	1294	30.01
1295	29.89	1296	29.79	1297	29.68	1298	29.56	1299	29.44
1300	29.33	1310	28.48	1320	27.71	1330	26.86	1340	25.95
1350	25.18	1360	24.61	1370	24.10	1380	23.64	1390	22.98
1400	22.53	1420	21.85	1440	20.90	1460	20.56	1500	20.56

TOTAL VOLUME THIS HYDROGRAPH = 81.09(Ac.Ft)

Program Package Serial Number: 2083
08/19/16 FILE: PR5 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 = 5 SOIL DATA FILE:
Northlake Phase 1, Prop. 5-yr CLEAR, NATURAL HYO.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.13	200	.14	300	.15	400	.15
500	.16	600	.18	700	.19	800	.21	900	.24
1000	.29	1050	.54	1100	1.45	1110	2.36	1120	2.89
1130	3.81	1131	3.90	1132	3.98	1133	4.13	1134	4.27
1135	4.42	1136	4.56	1137	4.83	1138	5.11	1139	5.30
1140	5.49	1141	5.80	1142	6.12	1143	6.43	1144	6.75
1145	7.25	1146	7.82	1147	8.39	1148	8.91	1149	11.37
1150	13.87	1151	16.31	1152	18.81	1153	21.01	1154	20.94
1155	20.54	1156	20.01	1157	17.17	1158	14.27	1159	11.37
1160	8.39	1161	5.43	1162	4.49	1163	3.94	1164	3.46
1165	3.16	1166	2.86	1167	2.55	1168	2.37	1169	2.19
1170	2.07	1171	1.89	1172	1.77	1173	1.65	1174	1.53
1175	1.47	1176	1.35	1177	1.28	1178	1.16	1179	1.09
1180	1.02	1181	.95	1182	.87	1183	.80	1184	.73
1185	.66	1186	.66	1187	.59	1188	.51	1189	.44
1190	.44	1191	.37	1192	.34	1193	.34	1194	.33
1195	.33	1196	.33	1197	.33	1198	.32	1199	.32
1200	.32	1201	.31	1202	.31	1203	.30	1204	.30
1205	.30	1206	.30	1207	.29	1208	.29	1209	.29
1210	.28	1211	.29	1212	.28	1213	.28	1214	.27
1215	.27	1216	.27	1217	.26	1218	.26	1219	.26
1220	.26	1221	.26	1222	.26	1223	.26	1224	.25
1225	.25	1226	.26	1227	.25	1228	.25	1229	.25
1230	.24	1231	.24	1232	.24	1233	.24	1234	.23
1235	.23	1236	.23	1237	.23	1238	.23	1239	.23
1240	.23	1241	.23	1242	.23	1243	.23	1244	.23
1245	.22	1246	.23	1247	.22	1248	.22	1249	.22
1250	.22	1251	.22	1252	.21	1253	.22	1254	.21
1255	.22	1256	.21	1257	.21	1258	.21	1259	.20
1260	.21	1261	.20	1262	.20	1263	.20	1264	.20
1265	.20	1266	.20	1267	.20	1268	.20	1269	.20
1270	.20	1271	.20	1272	.20	1273	.20	1274	.20
1275	.20	1276	.20	1277	.19	1278	.19	1279	.20
1280	.20	1281	.19	1282	.19	1283	.19	1284	.19
1285	.19	1286	.19	1287	.18	1288	.18	1289	.18
1290	.18	1291	.18	1292	.18	1293	.18	1294	.18
1295	.18	1296	.18	1297	.18	1298	.18	1299	.18
1300	.18	1310	.18	1320	.17	1330	.16	1340	.16
1350	.16	1360	.15	1370	.15	1380	.15	1390	.14
1400	.15	1420	.14	1440	.13	1460	.00	1500	.00

TOTAL VOLUME THIS HYDROGRAPH = .99(Ac.Ft)

Program Package Serial Number: 2083
12/07/16 FILE: PR2 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 = 2 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
Northlake Phase 1, Prop. 2-yr CLEAR

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	40.9	14.58	40.9	14.58	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	2A	50.6	20.94	91.5	35.47	2	1320.	.10000	.00	.00	0.	94	24	A29	.01
1	3A	48.8	20.20	140.3	55.21	2	960.	.10000	.00	.00	0.	94	24	A29	.01
1	4A	37.8	17.06	178.1	71.43	2	1272.	.08000	.00	.00	0.	94	21	A29	.01
1	5A	46.9	17.98	225.0	88.36	0	0.	.00000	.00	.00	0.	94	27	A29	.01
1	6A	.0	.00	225.0	88.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	7A	.0	.00	225.0	88.36	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	8B	55.4	23.56	55.4	23.56	1	1656.	.12000	.00	.00	0.	94	23	A29	.01
1	9B	51.0	20.04	106.4	41.29	0	0.	.00000	.00	.00	0.	94	26	A29	.01
1	10AB	106.4	41.29	331.4	129.64	2	1663.	.08000	.00	.00	0.	94	0	A29	.00
1	11A	46.3	16.91	377.7	144.63	0	0.	.00000	.00	.00	0.	94	29	A29	.01
1	12A	46.7	17.06	424.4	160.85	0	0.	.00000	.00	.00	0.	94	29	A29	.01
1	13A	55.0	21.62	479.4	180.92	2	1584.	.04000	.00	.00	0.	94	26	A29	.01
1	14A	52.8	20.24	532.2	197.15	0	0.	.00000	.00	.00	0.	94	27	A29	.01
1	15A	52.6	18.75	584.8	214.30	2	1085.	.05000	.00	.00	0.	94	30	A29	.01
1	16A	23.5	10.29	608.3	221.50	0	0.	.00000	.00	.00	0.	94	22	A29	.01
1	17A	.0	.00	608.3	221.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	18A	.0	.00	608.3	221.50	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	19C	26.0	13.37	26.0	13.37	2	1584.	.09000	.00	.00	0.	94	17	A29	.01
1	20C	48.7	17.36	74.7	30.07	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	21AC	74.7	30.07	683.0	247.79	2	1337.	.05000	.00	.00	0.	94	0	A29	.00
1	22A	49.7	17.72	732.7	262.27	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	23A	.0	.00	732.7	262.27	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	24A	.0	.00	732.7	262.27	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	25D	45.0	16.84	45.0	16.84	0	0.	.00000	.00	.00	0.	94	28	A29	.01
1	26D	31.1	11.36	76.1	28.19	2	1020.	.10000	.00	.00	0.	94	29	A29	.01
1	27D	49.3	18.01	125.4	46.03	2	1290.	.10000	.00	.00	0.	94	29	A29	.01
1	28D	47.5	16.93	172.9	62.50	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	29D	29.2	11.19	202.1	73.42	2	1232.	.10000	.00	.00	0.	94	27	A29	.01
1	30D	48.6	20.67	250.7	92.66	2	1423.	.08000	.00	.00	0.	94	23	A29	.01
1	31D	41.1	14.65	291.8	106.16	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	32AD	291.8	106.16	1024.5	364.28	2	827.	.03000	.00	.00	0.	94	0	A29	.00
1	33A	.0	.00	1024.5	363.53	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	34A	.0	.00	1024.5	363.53	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	35A	41.3	14.72	1065.8	376.08	2	488.	.04000	.00	.00	0.	94	30	A29	.01
1	36A	46.4	17.79	1112.2	390.19	2	1107.	.02000	.00	.00	0.	94	27	A29	.01
1	37A	26.0	11.06	1138.2	393.79	0	0.	.00000	.00	.00	0.	94	23	A29	.01
1	38A	64.1	22.85	1202.3	412.16	2	1195.	.01000	.00	.00	0.	94	30	A29	.01
1	39A	56.1	20.00	1258.4	422.66	4	175.	.02000	5.25	.00	0.	94	30	A29	.01
1	40A	.0	.00	1258.4	422.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	41A	.0	.00	1258.4	422.46	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	42E	37.8	13.54	37.8	13.54	4	1519.	.03000	2.00	.00	0.	94	30	A29	.02
1	43F	59.1	21.07	59.1	21.07	0	0.	.00000	.00	.00	0.	94	30	A29	.01
1	44F	52.1	19.97	111.2	41.02	4	161.	.06000	2.00	.00	0.	94	27	A29	.01
1	45EF	111.2	41.02	149.0	54.23	4	1818.	.06000	2.00	.00	0.	94	0	A29	.00
1	46AE	149.0	53.97	1407.4	465.49	4	625.	.02000	5.50	.00	0.	94	0	A29	.00
1	47A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	48A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	49A	.0	.00	1407.4	465.11	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	50A	10.8	6.03	1418.2	465.34	4	618.	.02000	5.50	.00	0.	94	15	A29	.01
1	51A	13.3	8.06	1431.5	465.18	4	728.	.02000	5.50	.00	0.	94	13	A29	.01
1	52A	11.9	7.98	1443.4	464.78	4	795.	.02000	5.50	.00	0.	94	11	A29	.01
1	53A	15.4	8.60	1458.8	464.33	4	823.	.02000	5.50	.00	0.	94	15	A29	.01
1	54A	9.7	6.17	1468.5	463.65	4	443.	.02000	5.50	.00	0.	94	12	A29	.01
1	55B	56.4	26.74	56.4	26.74	4	1197.	.05000	2.00	.00	0.	94	21	A29	.15
1	56AB	56.4	26.67	1524.9	466.71	4	1344.	.05000	4.50	.00	0.	94	0	A29	.00
1	57A	20.8	10.73	1545.7	465.61	4	449.	.05000	4.50	.00	0.	94	17	A29	.02
1	58A	7.0	4.70	1552.7	465.65	4	680.	.05000	4.50	.00	0.	94	11	A29	.01
1	59A	9.6	10.24	1562.3	465.27	4	1215.	.05000	4.50	.00	0.	94	5	A29	.01
1	60A	4.2	2.25	1566.5	464.28	4	567.	.05000	4.50	.00	0.	94	16	A29	.01
1	61A	44.3	16.58	1610.8	464.87	4	803.	.05000	4.50	.00	0.	94	28	A29	.01
1	62A	37.9	15.69	1648.7	464.97	4	642.	.05000	4.50	.00	0.	94	24	A29	.01
1	63A	.0	.00	1648.7	464.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00

								PR2							
1	64A	.0	.00	1648.7	464.39	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	65C	40.4	20.76	40.4	20.76	4	664.	.06000	2.00	.00	0.	94	26	A29	.75
1	66C	39.8	17.37	80.2	38.11	4	1491.	.06000	2.00	.00	0.	94	30	A29	.50
1	67C	51.0	23.09	131.2	61.11	0	0.	.00000	.00	.00	0.	94	30	A29	.60
1	68C	34.8	14.62	166.0	75.71	4	880.	.06000	2.25	.00	0.	94	30	A29	.40
1	69C	13.1	7.16	179.1	82.48	4	832.	.06000	2.50	.00	0.	94	20	A29	.50
1	70C	63.7	30.40	242.8	112.59	4	566.	.06000	2.75	.00	0.	94	30	A29	.75
1	71C	10.0	5.46	252.8	117.63	4	27.	.06000	2.75	.00	0.	94	20	A29	.50
1	72C	.0	.00	252.8	117.63	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	73D	7.0	4.50	7.0	4.50	4	1814.	.06000	2.00	.00	0.	94	14	A29	.40
1	74D	3.4	1.83	10.4	6.16	4	2106.	.02000	2.00	.00	0.	94	23	A29	.70
1	75D	23.6	10.68	34.0	16.06	4	1753.	.02000	2.00	.00	0.	94	30	A29	.60
1	76D	29.3	14.77	63.3	29.61	4	255.	.02000	2.00	.00	0.	94	29	A29	.86
1	77D	.0	.00	63.3	29.61	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	78E	15.8	6.90	15.8	6.90	4	670.	.05000	2.00	.00	0.	94	30	A29	.50
1	79E	17.4	6.46	33.2	13.34	4	1024.	.05000	2.00	.00	0.	94	30	A29	.10
1	80E	5.0	2.69	38.2	15.95	4	81.	.05000	2.00	.00	0.	94	23	A29	.70
1	81DE	38.2	15.95	101.5	45.00	4	404.	.05000	2.00	.00	0.	94	0	A29	.00
1	82CD	101.5	45.00	354.3	161.98	4	947.	.05000	3.25	.00	0.	94	0	A29	.00
1	83C	.0	.00	354.3	161.89	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	84F	21.4	10.57	21.4	10.57	4	1656.	.06000	2.00	.00	0.	94	24	A29	.50
1	85F	27.1	14.40	48.5	24.67	4	1070.	.06000	2.00	.00	0.	94	21	A29	.50
1	86F	14.6	8.42	63.1	32.76	4	16.	.06000	2.00	.00	0.	94	18	A29	.50
1	87CF	63.1	32.75	417.4	193.63	4	585.	.05000	3.25	.00	0.	94	0	A29	.00
1	88C	34.4	15.31	451.8	208.45	4	523.	.05000	3.50	.00	0.	94	29	A29	.50
1	89C	23.7	11.12	475.5	219.16	4	449.	.20000	2.75	.00	0.	94	30	A29	.70
1	90C	6.9	3.56	482.4	222.03	0	0.	.00000	.00	.00	0.	94	17	A29	.02
1	91C	.0	.00	482.4	222.03	0	0.	.00000	.00	.00	0.	94	99	A29	.00
1	92C	.0	.00	482.4	222.03	4	85.	.05000	3.50	.00	0.	94	99	A29	.00
1	93C	2.8	2.11	485.2	222.32	0	0.	.00000	.00	.00	0.	94	9	A29	.02
1	94C	.0	.00	485.2	222.32	4	85.	.05000	3.50	.00	0.	94	99	A29	.00
1	95C	1.9	1.80	487.1	222.46	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	96C	.0	.00	487.1	222.46	4	76.	.05000	3.50	.00	0.	94	99	A29	.00
1	97C	1.2	1.14	488.3	222.54	0	0.	.00000	.00	.00	0.	94	6	A29	.02
1	98C	.0	.00	488.3	222.54	4	283.	.05000	3.50	.00	0.	94	99	A29	.00
1	99C	4.3	3.24	492.6	222.92	0	0.	.00000	.00	.00	0.	94	9	A29	.02
1	100C	.0	.00	492.6	222.92	4	51.	.05000	3.50	.00	0.	94	99	A29	.00
1	101AC	492.6	222.90	2141.3	592.17	4	36.	.05000	5.00	.00	0.	94	0	A29	.00
1	102A	16.0	10.73	2157.3	592.43	0	0.	.00000	.00	.00	0.	94	11	A29	.01

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Program Package Serial Number: 2083
12/07/16 FILE: PR2 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 = 2 SOIL DATA FILE:
Northlake Phase 1, Prop. 2-yr CLEAR, NATURAL HYD.
HYDROGRAPH AT 1 64A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	9.36	200	9.55	300	10.02	400	10.55
500	11.16	600	11.97	700	13.00	800	14.31	900	16.18
1000	19.15	1050	22.13	1100	27.43	1110	29.30	1120	34.64
1130	45.70	1131	47.07	1132	48.49	1133	49.98	1134	51.58
1135	53.29	1136	55.12	1137	57.11	1138	59.28	1139	61.60
1140	64.01	1141	66.57	1142	69.37	1143	72.45	1144	75.80
1145	79.51	1146	83.64	1147	88.16	1148	93.04	1149	98.84
1150	106.18	1151	114.83	1152	124.68	1153	135.97	1154	148.05
1155	160.20	1156	172.37	1157	184.57	1158	196.70	1159	208.96
1160	221.41	1161	234.05	1162	246.88	1163	259.78	1164	272.52
1165	284.83	1166	296.58	1167	307.79	1168	318.60	1169	329.10
1170	339.38	1171	349.88	1172	360.83	1173	371.88	1174	382.76
1175	393.62	1176	404.17	1177	413.68	1178	422.18	1179	430.06
1180	437.18	1181	443.25	1182	448.36	1183	452.93	1184	457.10
1185	460.41	1186	462.79	1187	464.27	1188	464.39	1189	462.13
1190	455.60	1191	443.75	1192	426.69	1193	407.57	1194	387.06
1195	367.54	1196	348.96	1197	331.35	1198	314.56	1199	298.48
1200	283.05	1201	268.21	1202	253.97	1203	240.30	1204	227.23
1205	214.75	1206	202.91	1207	191.64	1208	180.94	1209	170.90
1210	161.43	1211	152.52	1212	144.23	1213	136.47	1214	129.21
1215	122.45	1216	116.04	1217	110.06	1218	104.55	1219	99.45
1220	94.70	1221	90.12	1222	85.87	1223	82.00	1224	78.47
1225	75.09	1226	71.81	1227	68.70	1228	65.81	1229	63.18
1230	60.82	1231	58.67	1232	56.59	1233	54.57	1234	52.64
1235	50.83	1236	49.15	1237	47.61	1238	46.21	1239	44.81
1240	43.33	1241	41.87	1242	40.47	1243	39.15	1244	37.90
1245	36.72	1246	35.62	1247	34.57	1248	33.58	1249	32.68
1250	31.86	1251	31.10	1252	30.40	1253	29.74	1254	29.12
1255	28.56	1256	28.00	1257	27.45	1258	26.97	1259	26.46
1260	25.97	1261	25.49	1262	25.03	1263	24.59	1264	24.17
1265	23.77	1266	23.39	1267	23.02	1268	22.67	1269	22.35
1270	22.04	1271	21.74	1272	21.48	1273	21.23	1274	20.99
1275	20.77	1276	20.54	1277	20.33	1278	20.11	1279	19.90
1280	19.70	1281	19.51	1282	19.33	1283	19.16	1284	19.01
1285	18.87	1286	18.74	1287	18.59	1288	18.44	1289	18.29
1290	18.15	1291	18.00	1292	17.87	1293	17.73	1294	17.61
1295	17.48	1296	17.36	1297	17.24	1298	17.13	1299	17.02
1300	16.91	1310	15.95	1320	15.18	1330	14.51	1340	13.92
1350	13.40	1360	12.95	1370	12.53	1380	12.17	1390	11.84
1400	11.55	1420	11.03	1440	10.55	1460	9.57	1500	9.36

TOTAL VOLUME THIS HYDROGRAPH = 56.96(Ac.Ft)

Program Package Serial Number: 2083
08/08/16 FILE: pr2 INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 4
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE:
Northlake Phase 1, Prop. 2-yr CLEAR, BASIN A HYO.
HYDROGRAPH AT 1 90C STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	13.67	200	14.22	300	14.99	400	15.78
500	16.79	600	18.06	700	19.68	800	21.81	900	24.94
1000	30.10	1050	36.72	1100	47.07	1110	50.29	1120	57.76
1130	71.38	1131	72.95	1132	74.50	1133	76.14	1134	77.83
1135	79.56	1136	81.34	1137	83.19	1138	85.12	1139	87.13
1140	89.23	1141	91.45	1142	93.83	1143	96.38	1144	99.09
1145	102.08	1146	105.38	1147	108.97	1148	112.85	1149	118.00
1150	124.56	1151	132.39	1152	141.88	1153	153.08	1154	164.70
1155	176.12	1156	186.94	1157	196.47	1158	204.37	1159	210.67
1160	215.41	1161	218.66	1162	220.72	1163	221.81	1164	222.03
1165	221.65	1166	220.42	1167	218.58	1168	216.16	1169	213.08
1170	209.37	1171	205.32	1172	200.61	1173	195.39	1174	189.72
1175	183.60	1176	177.30	1177	171.10	1178	164.76	1179	157.64
1180	149.90	1181	141.61	1182	132.28	1183	122.20	1184	112.18
1185	102.37	1186	92.77	1187	84.10	1188	76.38	1189	69.83
1190	64.32	1191	59.72	1192	56.06	1193	53.13	1194	50.74
1195	48.80	1196	47.19	1197	45.87	1198	44.66	1199	43.58
1200	42.60	1201	41.70	1202	40.88	1203	40.09	1204	39.36
1205	38.69	1206	38.06	1207	37.44	1208	36.88	1209	36.36
1210	35.86	1211	35.38	1212	34.92	1213	34.48	1214	34.06
1215	33.64	1216	33.24	1217	32.86	1218	32.49	1219	32.14
1220	31.79	1221	31.46	1222	31.14	1223	30.83	1224	30.53
1225	30.24	1226	29.96	1227	29.71	1228	29.46	1229	29.22
1230	28.97	1231	28.72	1232	28.48	1233	28.26	1234	28.03
1235	27.79	1236	27.57	1237	27.38	1238	27.18	1239	26.97
1240	26.79	1241	26.61	1242	26.43	1243	26.24	1244	26.06
1245	25.90	1246	25.72	1247	25.55	1248	25.39	1249	25.23
1250	25.07	1251	24.92	1252	24.78	1253	24.64	1254	24.51
1255	24.37	1256	24.23	1257	24.09	1258	23.96	1259	23.82
1260	23.70	1261	23.57	1262	23.43	1263	23.30	1264	23.18
1265	23.05	1266	22.93	1267	22.81	1268	22.69	1269	22.58
1270	22.46	1271	22.35	1272	22.24	1273	22.14	1274	22.03
1275	21.93	1276	21.82	1277	21.72	1278	21.62	1279	21.52
1280	21.44	1281	21.34	1282	21.25	1283	21.16	1284	21.07
1285	20.98	1286	20.89	1287	20.80	1288	20.70	1289	20.62
1290	20.52	1291	20.43	1292	20.35	1293	20.25	1294	20.17
1295	20.09	1296	20.01	1297	19.93	1298	19.86	1299	19.78
1300	19.70	1310	19.06	1320	18.51	1330	17.98	1340	17.37
1350	16.84	1360	16.41	1370	16.07	1380	15.75	1390	15.35
1400	15.02	1420	14.57	1440	13.95	1460	13.63	1500	13.63

TOTAL VOLUME THIS HYDROGRAPH = 52.12(Ac.Ft)

Program Package Serial Number: 2083
08/18/16 FILE: pr2 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 = 2 SOIL DATA FILE:
Northlake Phase 1, Prop. 2-yr CLEAR, NATURAL HYO.
HYDROGRAPH AT 1 102A STORM DAY 4 REDUCTION FACTOR = 1.000

TIME	Q	TIME	Q	TIME	Q	TIME	Q	TIME	Q
0	.00	100	.09	200	.09	300	.10	400	.10
500	.11	600	.12	700	.13	800	.14	900	.16
1000	.20	1050	.24	1100	.31	1110	.66	1120	1.10
1130	1.70	1131	1.80	1132	1.84	1133	1.91	1134	1.98
1135	2.05	1136	2.12	1137	2.25	1138	2.37	1139	2.50
1140	2.63	1141	2.85	1142	3.02	1143	3.19	1144	3.34
1145	3.63	1146	3.95	1147	4.27	1148	4.51	1149	5.74
1150	6.99	1151	8.20	1152	9.39	1153	10.58	1154	10.73
1155	10.73	1156	10.48	1157	10.14	1158	9.76	1159	9.39
1160	7.96	1161	6.53	1162	5.11	1163	3.72	1164	2.29
1165	1.85	1166	1.53	1167	1.27	1168	1.08	1169	.88
1170	.70	1171	.56	1172	.42	1173	.35	1174	.33
1175	.32	1176	.31	1177	.31	1178	.30	1179	.29
1180	.28	1181	.28	1182	.27	1183	.27	1184	.26
1185	.26	1186	.26	1187	.25	1188	.24	1189	.24
1190	.24	1191	.24	1192	.23	1193	.23	1194	.23
1195	.22	1196	.22	1197	.22	1198	.22	1199	.22
1200	.21	1201	.21	1202	.21	1203	.20	1204	.20
1205	.20	1206	.20	1207	.19	1208	.19	1209	.19
1210	.19	1211	.19	1212	.19	1213	.19	1214	.19
1215	.18	1216	.18	1217	.18	1218	.18	1219	.18
1220	.18	1221	.18	1222	.17	1223	.17	1224	.17
1225	.17	1226	.17	1227	.17	1228	.17	1229	.17
1230	.16	1231	.16	1232	.16	1233	.16	1234	.16
1235	.16	1236	.16	1237	.16	1238	.15	1239	.15
1240	.15	1241	.16	1242	.15	1243	.15	1244	.15
1245	.15	1246	.15	1247	.15	1248	.15	1249	.15
1250	.15	1251	.15	1252	.14	1253	.15	1254	.14
1255	.14	1256	.14	1257	.14	1258	.14	1259	.14
1260	.14	1261	.14	1262	.13	1263	.14	1264	.13
1265	.13	1266	.13	1267	.13	1268	.13	1269	.13
1270	.13	1271	.13	1272	.13	1273	.13	1274	.13
1275	.13	1276	.13	1277	.13	1278	.13	1279	.13
1280	.13	1281	.13	1282	.13	1283	.13	1284	.12
1285	.12	1286	.12	1287	.12	1288	.12	1289	.12
1290	.12	1291	.12	1292	.12	1293	.12	1294	.12
1295	.12	1296	.12	1297	.12	1298	.12	1299	.12
1300	.12	1310	.12	1320	.11	1330	.11	1340	.10
1350	.10	1360	.10	1370	.10	1380	.10	1390	.09
1400	.10	1420	.09	1440	.09	1460	.00	1500	.00

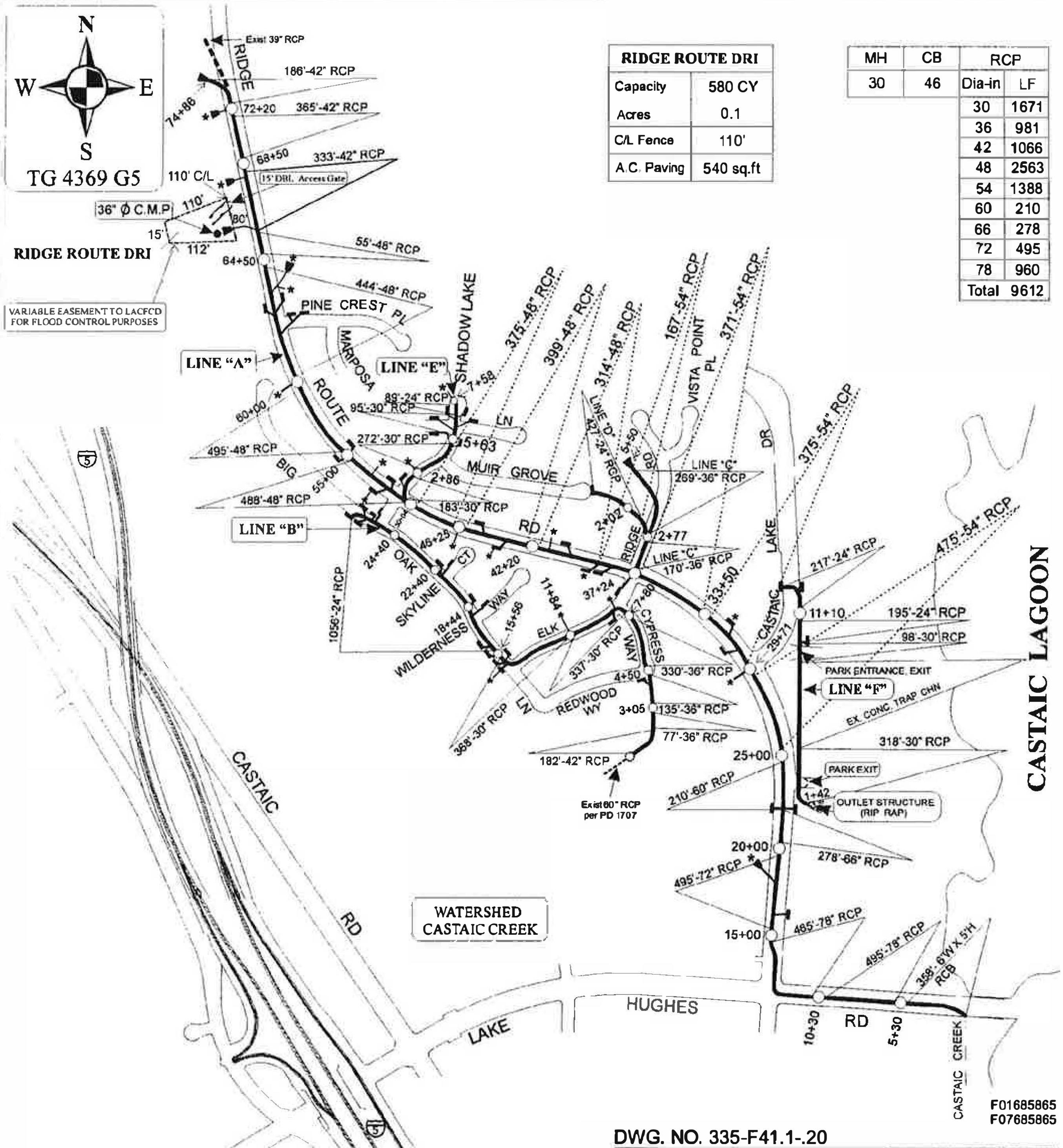
TOTAL VOLUME THIS HYDROGRAPH = .54(Ac.Ft)

TC Calculator Results

VTM 73336, Northlake Phase 1
Proposed Condition

LID Clear 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)	Volume (ac-ft)
LID	200A	8.0	0.65	LID	94	2279	0.03	1.2	55	0.23	0.22	0.66	1.2	0.49
LID	202A	6.3	0.5	LID	94	1372	0.036	1.2	41	0.27	0.30	0.60	1	0.27
LID	2b	4.8	0.91	LID	94	642	0.13	1.2	16	0.40	0.46	0.86	1.6	0.37
LID	3a	1.5	0.85	50	94	240	0.01	5.8	5	3.46	0.89	0.9	4.7	0.58
LID	3b	0.2	1.0	50	94	250	0.12	5.8	5	3.46	0.89	0.9	0.62	0.08



RIDGE ROUTE DRI	
Capacity	580 CY
Acres	0.1
C/L Fence	110'
A.C. Paving	540 sq.ft

MH	CB	RCP	
30	46	Dia-in	LF
		30	1671
		36	981
		42	1066
		48	2563
		54	1388
		60	210
		66	278
		72	495
		78	960
		Total	9612

DWG. NO. 335-F41.1-.20

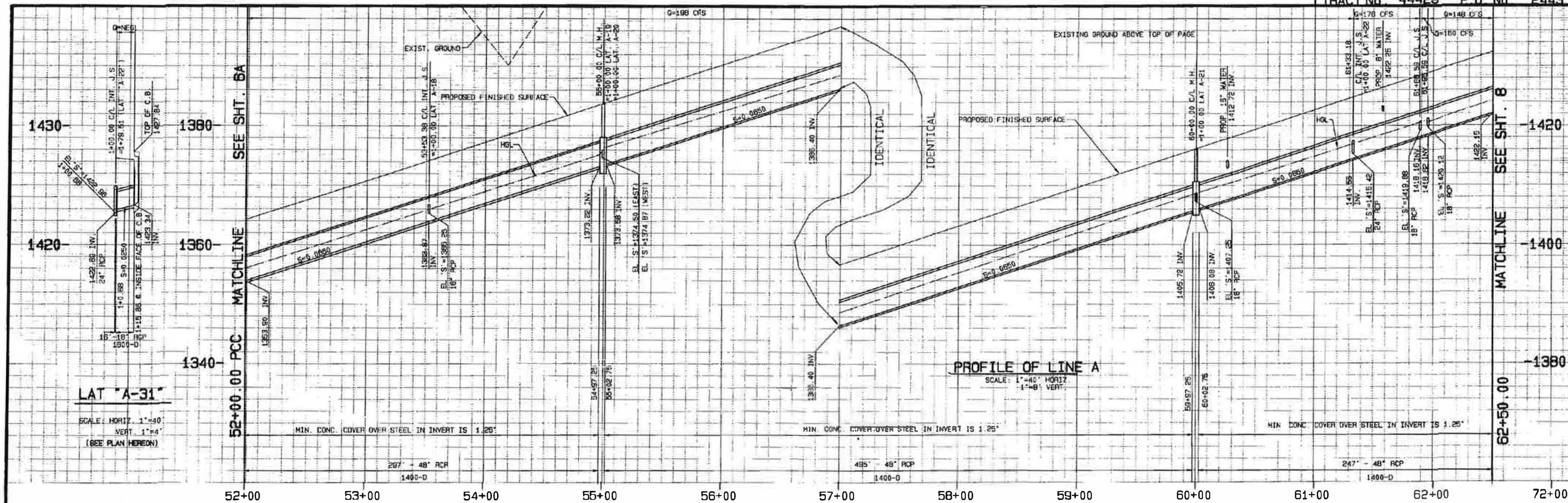
PREPARED SH	LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE 03/07/2005	**PD 2443**
SCALE N/A	**CASTAIC**

LEGEND

PROJECT	ITEM	EXISTING
	Storm Drain	
	Catch Basin	
	Manhole	
	Inlet	

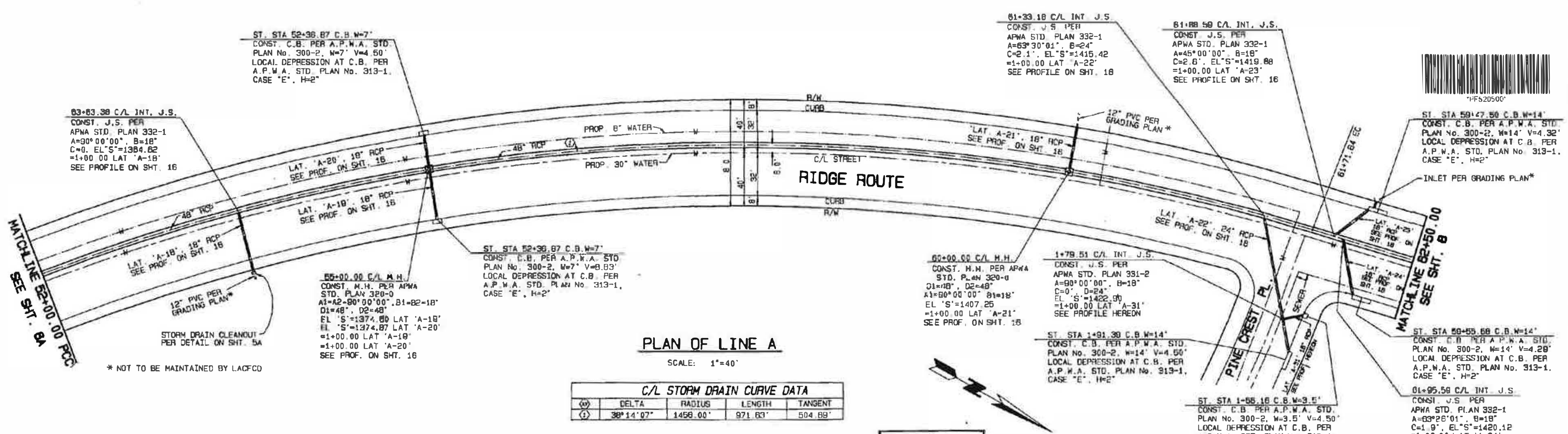
An * by any Structure Denotes that it is not Maintained by LACFCD.

STORM DRAIN PLANS IN
TRACT No. 44429 P.D. No. 2443



PROFILE OF LINE A

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



* NOT TO BE MAINTAINED BY LACFCO

PLAN OF LINE A

SCALE: 1"=40'

C/L STORM DRAIN CURVE DATA				
	DELTA	RADIUS	LENGTH	TANGENT
1	38°14'07"	1456.00'	971.63'	504.89'

NO.	REVISION	REVISED BY	APPROVED BY	DATE

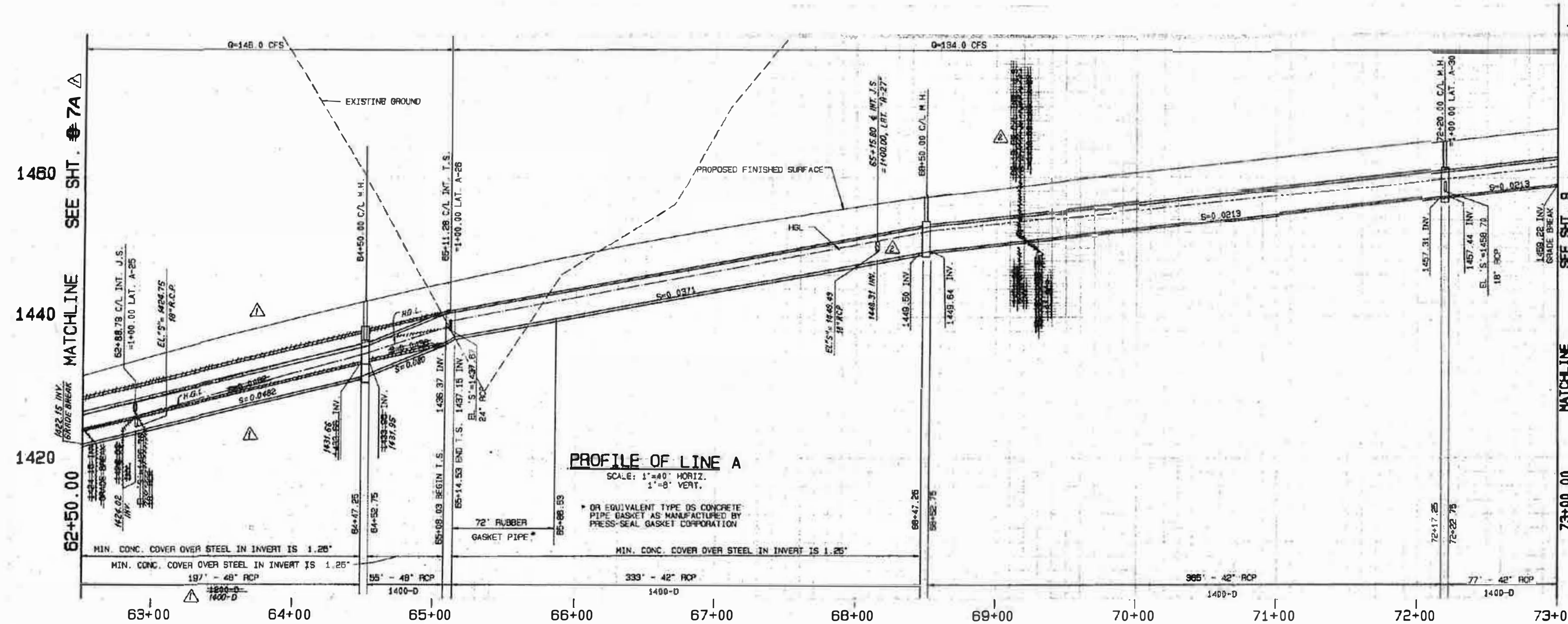
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8550
SIGNATURE: ______ R.C.E. NO 35953

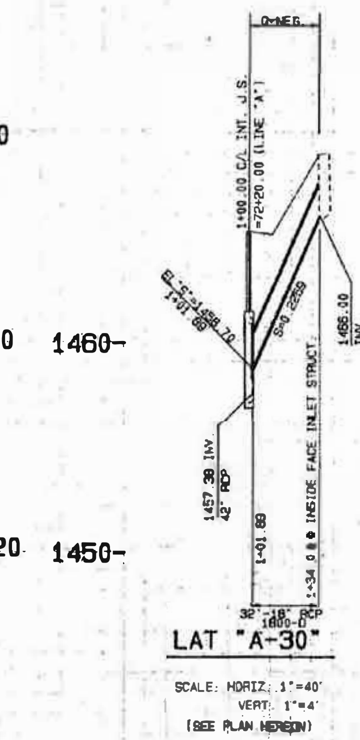
COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS

CHECKED BY: ______ LAND DEVELOPMENT DIVISION R.C.E. NO 45641 DATE: 12-7-98
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT. 7A OF 20 SHTS

STORM DRAIN PLANS IN
TRACT No. 44429 P.D. No. 2443

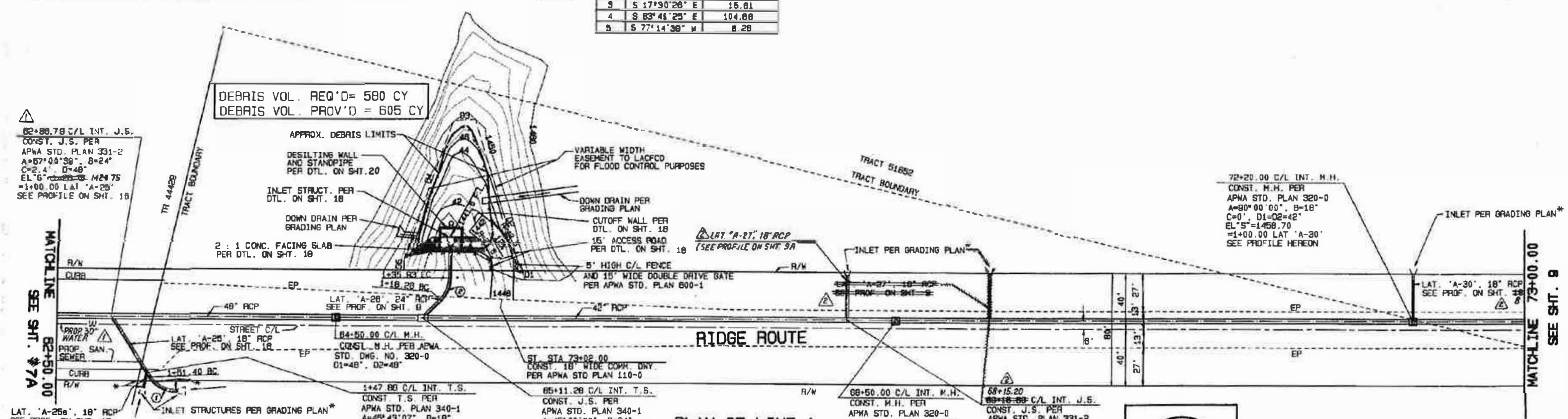




C/L STORM DRAIN CURVE DATA				
NO.	DELTA	RADIUS	LENGTH	TANGENT
1	59°51'02"	22.50'	23.50'	12.95'
2	49°58'59"	22.80'	17.87	8.32'

EASEMENT CURVE DATA			
NO.	DELTA	RADIUS	LENGTH
C	15°45'08"	17.50'	4.81'
D	11°01'25"	27.80'	5.29

EASEMENT DATA		
D NO.	BEARING	DISTANCE
1	S 80°08'24" W	5.58
2	S 80°07'21" W	107.74
3	S 17°30'28" E	15.81
4	S 83°41'25" E	104.88
5	S 77°14'38" W	8.28



PLAN OF LINE A

SCALE: 1"=40'

* NOT TO BE MAINTAINED BY LACFCO BEYOND STREET RIGHT OF WAY

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED PROF. AND "Q"LOAD OF LINE "A" FROM STA.62+50.00 TO STA.65+08.03 ADDED WATER LINE.	55453		7/4/99
2	REVISED LAT "A-27" & PLAN VIEW.	28495	S. KHALIL	11/4/02

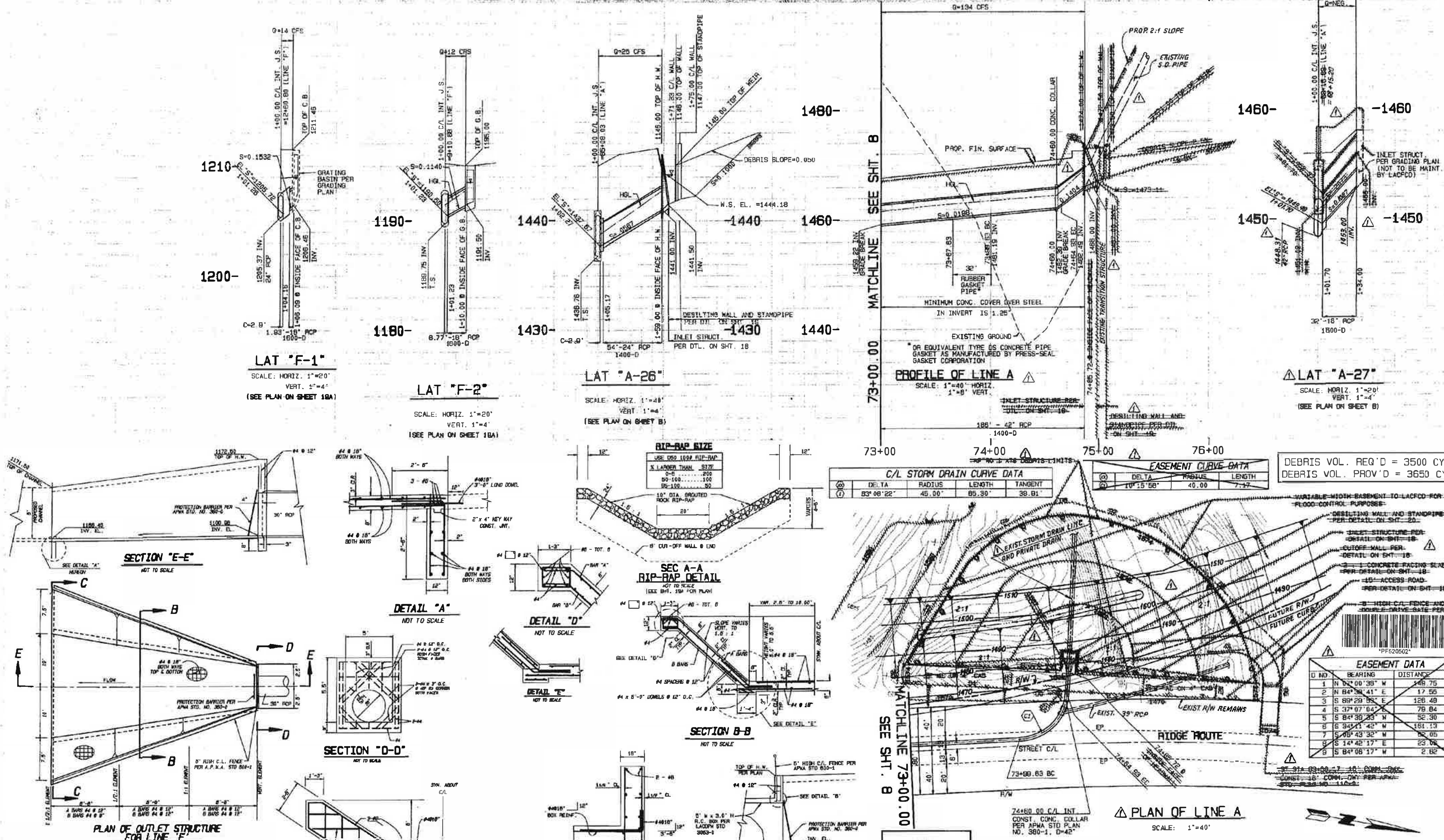
PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8550
SIGNATURE ______ R.C.E. NO. 42880

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS
CHECKED BY: ______ LAND DEVELOPMENT DIVISION R.C.E. NO. 45641 DATE: 12-30-97
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 8 OF 20 SHTS

PDN 335-F41 .1-20

STORM DRAIN PLANS IN
TRACT No. 44428 P.D. No. 2443



C/L STORM DRAIN CURVE DATA				
	DELTA	RADIUS	LENGTH	TANGENT
1	83°08'22"	45.00'	65.30'	38.81'

EASEMENT CURVE DATA			
	DELTA	RADIUS	LENGTH
	10°15'58"	40.00	7.17

DEBRIS VOL. REQ'D = 3500 CY
DEBRIS VOL. PROV'D = 3650 CY

PF520502

EASEMENT DATA		
NO.	BEARING	DISTANCE
1	N 07°00'38" W	149.75
2	N 84°38'41" E	17.55
3	S 89°29'59" E	126.48
4	S 37°07'04" E	78.84
5	S 84°30'33" W	52.30
6	S 34°11'42" W	181.13
7	S 05°43'32" W	62.05
8	S 14°42'17" E	23.08
9	S 84°06'17" W	2.82

NO.	REVISION	REVISED BY	APPROVED BY	DATE
1	REVISED DEBRIS BASIN & LAT "A-27" REVISED LINE "A" IN PLAN & PROFILE	[signature]	B. KHALIL	7/6/02

PREPARED BY:
SIKAND ENGINEERING ASSOCIATES
15230 BURBANK BLVD.
VAN NUYS, CA. 91411
(818)-787-8550
SIGNATURE: [signature] R.C.E. NO. 25957

COUNTY OF LOS ANGELES, CALIFORNIA
HARRY W. STONE DIRECTOR OF PUBLIC WORKS

CHECKED BY: [signature] LAND DEVELOPMENT DIVISION R.C.E. NO. 25621 DATE: 12-2-92
OFFICE OF THE DIRECTOR OF PUBLIC WORKS

SHT 8A OF 20 SHTS

Section 5

DPV & Bulking Calculation (Subarea)

VTM No. 73336, Northlake Phase 1

Existing Condition, Design Frequency (50-yr)

Node Number	DPA Zone	Total Area (ac)	$DP_{Tributary\ Area}$ (ac)	$DP_{Tributary\ Area}$ (mi^2)	Bulking Rate	Qb (cfs)	Qbb (cfs)	DP Rate (cy/mi^2)	Subarea DPV (cy)
1A	3	40.9	40.9	0.064	1.620	81.8	132.5	140,000	8,947
2A	3	50.6	50.6	0.079	1.620	111.8	181.1	140,000	11,069
3A	3	48.8	48.8	0.076	1.620	107.8	174.6	140,000	10,675
4A	3	37.8	37.8	0.059	1.620	87.6	141.9	140,000	8,269
5A	3	46.9	46.9	0.073	1.620	98.3	159.2	140,000	10,259
8B	3	55.4	55.4	0.087	1.620	122.4	198.3	140,000	12,119
9B	3	51.0	51.0	0.080	1.620	106.8	173.0	140,000	11,156
11A	3	46.3	46.3	0.072	1.620	92.6	150.0	140,000	10,128
12A	3	46.7	46.7	0.073	1.620	93.4	151.3	140,000	10,216
13A	3	55.0	55.0	0.086	1.620	115.2	186.6	140,000	12,031
14A	3	52.8	52.8	0.083	1.620	110.6	179.2	140,000	11,550
15A	3	52.6	52.6	0.082	1.620	105.2	170.4	140,000	11,506
16A	3	23.5	23.5	0.037	1.620	51.9	84.1	140,000	5,141
19C	3	26.0	26.0	0.041	1.620	68.0	110.2	140,000	5,688
20C	3	48.7	48.7	0.076	1.620	90.1	146.0	140,000	10,653
22A	3	49.7	49.7	0.078	1.620	89.0	144.2	140,000	10,872
25D	3	45.0	45.0	0.070	1.620	94.3	152.8	140,000	9,844
26D	3	31.1	31.1	0.049	1.620	62.2	100.8	140,000	6,803
27D	3	49.3	49.3	0.077	1.620	98.6	159.7	140,000	10,784
28D	3	47.5	47.5	0.074	1.620	87.9	142.4	140,000	10,391
29D	3	29.2	29.2	0.046	1.620	61.2	99.1	140,000	6,388
30D	3	48.6	48.6	0.076	1.620	107.4	174.0	140,000	10,631
31D	3	41.1	41.1	0.064	1.620	78.9	127.8	140,000	8,991
35A	3	41.3	41.3	0.065	1.620	79.3	128.5	140,000	9,034
36A	3	46.4	46.4	0.073	1.620	97.2	157.5	140,000	10,150
37A	3	26.8	26.8	0.042	1.620	59.2	95.9	140,000	5,863
38A	3	64.1	64.1	0.100	1.620	114.8	186.0	140,000	14,022
39A	3	41.6	41.6	0.065	1.620	87.2	141.3	140,000	9,100
42E	5	61.9	61.9	0.097	1.465	103.5	151.6	82,000	7,931
43E	5	50.1	50.1	0.078	1.465	100.2	146.8	82,000	6,419
44E	5	64.4	64.4	0.101	1.465	115.3	168.9	82,000	8,251
46A	5	47.5	47.5	0.074	1.465	91.2	133.6	82,000	6,086
47A	5	38.8	38.8	0.061	1.465	63.0	92.3	82,000	4,971
48A	5	38.8	38.8	0.061	1.465	64.9	95.1	82,000	4,971
49A	5	25.9	25.9	0.040	1.465	63.5	93.0	82,000	3,318
50A	5	68.3	68.3	0.107	1.465	114.2	167.3	82,000	8,751
53F	5	45.6	45.6	0.071	1.465	91.2	133.6	82,000	5,843
54F	5	53.1	53.1	0.083	1.465	95.1	139.3	82,000	6,803
56A	5	46.0	46.0	0.072	1.465	85.1	124.7	82,000	5,894
57A	5	50.8	50.8	0.079	1.465	91.0	133.3	82,000	6,509
60B	5	53.0	53.0	0.083	1.465	86.0	126.0	82,000	6,791
61B	5	38.3	38.3	0.060	1.465	84.6	123.9	82,000	4,907
63A	5	47.7	47.7	0.075	1.465	91.6	134.2	82,000	6,112
64A	5	50.0	50.0	0.078	1.465	104.8	153.5	82,000	6,406
65A	5	45.7	45.7	0.071	1.465	105.9	155.1	82,000	5,855
66A	5	38.3	38.3	0.060	1.465	88.7	129.9	82,000	4,907
OP1	5	4.0	4.0	0.006	1.465	7.9	11.6	82,000	513
OP5	5	2.5	2.5	0.004	1.465	12.6	18.5	82,000	320

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Debris Production Calculation

VTM 73336, Northlake Phase 1
Existing Condition

Outlet at Node 66A: DPA Zones 3 and 5for entire watershed boundary
See Appendix P-2:

Subscript 1 =	**DPA 3**				
Subscript 2 =	**DPA 5**				
A1 =	**1,244.7**	ac	=	**1.945**	mi^2
A2 =	**864.2**	ac	=	**1.350**	mi^2
A1+A2=	**2,108.9**	ac	=	**3.295**	mi^2
$DPR1_{(A1+A2)}$ =	**48,000**	cy/mi^2			
$DPR1_{(A1)}$ =	**53,000**	cy/mi^2			
$DPR2_{(A1+A2)}$ =	**28,500**	cy/mi^2			
$DPR2_{(A2)}$ =	**38,000**	cy/mi^2			

$DPR1_{(A1+A2)} \times A1[A1/(A1+A2)] + DPR1_{(A1)} \times A1[A2/(A1+A2)] =$ **97,337** cy

\+

$DPR2_{(A1+A2)} \times A2[A2/(A1+A2)] + DPR2_{(A2)} \times A2[A1/(A1+A2)] =$ **46,055** cy

Total DPV = $\boxed{\textbf{143,392 cy}}$

Bulking Calculation

VTM 73336, Northlake Phase 1
Existing Condition

Outlet at Node 66A: DPA Zones 3 and 5for entire watershed boundary

See Appendix P-5:

Subscript 1 =	**DPA 3**				
Subscript 2 =	**DPA 5**				
Q =	**2,899.2**	cfs (Burned)			
A1 =	**1,244.7**	ac	=	**1.945**	mi^2
A2 =	**864.2**	ac	=	**1.350**	mi^2
A1+A2=	**2,108.9**	ac	=	**3.295**	mi^2
$BF1_{(A1+A2)}$ =	**1.442**				
$BF1_{(A1)}$ =	**1.455**				
$BF2_{(A1+A2)}$ =	**1.325**				
$BF2_{(A2)}$ =	**1.345**				

$BF1_{(A1+A2)}$ x [QA1/(A1+A2)][A1/(A1+A2)] + $BF1_{(A1)}$ x [QA1/(A1+A2)][A2/(A1+A2)] = **2,476.59** cfs

\+

$BF2_{(A1+A2)}$ x [QA2/(A1+A2)][A2/(A1+A2)] + $BF2_{(A2)}$ x [QA2/(A1+A2)][A1/(A1+A2)] = **1,588.20** cfs

Burned & Bulked Q = **4,064.78 cfs**

DPV & Bulking Calculation (Subarea)

VTM No. 73336, Northlake Phase 1

Proposed Condition, Design Frequency (50 & 25-yr mixed)

Node Number	DPA Zone	Total Area (ac)	$DP_{\text{Tributary Area}}$ (ac)	$DP_{\text{Tributary Area}}$ (mi^2)	Bulking Rate	Qb (cfs)	Qbb (cfs)	DP Rate (cy/mi^2)	Subarea DPV (cy)
1A	3	40.9	40.9	0.064	1.620	81.8	132.5	140,000	8,947
2A	3	50.6	50.6	0.079	1.620	111.8	181.1	140,000	11,069
3A	3	48.8	48.8	0.076	1.620	107.8	174.6	140,000	10,675
4A	3	37.8	37.8	0.059	1.620	87.6	141.9	140,000	8,269
5A	3	46.9	46.9	0.073	1.620	98.3	159.2	140,000	10,259
6A	3	225.0	225.0	0.352	1.510	463.3	699.6	82,000	28,828
8B	3	55.4	55.4	0.087	1.620	122.4	198.3	140,000	12,119
9B	3	51.0	51.0	0.080	1.620	106.8	173.0	140,000	11,156
10AB	3	331.4	331.4	0.518	1.490	676.5	1008.0	72,000	37,283
11A	3	46.3	46.3	0.072	1.620	92.6	150.0	140,000	10,128
12A	3	46.7	46.7	0.073	1.620	93.4	151.3	140,000	10,216
13A	3	55.0	55.0	0.086	1.620	115.2	186.6	140,000	12,031
14A	3	52.8	52.8	0.083	1.620	110.6	179.2	140,000	11,550
15A	3	52.6	52.6	0.082	1.620	105.2	170.4	140,000	11,506
16A	3	23.5	23.5	0.037	1.620	51.9	84.1	140,000	5,141
17A	3	608.3	608.3	0.950	1.470	1144.9	1683.0	62,000	58,929
19C	3	26.0	26.0	0.041	1.620	68.0	110.2	140,000	5,688
20C	3	48.7	48.7	0.076	1.620	90.1	146.0	140,000	10,653
22A	3	49.7	49.7	0.078	1.620	89.0	144.2	140,000	10,872
23A	3	732.7	732.7	1.145	1.470	1347.2	1980.4	60,000	68,691
25D	3	45.0	45.0	0.070	1.620	94.3	152.8	140,000	9,844
26D	3	31.1	31.1	0.049	1.620	62.2	100.8	140,000	6,803
27D	3	49.3	49.3	0.077	1.620	98.6	159.7	140,000	10,784
28D	3	47.5	47.5	0.074	1.620	87.9	142.4	140,000	10,391
29D	3	29.2	29.2	0.046	1.620	61.2	99.1	140,000	6,388
30D	3	48.6	48.6	0.076	1.620	107.4	174.0	140,000	10,631
31D	3	41.1	41.1	0.064	1.620	78.9	127.8	140,000	8,991
33A	3	1024.5	1024.5	1.601	1.460	1882.7	2748.7	56,000	89,644
35A	3	41.3	41.3	0.065	1.620	79.3	128.5	140,000	9,034
36A	3	46.4	46.4	0.073	1.620	97.2	157.5	140,000	10,150
37A	3	26.0	26.0	0.041	1.620	57.4	93.0	140,000	5,688
38A	3	64.1	64.1	0.100	1.620	114.8	186.0	140,000	14,022
39A	3	56.1	48.0	0.075	1.620	112.2	171.7	140,000	10,500
40A	3	1258.4	1250.3	1.954	1.495	2140.5	3193.2	53,000	103,540
42E	5	37.8	29.7	0.046	1.465	72.6	99.1	82,000	3,805
43F	5	59.1	56.2	0.088	1.465	102.1	147.2	82,000	7,201
44F	5	52.1	37.3	0.058	1.465	109.2	145.6	82,000	4,779
	5	111.2	111.2	0.174	1.431	211.2	302.2	65,000	11,294
50A	5	10.8	10.8	0.017	1.465	28.2	41.3	82,000	1,384
51A	5	13.3	13.3	0.021	1.465	37.7	55.2	82,000	1,704
52A	5	11.9	11.9	0.019	1.465	37.5	54.9	82,000	1,525
53A	5	15.4	14.5	0.023	1.465	40.3	57.9	82,000	1,858
54A	5	9.7	9.7	0.015	1.465	27.5	40.3	82,000	1,243
55B	5	56.4	27.7	0.043	1.465	130.9	160.8	82,000	3,549
57A	5	20.8	20.8	0.033	1.465	54.4	79.7	82,000	2,665
58A	5	7.0	7.0	0.011	1.465	22.1	32.4	82,000	897
59A	5	9.6	9.6	0.015	1.465	30.3	44.4	82,000	1,230
60A	5	4.2	4.2	0.007	1.465	11.0	16.1	82,000	538
61A	5	44.3	44.3	0.069	1.465	92.8	136.0	82,000	5,676
62A	5	37.9	37.9	0.059	1.465	83.7	122.6	82,000	4,856
102A	5	16.0	16.0	0.025	1.465	51.4	75.3	82,000	2,050

DPV & Bulking Calculations (Junction & Outlet)

VTM 73336, Northlake Phase 1

Proposed Condition, Design Frequency (50- & 25-yr Mixed)

Pre-RETARDING

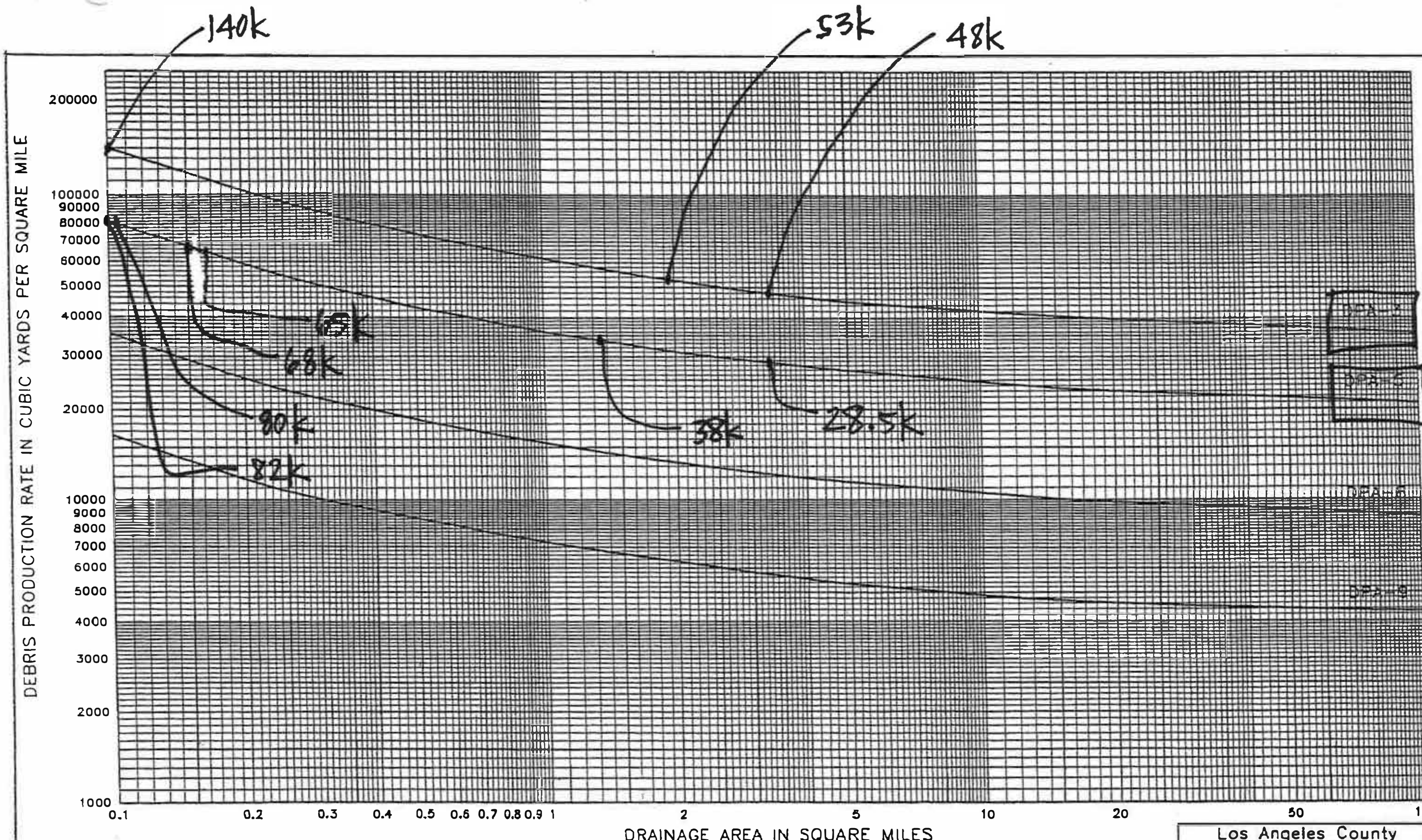
Junction Number	ΣQ_{BURN} (cfs)	ΣA (ac)	ΣA (mi^2)	Au (ac)	Au (mi^2)	Ad (ac)	Ad (mi^2)	$BF1_A$	$BF1_{Au}$	ΣQbb (cfs)	DP Rate (cy/mi^2)	DPV (cy)
102A/Outlet	2906.1	2157.3	3.371	16.0	0.025	2141.3	3.346	1.325	1.465	2916.1	82,000	2,050

Post-RETARDING

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)	DP Rate (cy/mi^2)	DPV (cy)
102A/Outlet	2730.5	2157.3	3.371	16.0	0.025	2141.3	3.346	1.325	1.465	2739.9	82,000	2,050

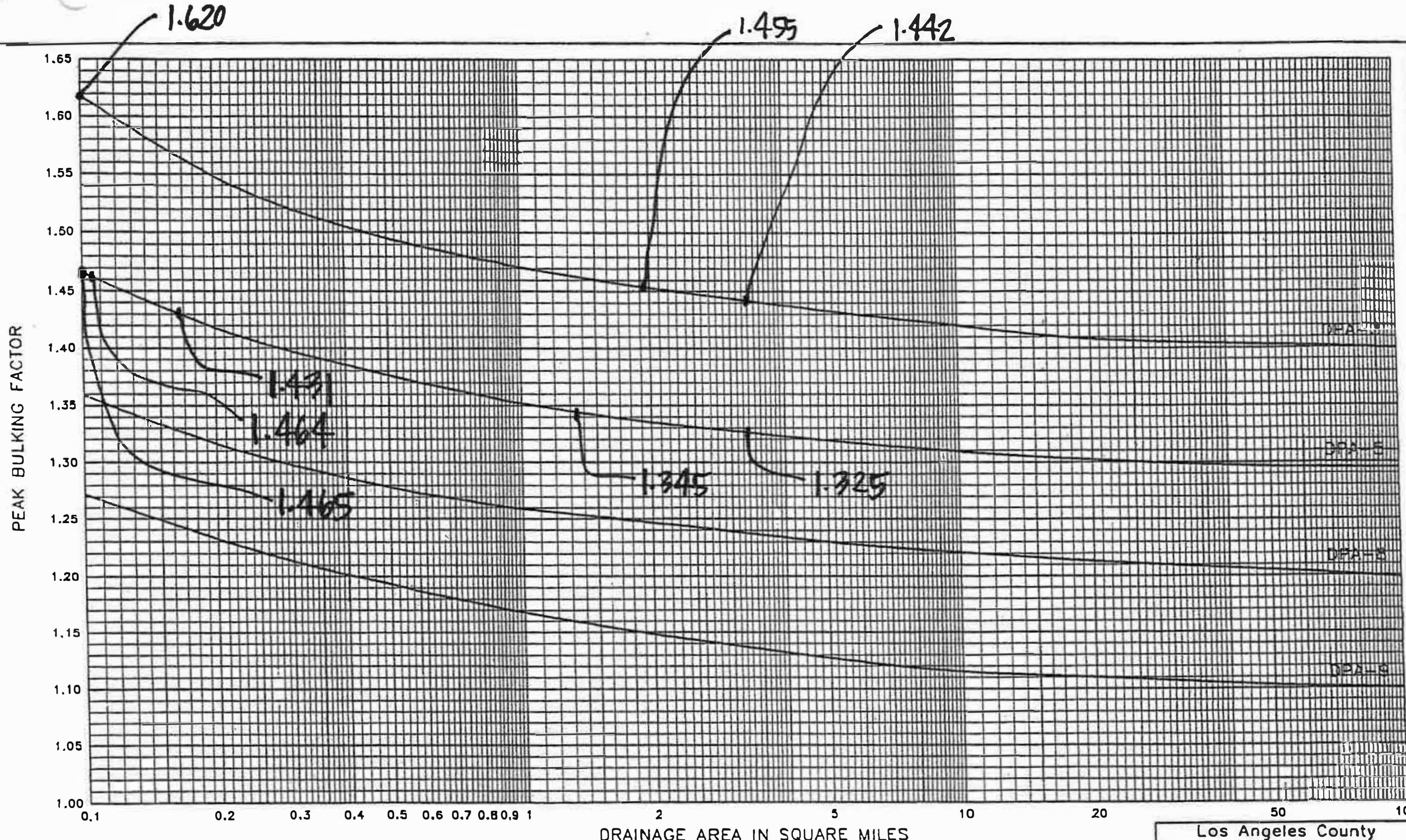
Legend:

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 5)
		Qbb = $BF1_A$ x [QaxAu/A][Au/A)] + $BF1_{Au}$ x [QaxAu/A)][Ad/A] + [QaxAd/A]
DP Rate	---	Debris Production Rate for **Au**, cy/mi^2 (See Chart P-2)
DPV	---	Debris Production Volume, cy
		DPV = Au x DP Rate



Los Angeles County
Department of Public Works

DEBRIS PRODUCTION RATES
for Santa Clara Basin



Los Angeles County
Department of Public Works

PEAK BULKING FACTORS
for Santa Clara Basin

Debris Basin Volume Calculation

VTM 73336, Northlake Phase 1

Proposed Condition

Node 39A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1592	-	-	-	-
1593	41,220	20,610	763	763
1594	87,700	64,460	2,387	3,151
1598	220,040	615,480	22,796	25,946
1602	360,200	1,160,480	42,981	68,927
1605	466,689	1,240,334	45,938	114,865

Debris Production Volume Required (c.y.) = **103,540**

Basin Capacity Provided (c.y.) = **114,865**

Debris Cone Elevation = **1,600.5**

Elevation	**Volume**
1602	68927
X	103540
1605	1605
X=	**1600.5**

Node 42E

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1775	-	-	-	-
1776	5,086	2,543.00	94	94
1778	23,969	29,055.00	1,076	1,170
1780	27,600	51,569.00	1,910	3,080
1782	31,394	58,994.00	2,185	5,265

Debris Production Volume Required (c.y.) = **3,805**

Basin Capacity Provided (c.y.) = **5,265**

Debris Cone Elevation = **1,780.7**

Elevation	**Volume**
1780	3080
X	3805
1782	5265
X=	**1780.7**

Node 44F

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1717	-	-	-	-
1720	57,869	86,803.50	3,215	3,215
1724	73,453	262,644.00	9,728	12,943

Debris Production Volume Required (c.y.) = **11,294**

Basin Capacity Provided (c.y.) = **12,943**

Debris Cone Elevation = **1,723.3**

Elevation	**Volume**
1720	3215
X	11294
1724	12943
X=	**1723.3**

Node 50A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1576	-	-	-	-
1577	5,190	2,595.00	96	96
1578	12,650	8,920.00	330	426
1579	14,200	13,425.00	497	924
1580	16,100	15,150.00	561	1,485
1583	20,970	55,605.00	2,059	3,544

Debris Production Volume Required (c.y.) = **1,384**

Basin Capacity Provided (c.y.) = **3,544**

Debris Cone Elevation = **1,579.8**

Elevation	**Volume**
1579	924
X	1384
1580	1485
X=	**1579.8**

Node 51A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1555.5	-	-	-	-
1556	3,075	768.75	28	28
1557	7,770	5,422.50	201	229
1558	11,850	9,810.00	363	593
1560	14,435	26,285.00	974	1,566
1562	16,650	31,085.00	1,151	2,717

Debris Production Volume Required (c.y.) = **1,704**
Basin Capacity Provided (c.y.) = **2,717**
Debris Cone Elevation = **1,560.2**

Elevation	Volume
1560	1566
X	1704
1562	2717
X=	**1560.2**

Node 52A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1529.5	-	-	-	-
1530	480	120.00	4	4
1531	2,340	1,410.00	52	57
1532	6,085	4,212.50	156	213
1534	7,640	13,725.00	508	721
1536	9,880	17,520.00	649	1,370
1536.5	11,740	5,405.00	200	1,570

Debris Production Volume Required (c.y.) = **1,525**
Basin Capacity Provided (c.y.) = **1,570**
Debris Cone Elevation = **1,536.4**

Elevation	Volume
1536	1370
X	1525
1537	1570
X=	**1536.4**

Node 53A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1493	-	-	-	-
1494	5,980	2,990.00	111	111
1495	11,440	8,710.00	323	433
1496	13,040	12,240.00	453	887
1498	15,900	28,940.00	1,072	1,959
1499	18,770	17,335.00	642	2,601

Debris Production Volume Required (c.y.) = **1,858**
Basin Capacity Provided (c.y.) = **2,601**
Debris Cone Elevation = **1,497.8**

Elevation	Volume
1496	887
X	1858
1498	1959
X=	**1497.8**

Node 54A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1482	-	-	-	-
1484	19,920	19,920.00	738	738
1486	29,100	49,020.00	1,816	2,553
1488	30,058	59,158.00	2,191	4,744

Debris Production Volume Required (c.y.) = **1,243**
Basin Capacity Provided (c.y.) = **4,744**
Debris Cone Elevation = **1,484.6**

Elevation	Volume
1484	738
X	1243
1486	2553
X=	**1484.6**

Node 55B

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1556	-	-	-	-
1558	28,150	28,150.00	1,043	1,043
1560	48,940	77,090.00	2,855	3,898

Debris Production Volume Required (c.y.) = **3,549**
Basin Capacity Provided (c.y.) = **3,898**
Debris Cone Elevation = **1,559.8**

Elevation	Volume
1558	1043
X	3549
1560	3898
X=	**1559.8**

Node 57A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1513	-	-	-	-
1514	6,440	3,220.00	119	119
1516	17,100	23,540.00	872	991
1518	20,860	37,960.00	1,406	2,397
1520	24,400	45,260.00	1,676	4,073

Debris Production Volume Required (c.y.) = **2,665**
Basin Capacity Provided (c.y.) = **4,073**
Debris Cone Elevation = **1,518.3**

Elevation	Volume
1518	2397
X	2665
1520	4073
X=	**1518.3**

Node 58A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1416.5	-	-	-	-
1417	2,130	532.50	20	20
1418	8,100	5,115.00	189	209
1420	9,890	17,990.00	666	875
1422	12,020	21,910.00	811	1,687

Debris Production Volume Required (c.y.) = **897**
Basin Capacity Provided (c.y.) = **1,687**
Debris Cone Elevation = **1,420.1**

Elevation	Volume
1420	875
X	897
1422	1687

X= **1420.1**

Node 59A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1421	-	-	-	-
1422	4,043	2,021.50	75	75
1424	9,900	13,943.00	516	591
1426	14,900	24,800.00	919	1,510

Debris Production Volume Required (c.y.) = **1,230**
Basin Capacity Provided (c.y.) = **1,510**
Debris Cone Elevation = **1,425.4**

Elevation	Volume
1424	591
X	1230
1426	1510
X=	**1425.4**

Node 60A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1285	-	-	-	-
1286	13,733	6,866.50	254	254
1287	17,590	15,661.50	580	834

Debris Production Volume Required (c.y.) = **538**

Basin Capacity Provided (c.y.) = **834**

Debris Cone Elevation = **1,286.5**

Elevation	Volume
1286	254
X	538
1287	834
X=	**1286.5**

Node 61A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1276	-	-	-	-
1278	19,576	19,576.00	725	725
1284	28,341	143,751.00	5,324	6,049

Debris Production Volume Required (c.y.) = **5,676**

Basin Capacity Provided (c.y.) = **6,049**

Debris Cone Elevation = **1,283.6**

Elevation	Volume
1278	725
X	5676
1284	6049
X=	**1283.6**

Node 62A

Elevation	Area (ft^2)	Volume (ft^3)	Volume (cy)	Capacity (cy)
1245	-	-	-	-
1246	20,600	10,300.00	381	381
1252	28,451	147,153.00	5,450	5,832

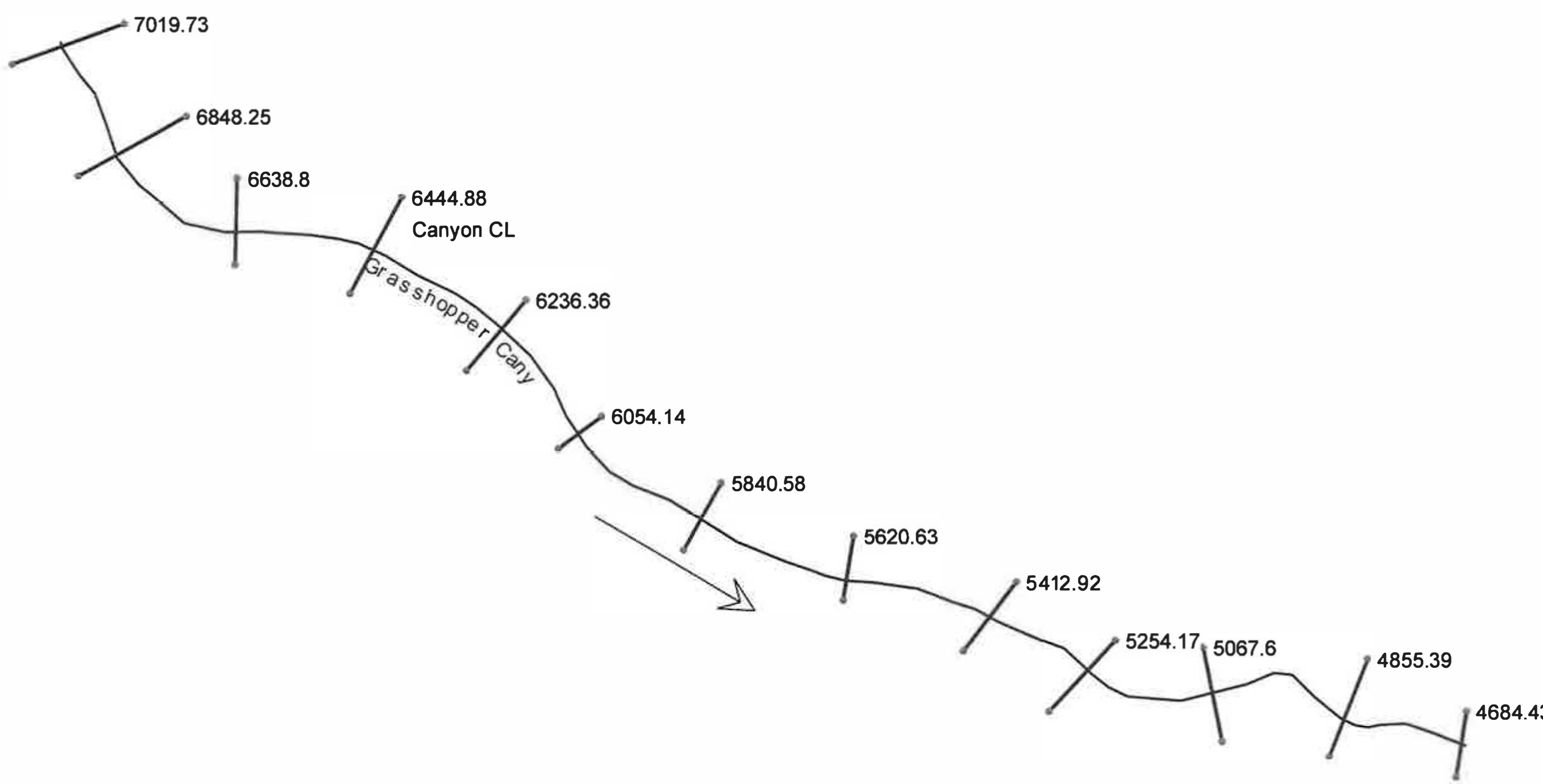
Debris Production Volume Required (c.y.) = **4,856**

Basin Capacity Provided (c.y.) = **5,832**

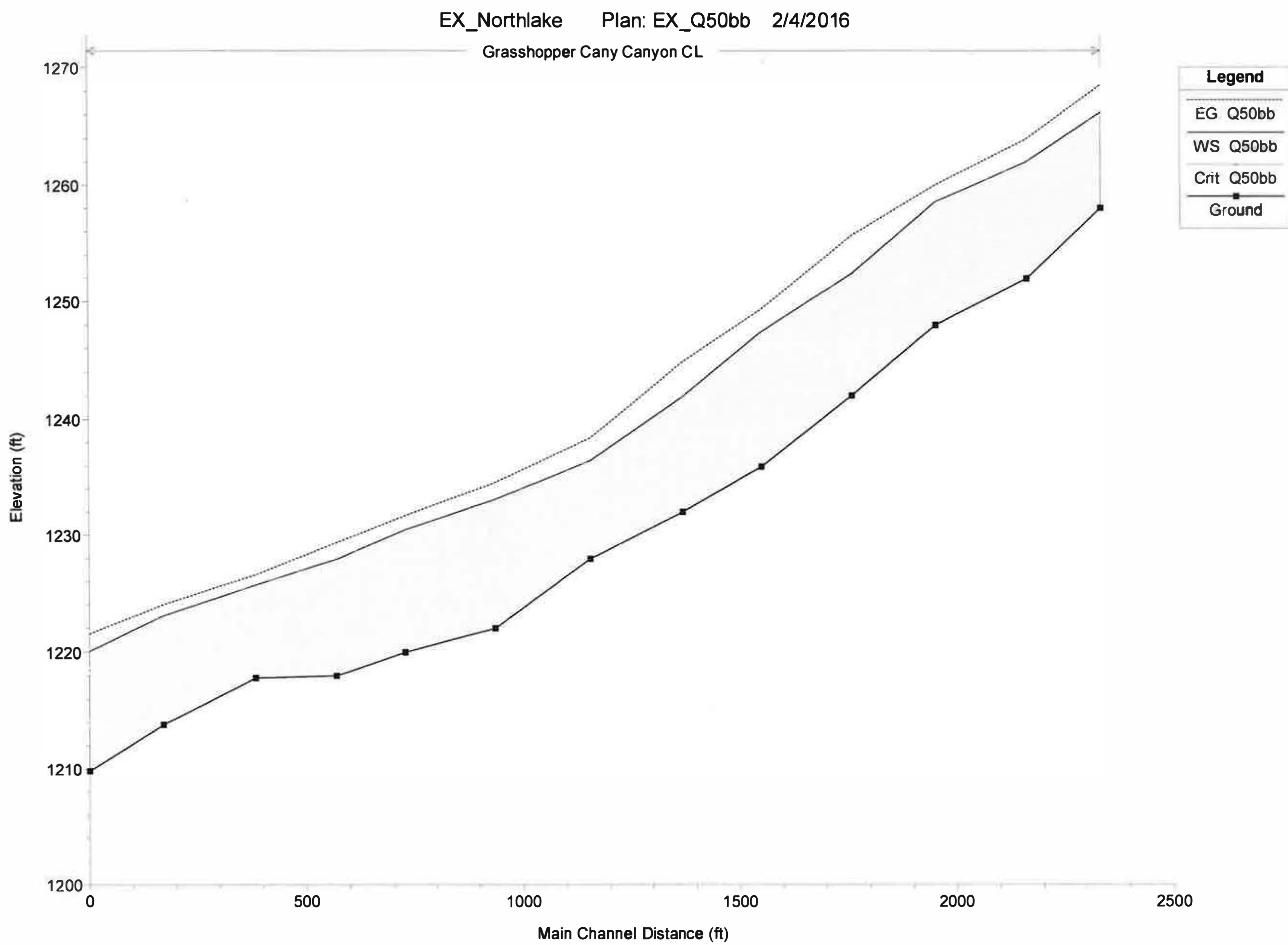
Debris Cone Elevation = **1,251.3**

Elevation	Volume
1246	381
X	4856
1252	5450
X=	**1251.3**

Section 6

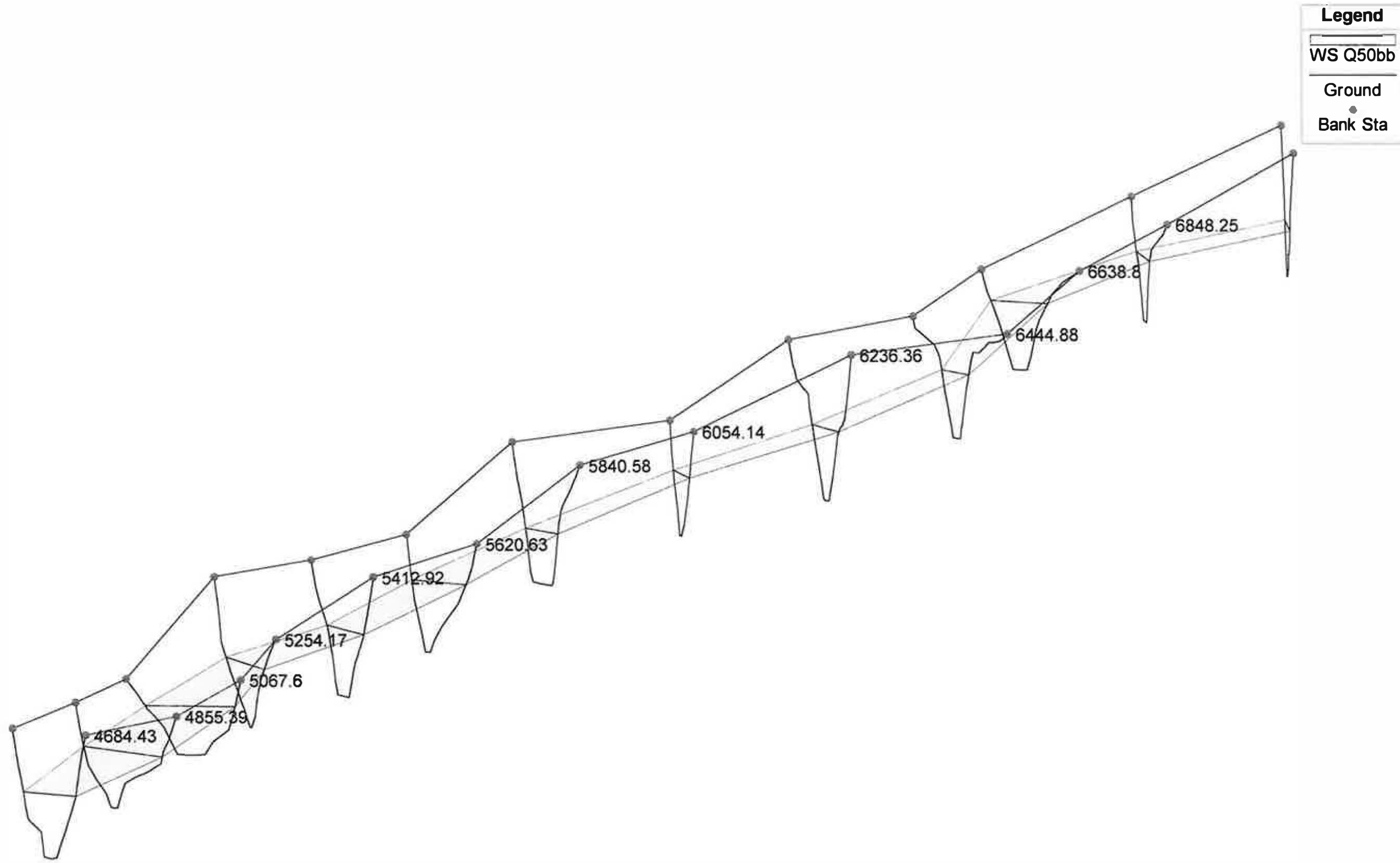


EXISTING CONDITION



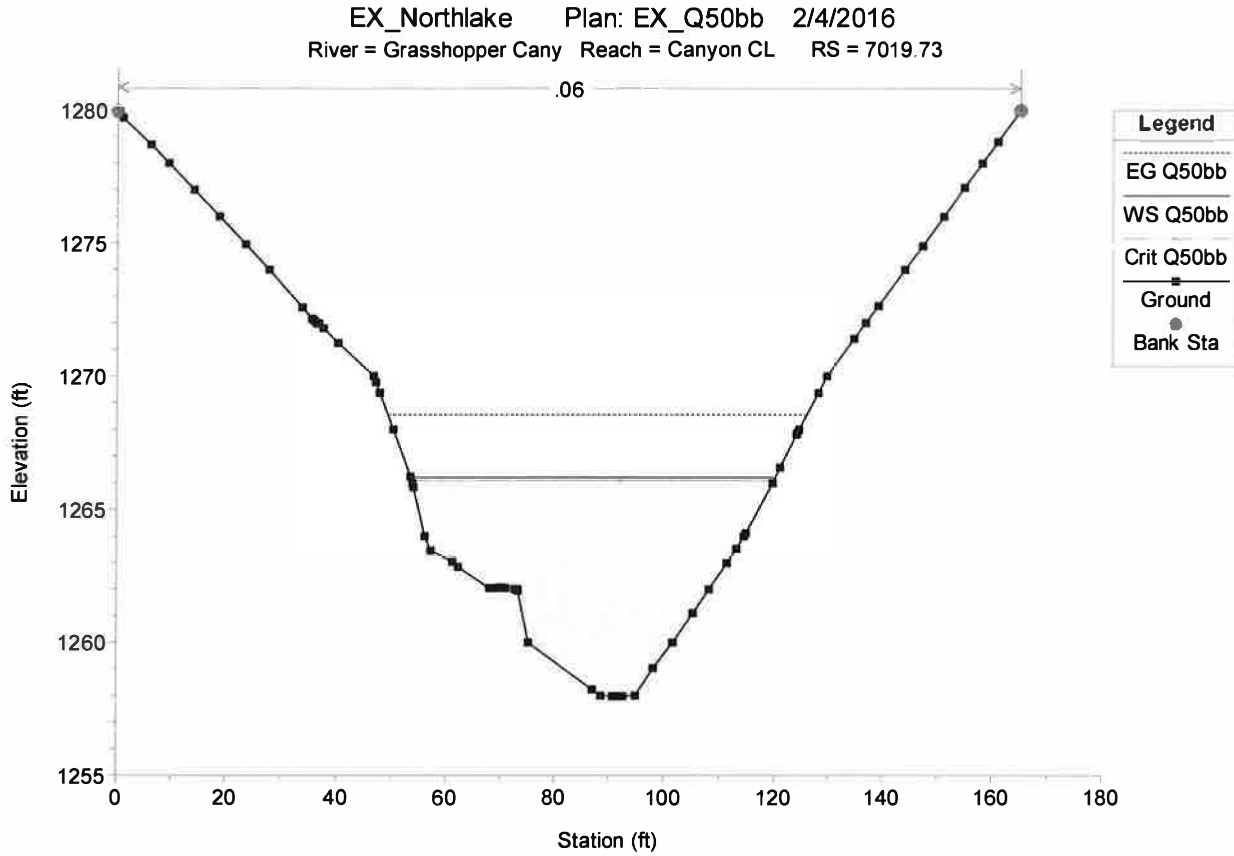
EX_Northlake Plan: EX_Q50bb 2/4/2016
Grasshopper Cany Canyon CL
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Elevation (ft)
1270
1260
1250
1240
1230
1220
1210
1200
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

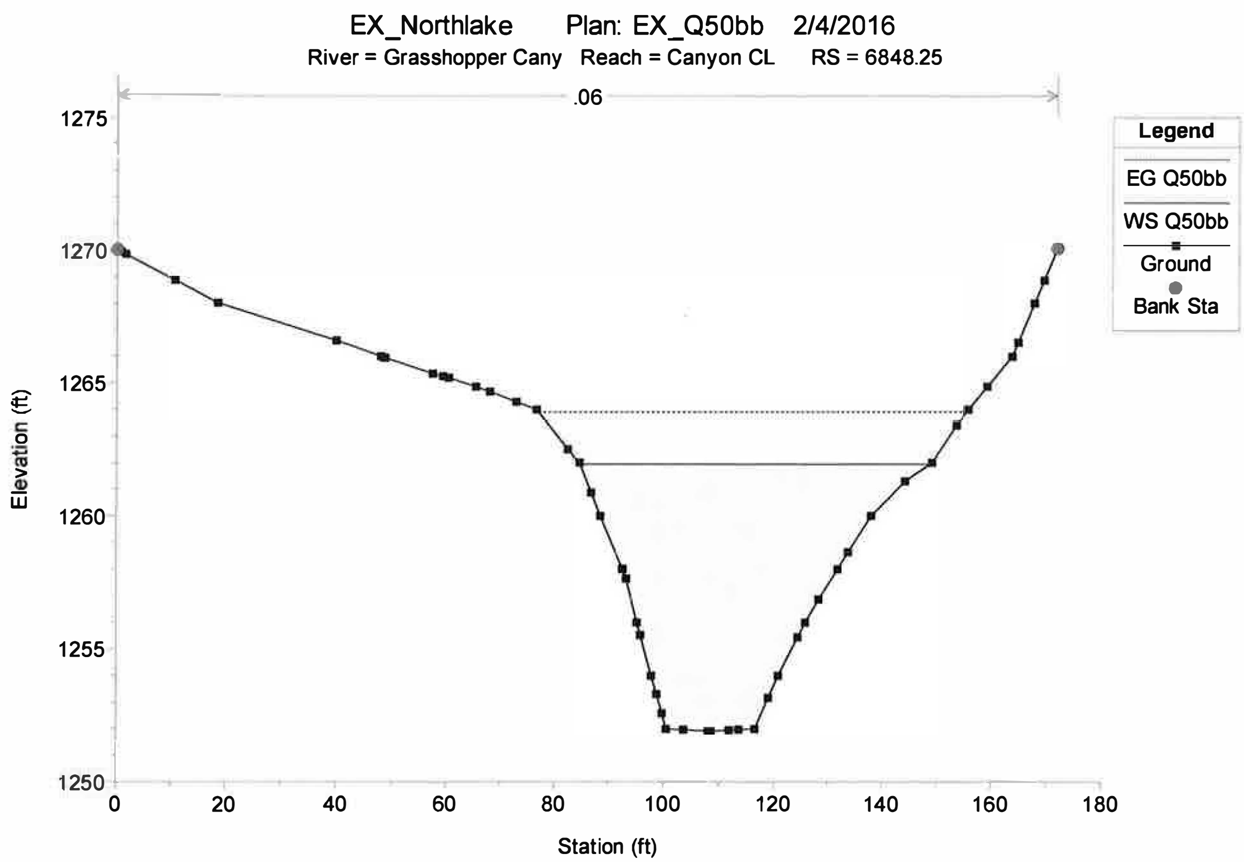
EX_Northlake Plan: EX_Q50bb 2/4/2016

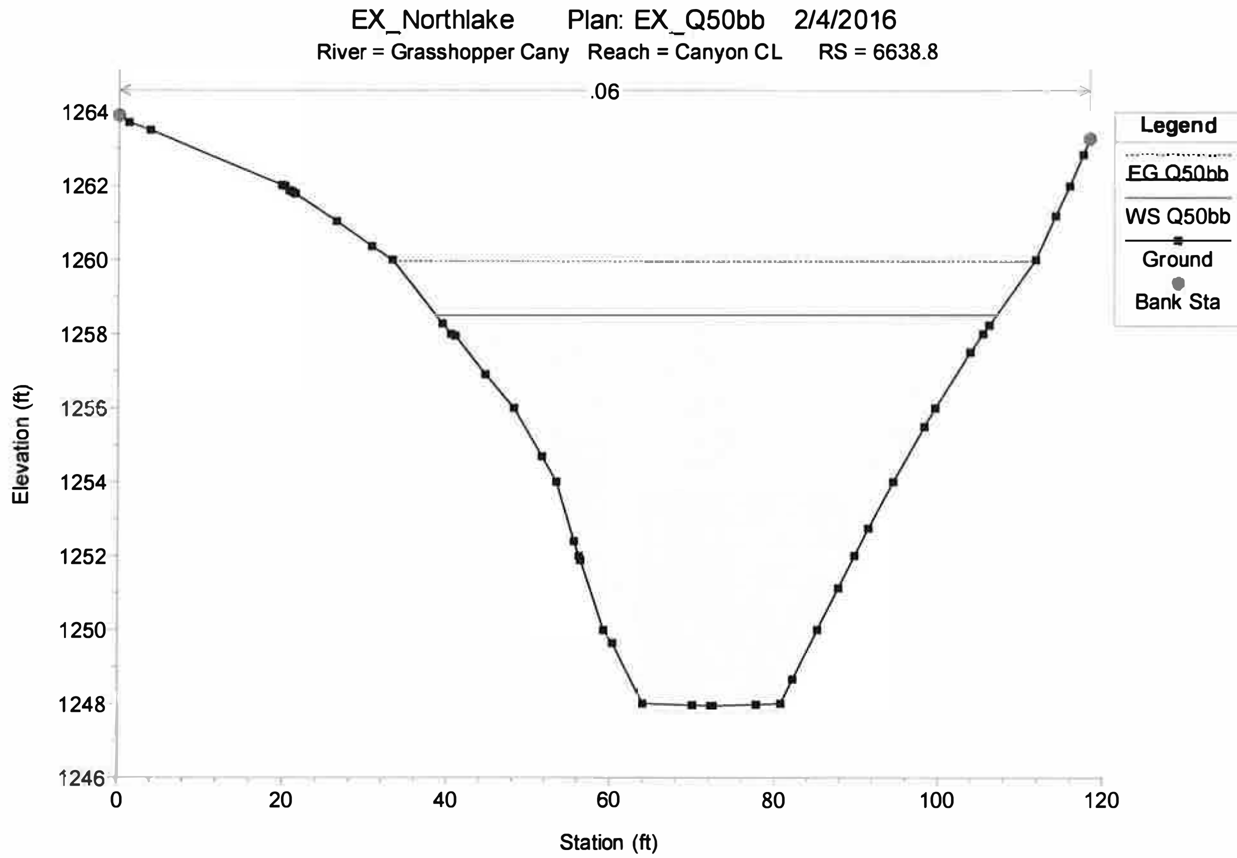


HEC-RAS Plan: EX_Q50bb River: Grasshopper Cany Reach: Canyon CL Profile: Q50bb

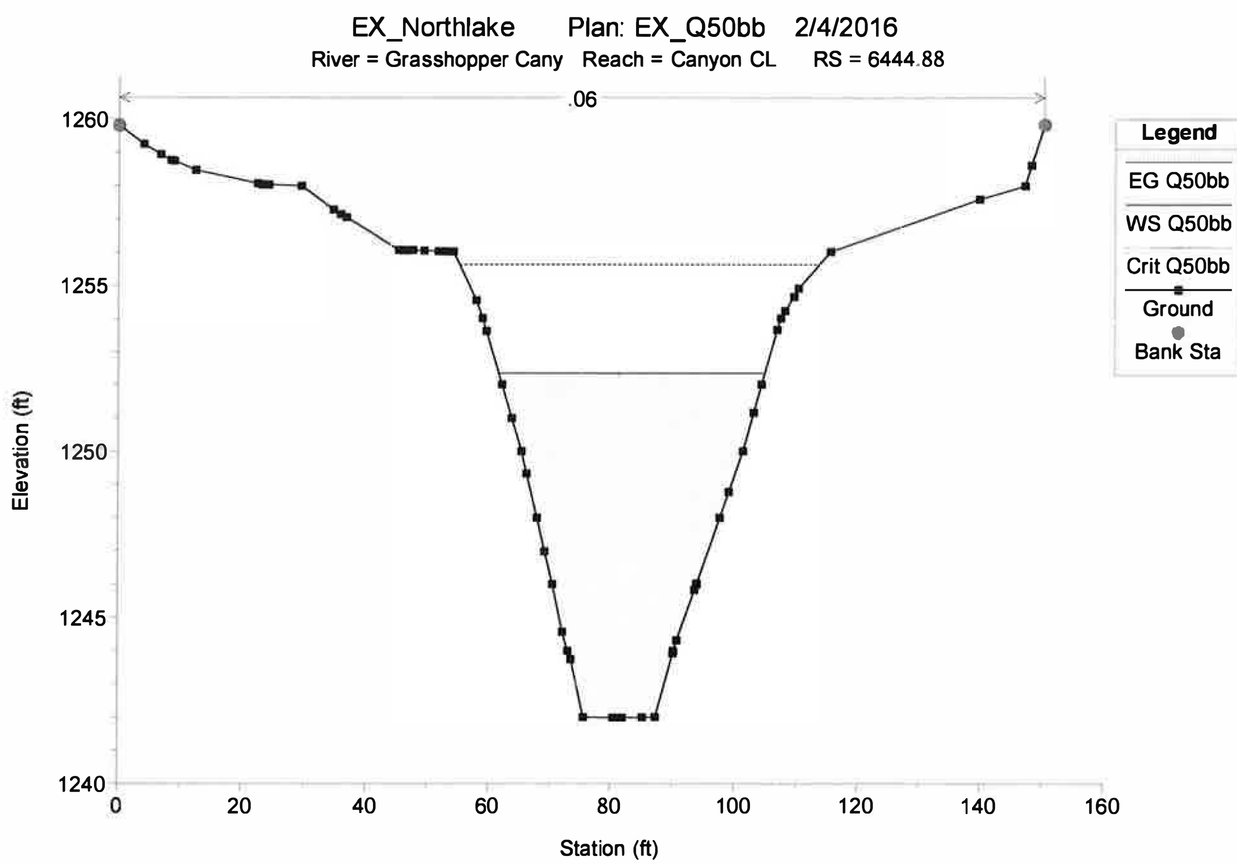
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Canyon CL	7019.73	Q50bb	4064.80	1257.97	1266.20	1266.09	1268.54	0.031074	12.29	330.62	66.63	0.97
Canyon CL	6848.25	Q50bb	4064.80	1251.91	1261.94		1263.91	0.022616	11.27	360.55	63.85	0.84
Canyon CL	6638.8	Q50bb	4064.80	1247.94	1258.50		1259.96	0.014873	9.70	419.04	68.41	0.69
Canyon CL	6444.88	Q50bb	4064.80	1241.98	1252.34	1252.34	1255.60	0.033919	14.50	280.29	43.15	1.00
Canyon CL	6236.36	Q50bb	4064.80	1235.88	1247.39		1249.32	0.018201	11.14	364.88	54.10	0.76
Canyon CL	6054.14	Q50bb	4064.80	1231.96	1241.91	1241.91	1244.85	0.032975	13.75	295.69	50.77	1.00
Canyon CL	5840.58	Q50bb	4064.80	1227.93	1236.38		1238.36	0.018187	11.28	360.22	51.68	0.75
Canyon CL	5620.63	Q50bb	4064.80	1222.00	1233.06		1234.53	0.015432	9.75	416.75	69.01	0.70
Canyon CL	5412.92	Q50bb	4064.80	1219.99	1230.43		1231.67	0.011811	8.92	455.75	70.91	0.62
Canyon CL	5254.17	Q50bb	4064.80	1218.00	1227.91		1229.35	0.018246	9.62	422.50	83.81	0.76
Canyon CL	5067.6	Q50bb	4064.80	1217.84	1225.69		1226.59	0.010948	7.63	533.06	103.53	0.59
Canyon CL	4855.39	Q50bb	4064.80	1213.80	1223.08		1224.03	0.013355	7.82	520.02	112.74	0.64
Canyon CL	4684.43	Q50bb	4064.80	1209.82	1220.07	1218.49	1221.55	0.015005	9.78	415.55	66.45	0.69


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 7019.73
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
1280
1275
1270
1265
1260
1255
Station (ft)
0
20
40
60
80
100
120
140
160
180

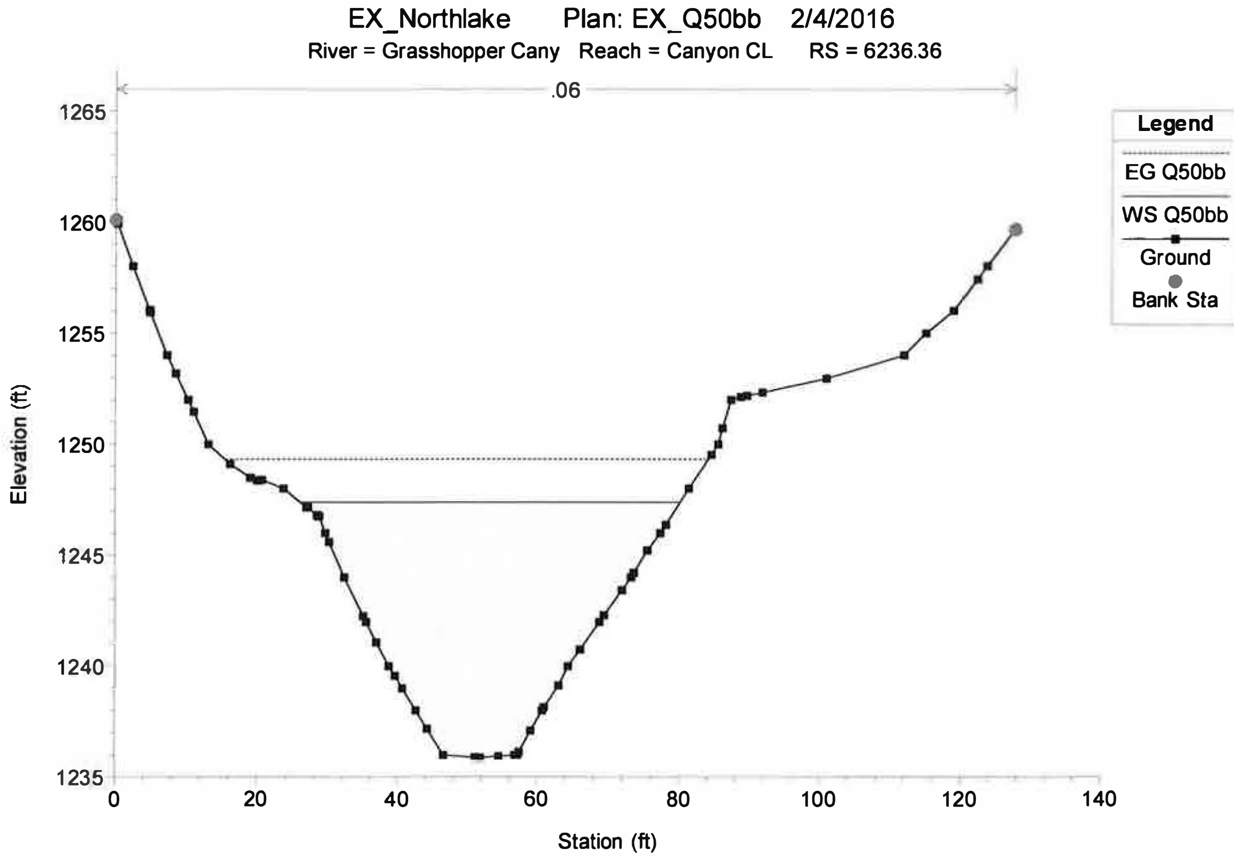

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6848.25
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1275
1270
1265
1260
1255
1250
Station (ft)
0
20
40
60
80
100
120
140
160
180

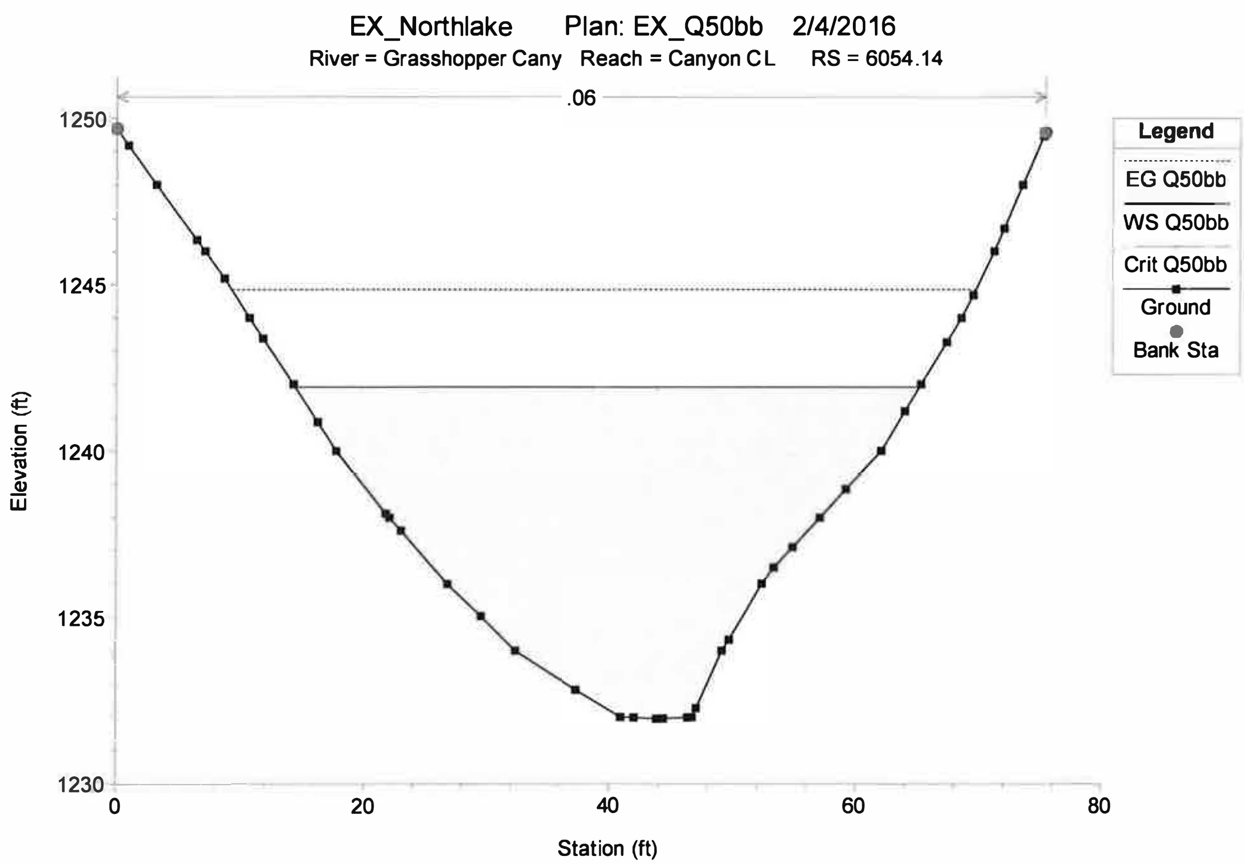


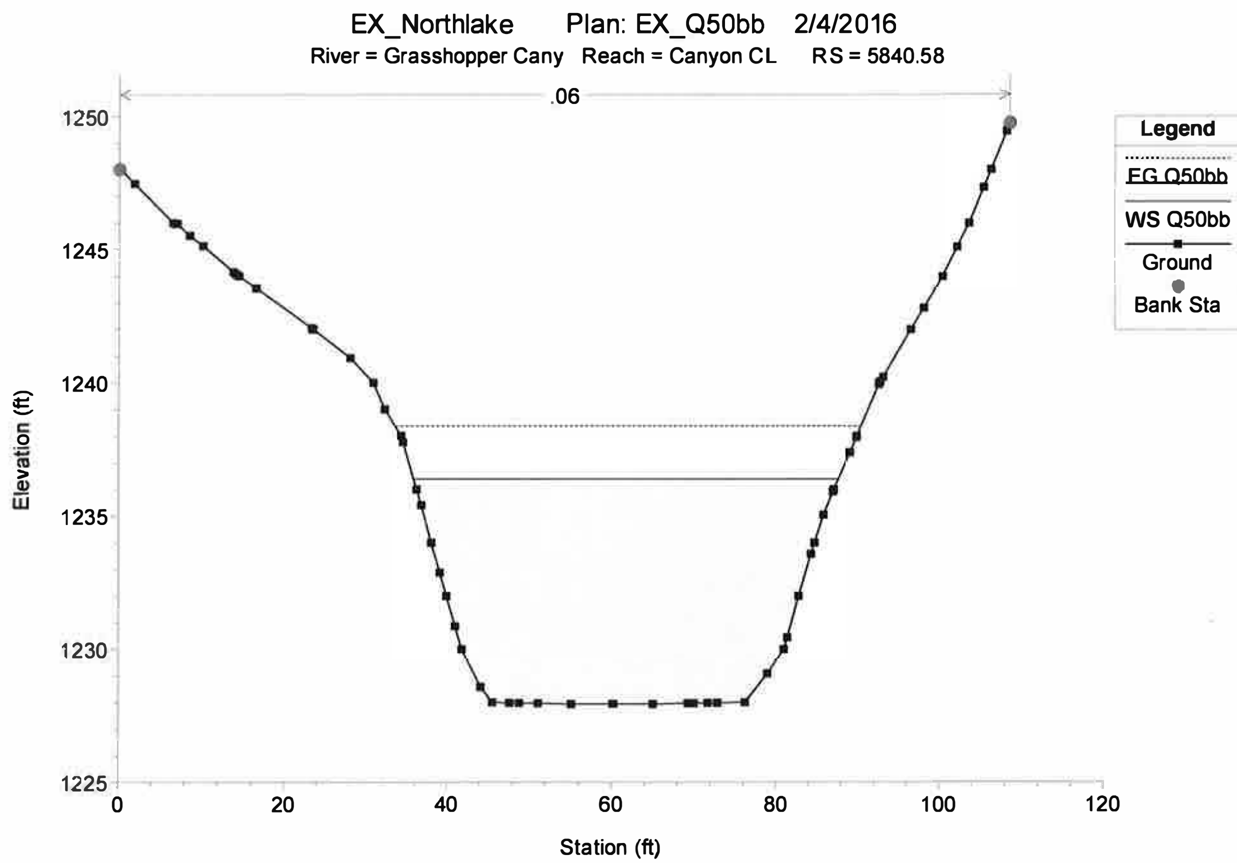
EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6638.8
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1264
1262
1260
1258
1256
1254
1252
1250
1248
1246
0
20
40
60
80
100
120
Station (ft)

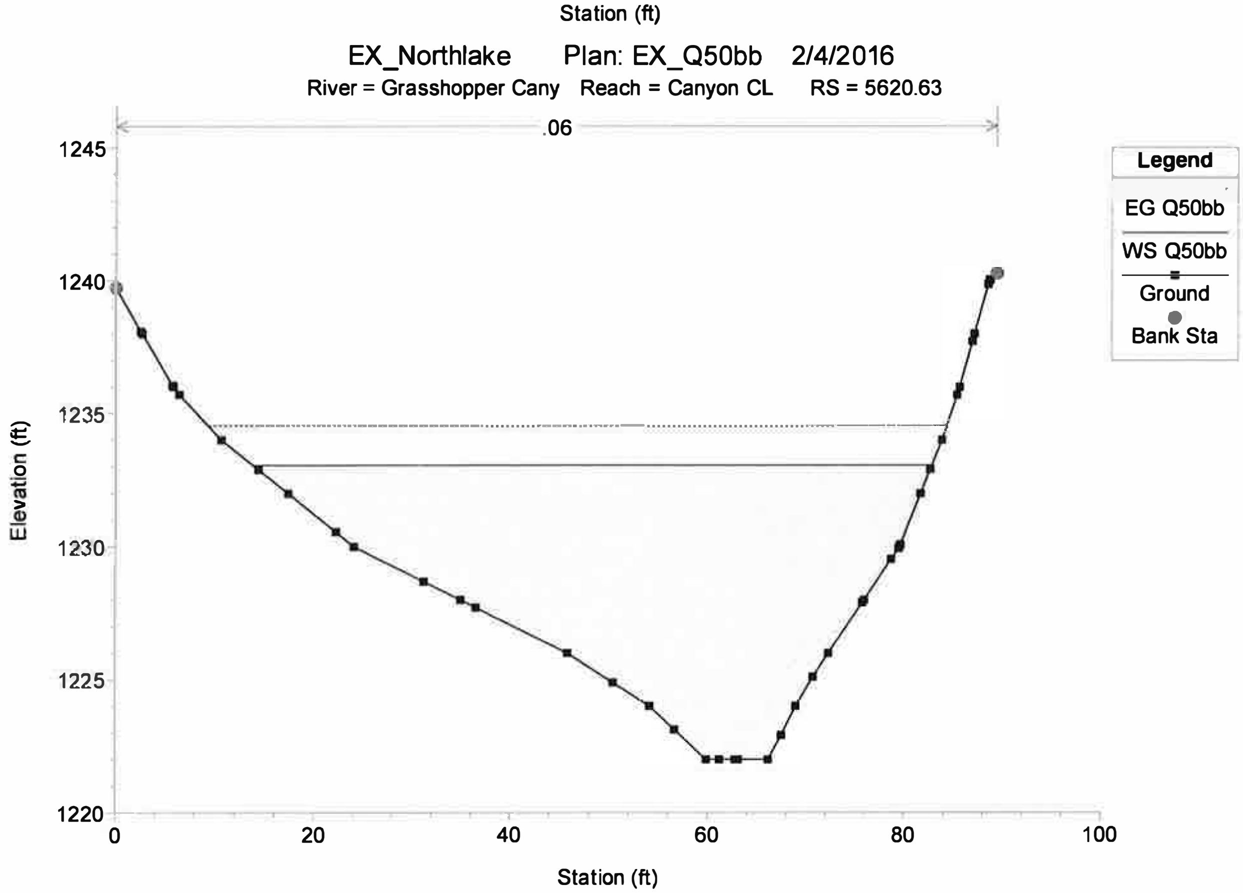


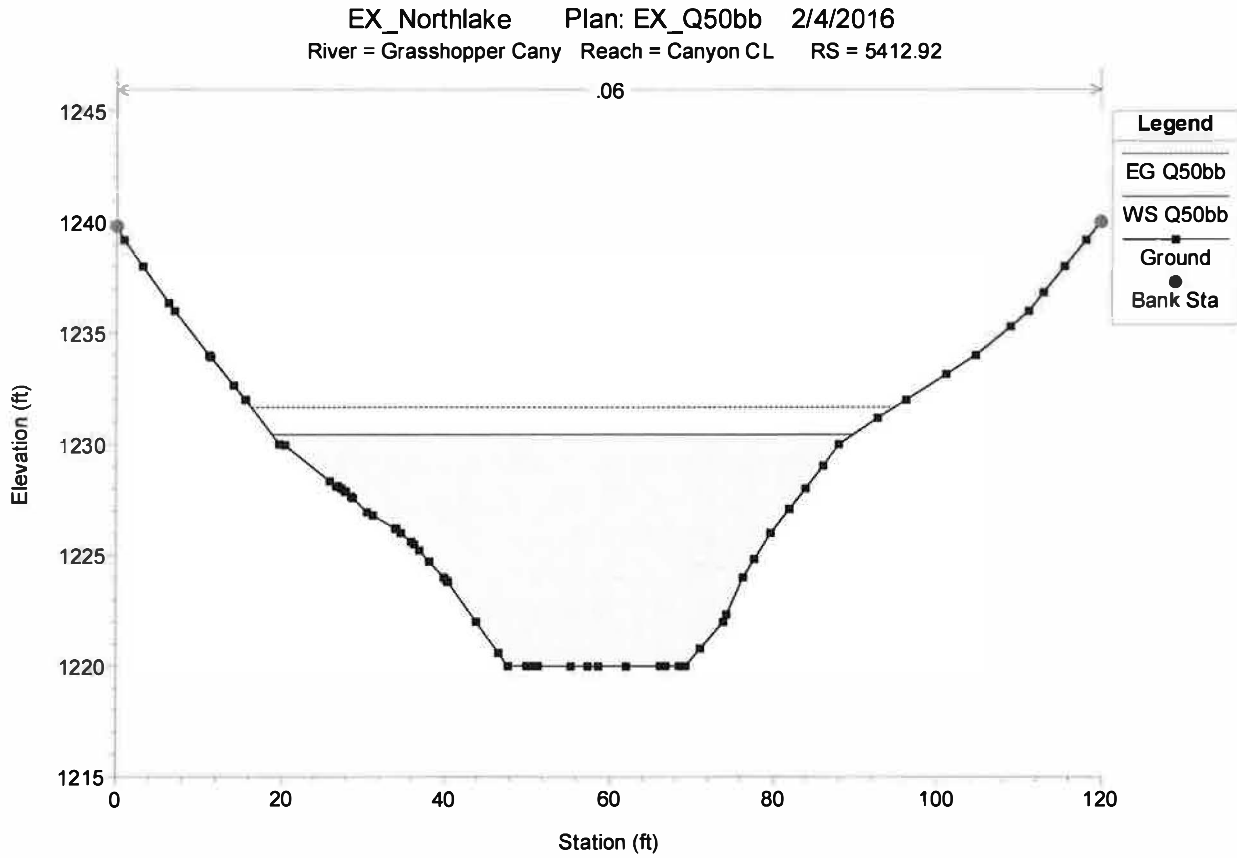
EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6444.88
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
1260
1255
1250
1245
1240
0
20
40
60
80
100
120
140
160
Station (ft)

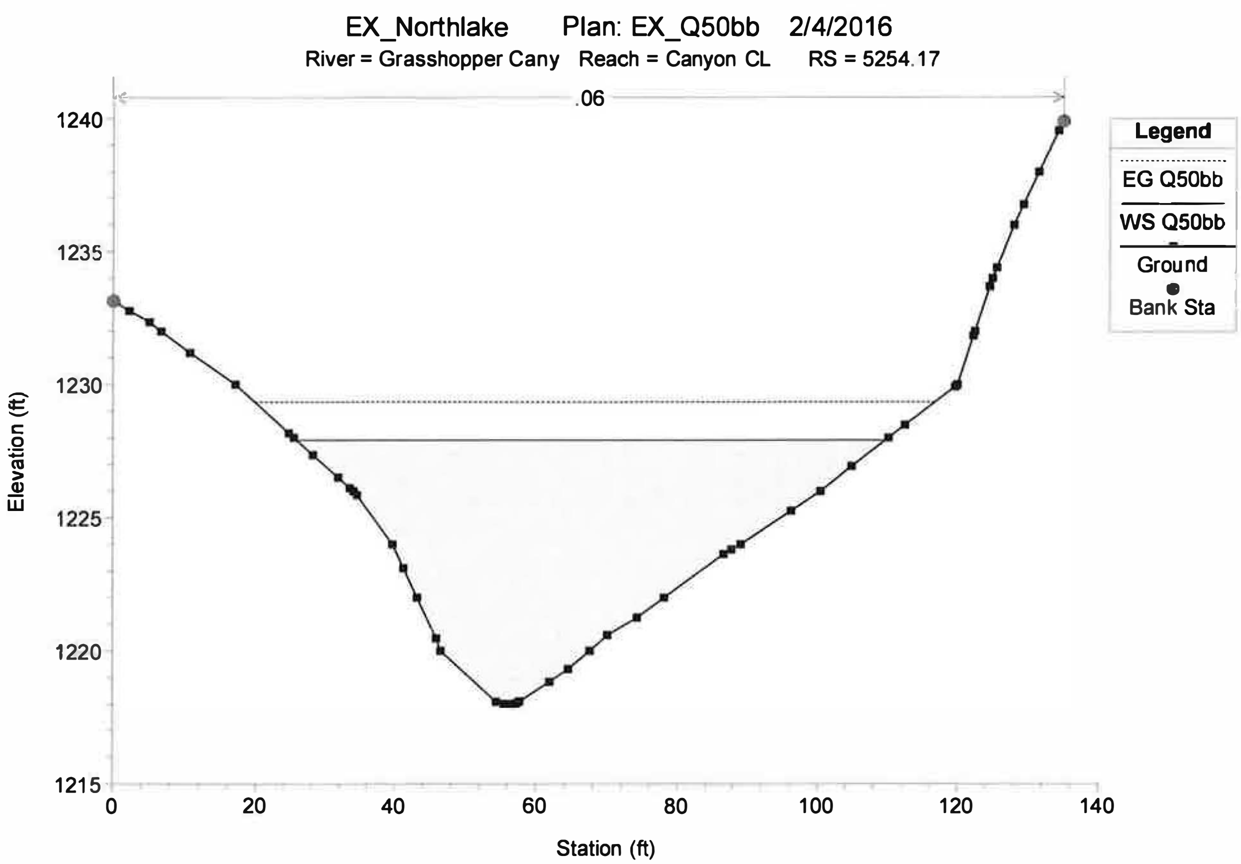

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6236.36
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1265
1260
1255
1250
1245
1240
1235
0
20
40
60
80
100
120
140
Station (ft)

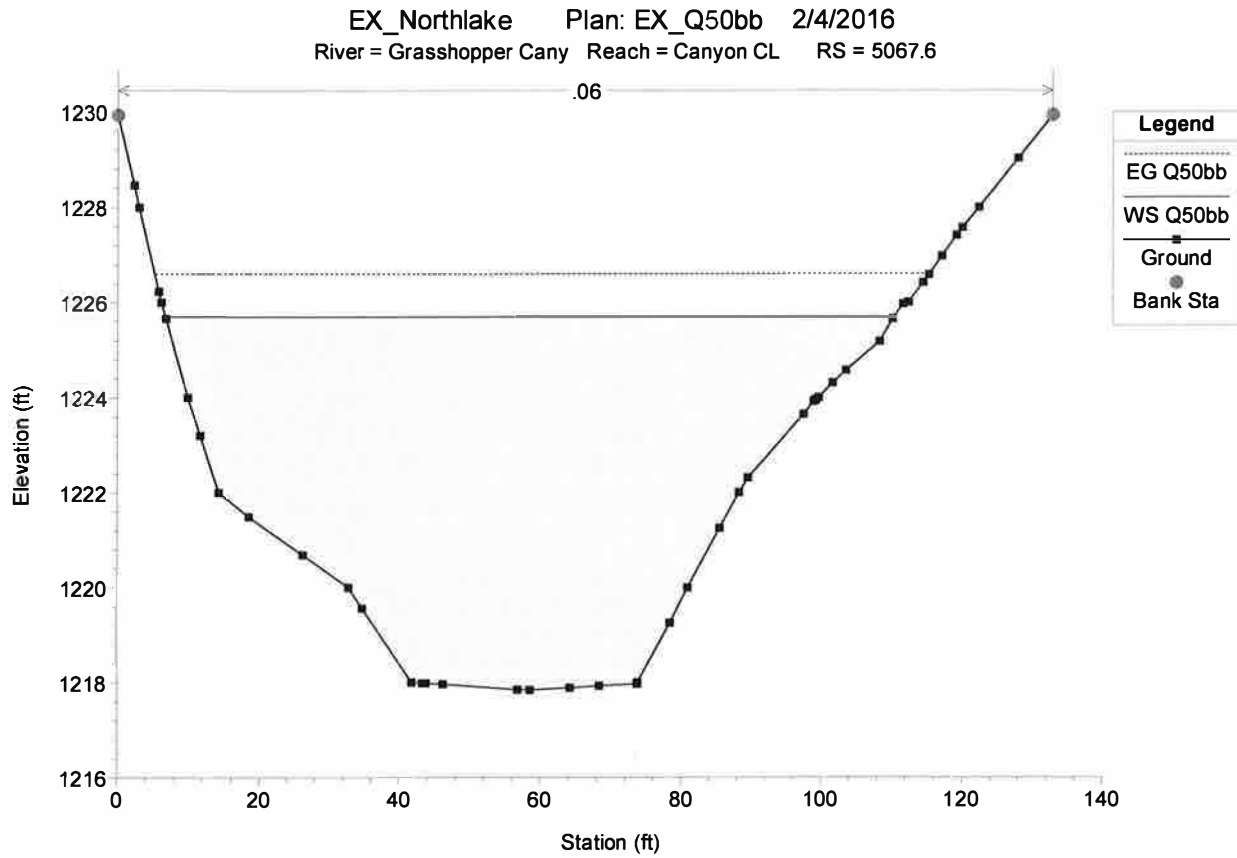

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 6054.14
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
1250
1245
1240
1235
1230
0
20
40
60
80
Station (ft)

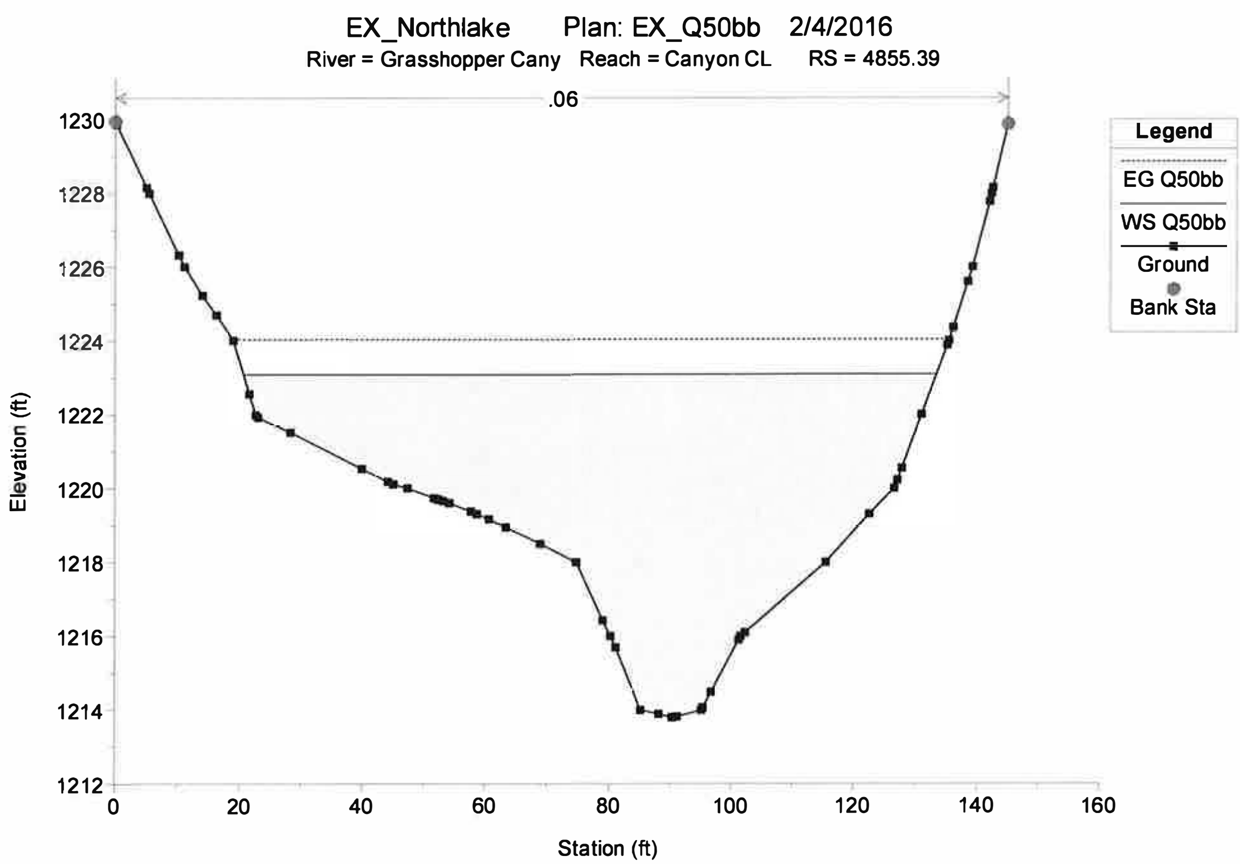

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5840.58
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1250
1245
1240
1235
1230
1225
0
20
40
60
80
100
120
Station (ft)

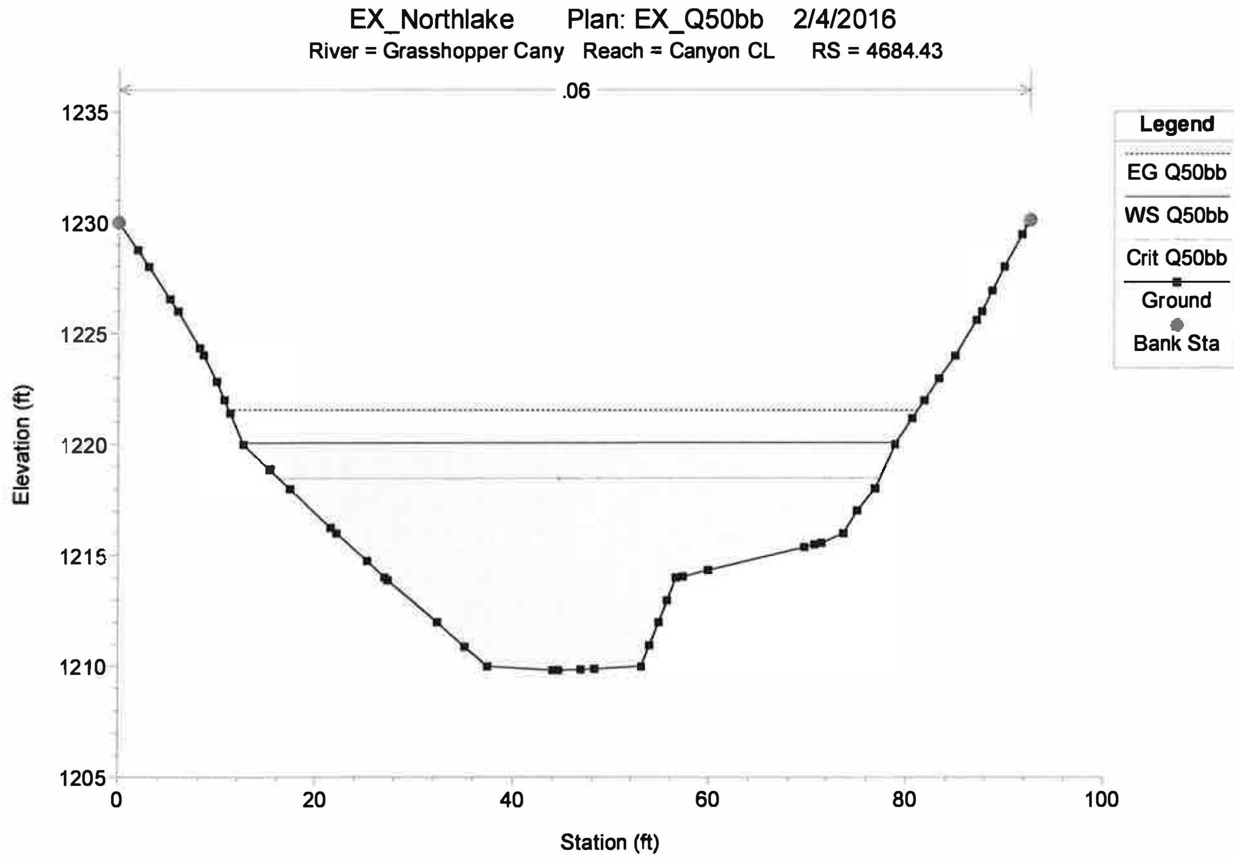

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5620.63
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1245
1240
1235
1230
1225
1220
0
20
40
60
80
100
Station (ft)

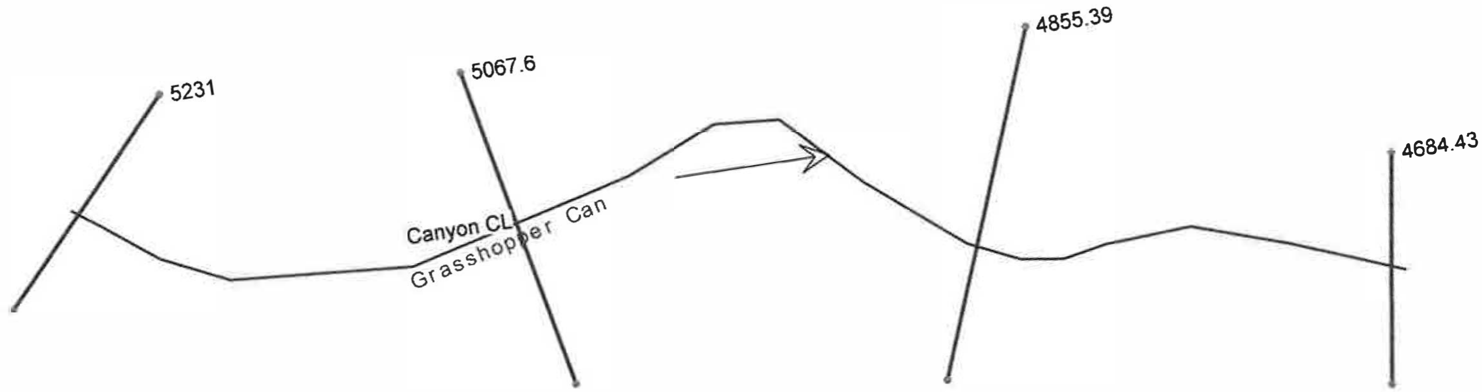

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5412.92
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1245
1240
1235
1230
1225
1220
1215
0
20
40
60
80
100
120
Station (ft)


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5254.17
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1240
1235
1230
1225
1220
1215
0
20
40
60
80
100
120
140
Station (ft)

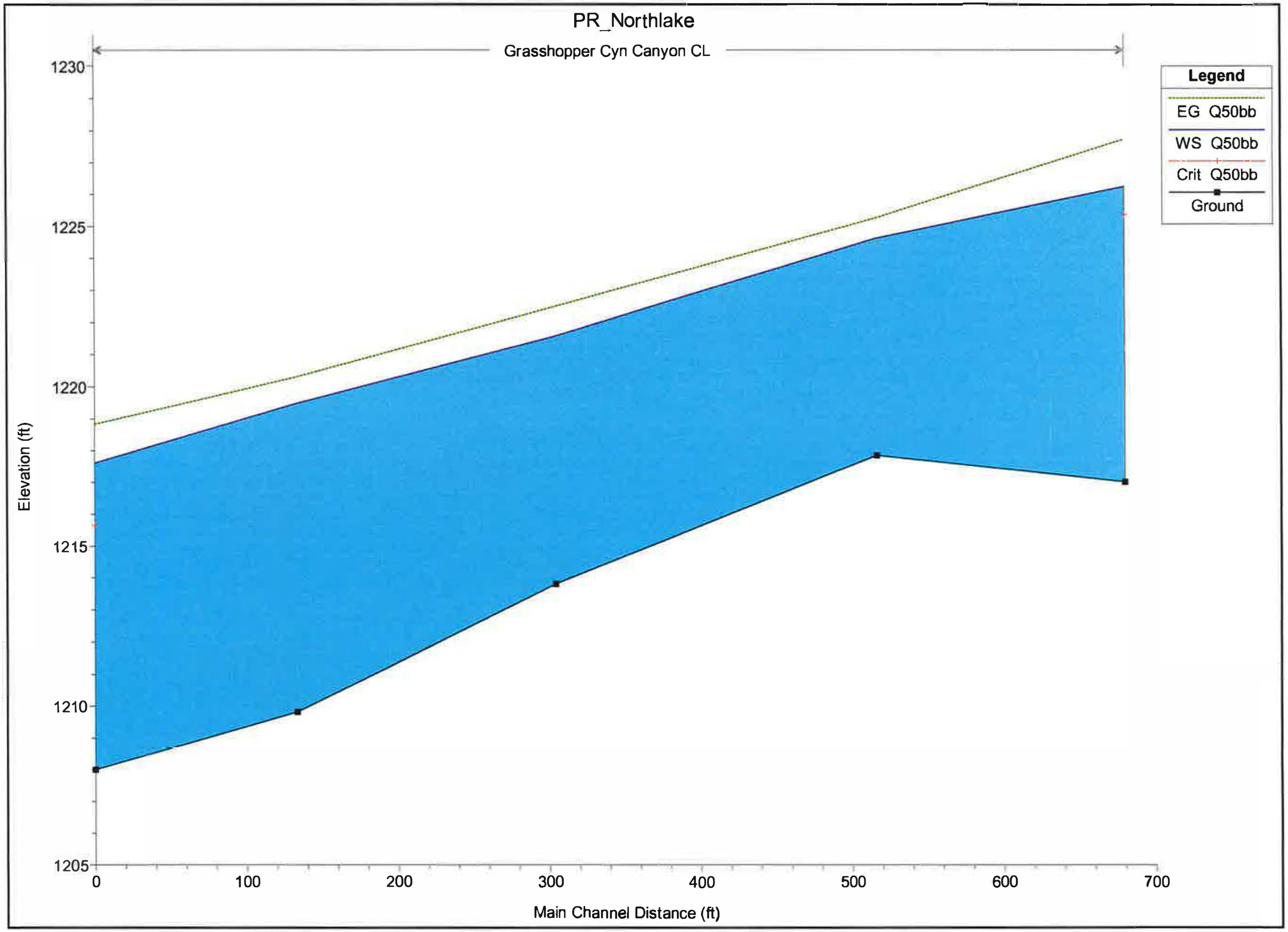

EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 5067.6
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1230
1228
1226
1224
1222
1220
1218
1216
0
20
40
60
80
100
120
140


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 4855.39
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
1212
0
20
40
60
80
100
120
140
160


EX_Northlake Plan: EX_Q50bb 2/4/2016
River = Grasshopper Cany Reach = Canyon CL RS = 4684.43
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1235
1230
1225
1220
1215
1210
1205
0
20
40
60
80
100

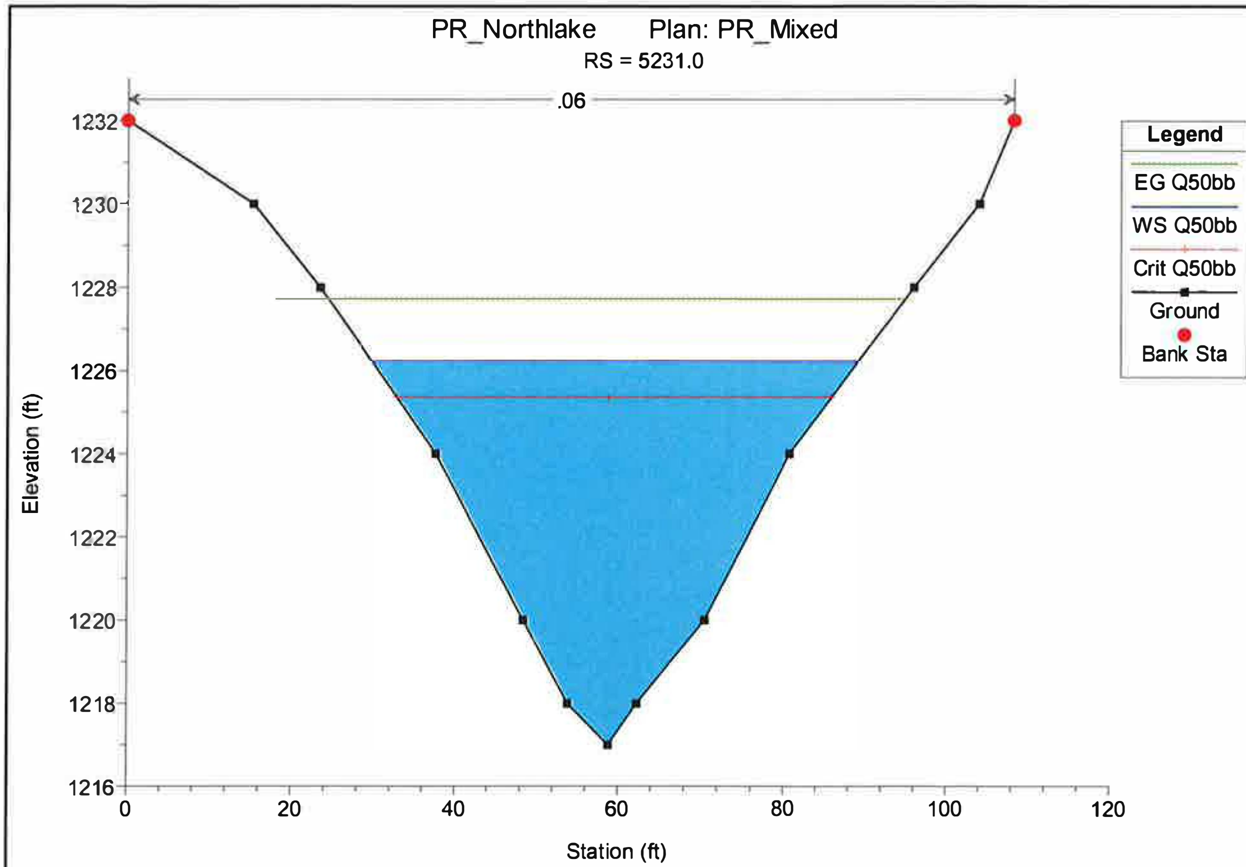


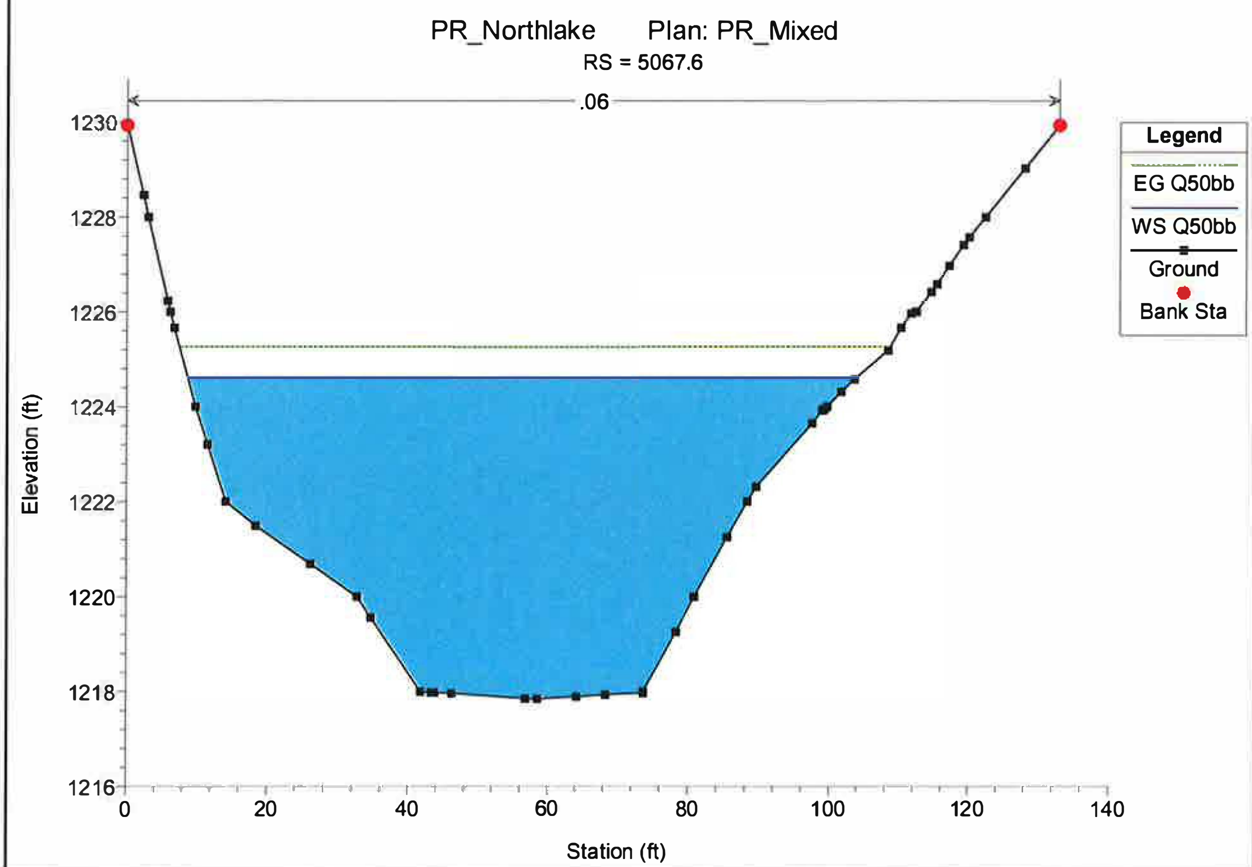
PROPOSED CONDITION

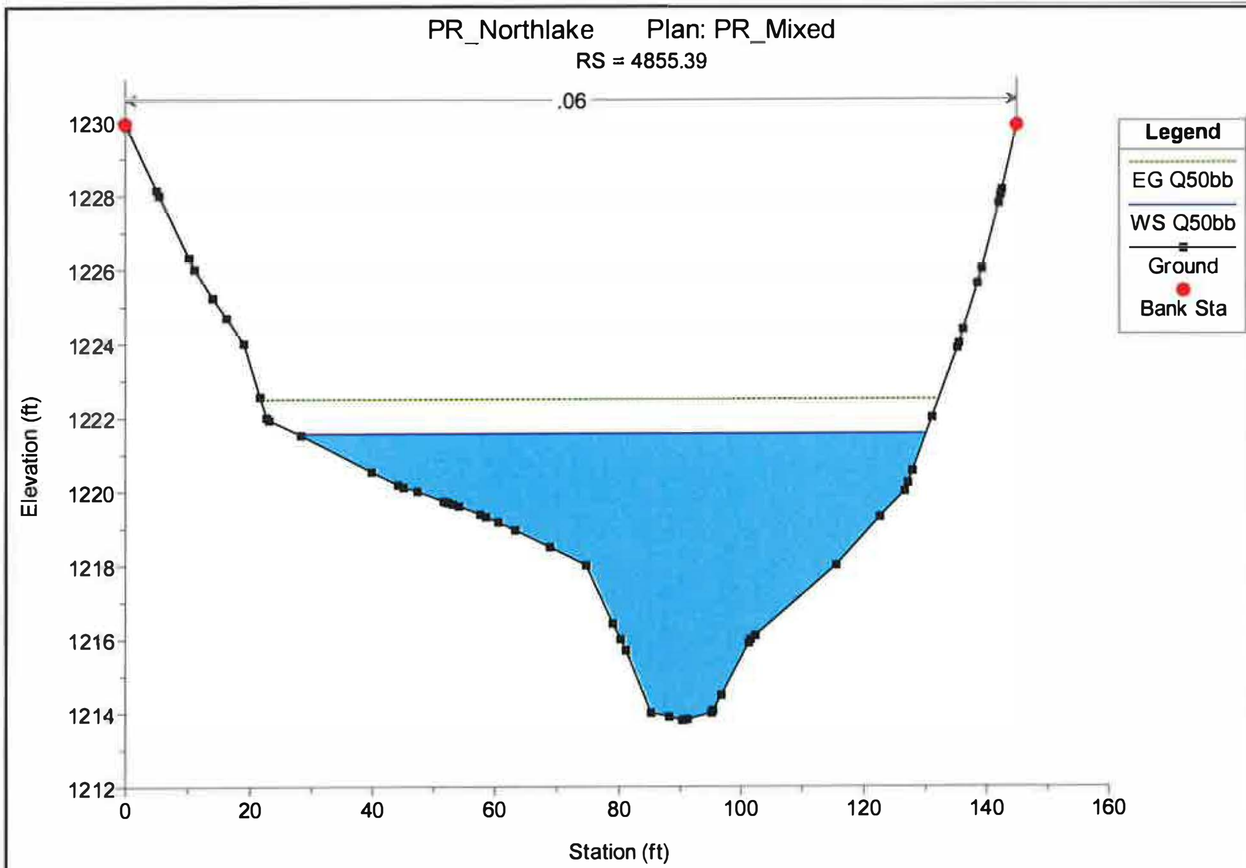

PR_Northlake
Grasshopper Cyn Canyon CL
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Elevation (ft)
1205
1210
1215
1220
1225
1230
Main Channel Distance (ft)
0
100
200
300
400
500
600
700

HEC-RAS Plan: PR_Mixed River: Grasshopper Cyn Reach: Canyon CL Profile: Q50bb

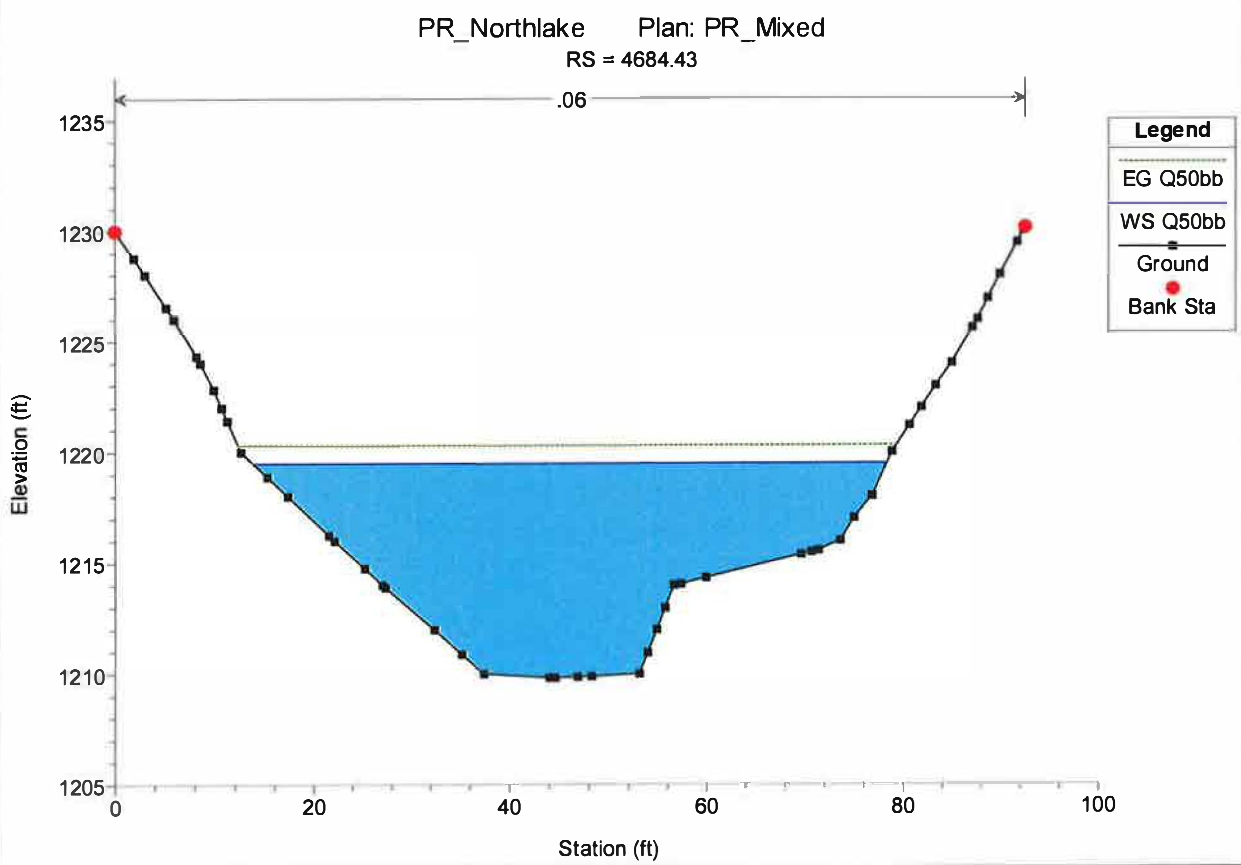
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Canyon CL	5231.0	Q50bb	2739.90	1217.00	1226.23	1225.36	1227.73	0.021327	9.82	279.06	59.49	0.80
Canyon CL	5067.6	Q50bb	2739.90	1217.84	1224.61		1225.26	0.009384	6.44	425.70	95.19	0.54
Canyon CL	4855.39	Q50bb	2739.90	1213.80	1221.57		1222.49	0.018924	7.71	355.21	102.43	0.73
Canyon CL	4684.43	Q50bb	2739.90	1209.82	1219.50		1220.31	0.008959	7.25	378.03	64.57	0.53
Canyon CL	4551.13	Q50bb	2739.90	1208.00	1217.62	1215.67	1218.84	0.013011	8.88	308.45	50.86	0.64


PR_Northlake Plan: PR_Mixed
RS = 5231.0
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1216
1218
1220
1222
1224
1226
1228
1230
1232
0
20
40
60
80
100
120

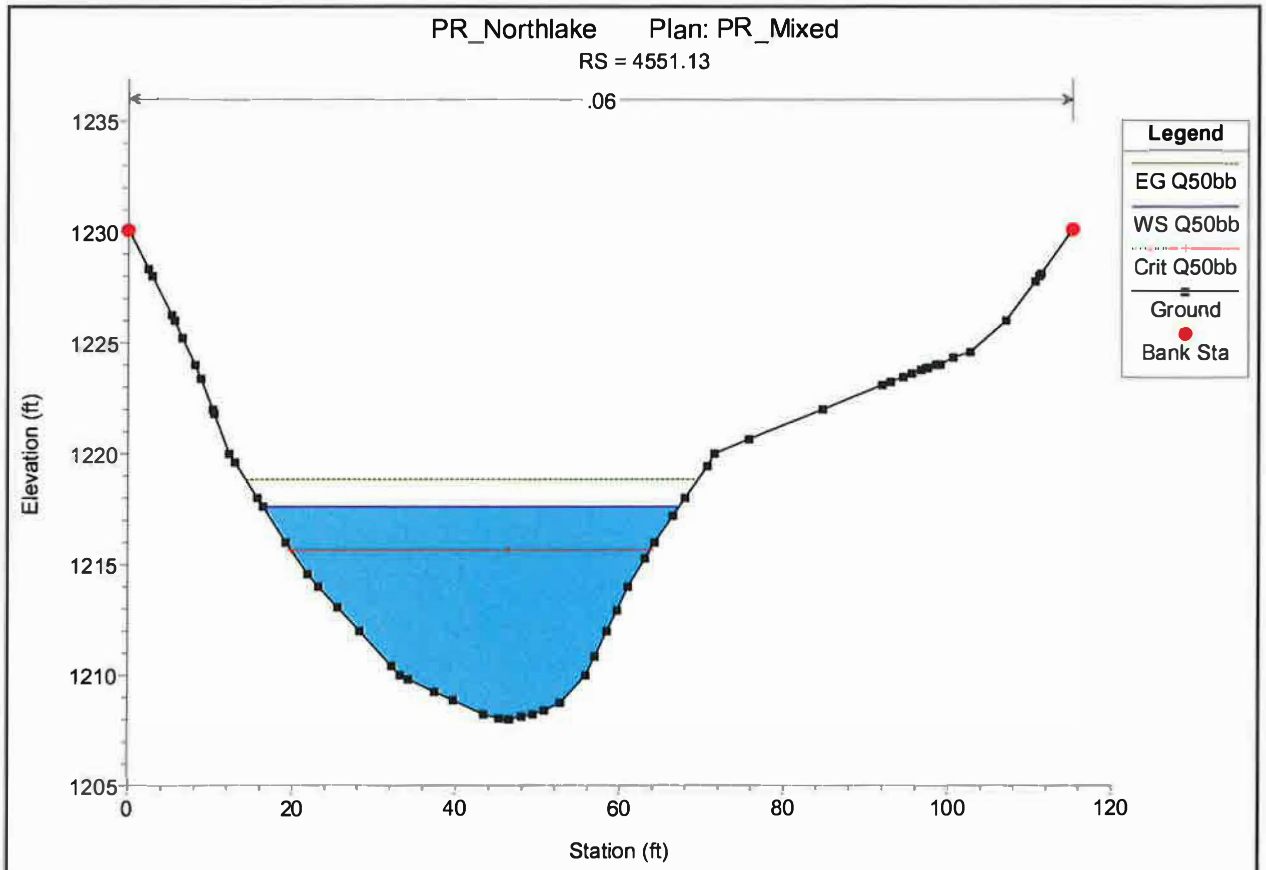

PR_Northlake Plan: PR_Mixed
RS = 5067.6
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
Station (ft)
1216
1218
1220
1222
1224
1226
1228
1230
0
20
40
60
80
100
120
140



PR_Northlake Plan: PR_Mixed
RS = 4855.39
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1230
1228
1226
1224
1222
1220
1218
1216
1214
1212
0
20
40
60
80
100
120
140
160
Station (ft)



PR_Northlake Plan: PR_Mixed
RS = 4684.43
.06
Legend
EG Q50bb
WS Q50bb
Ground
Bank Sta
Elevation (ft)
1235
1230
1225
1220
1215
1210
1205
0
20
40
60
80
100
Station (ft)



PR_Northlake Plan: PR_Mixed
RS = 4551.13
.06
Legend
EG Q50bb
WS Q50bb
Crit Q50bb
Ground
Bank Sta
Elevation (ft)
1235
1230
1225
1220
1215
1210
1205
0
20
40
60
80
100
120
Station (ft)

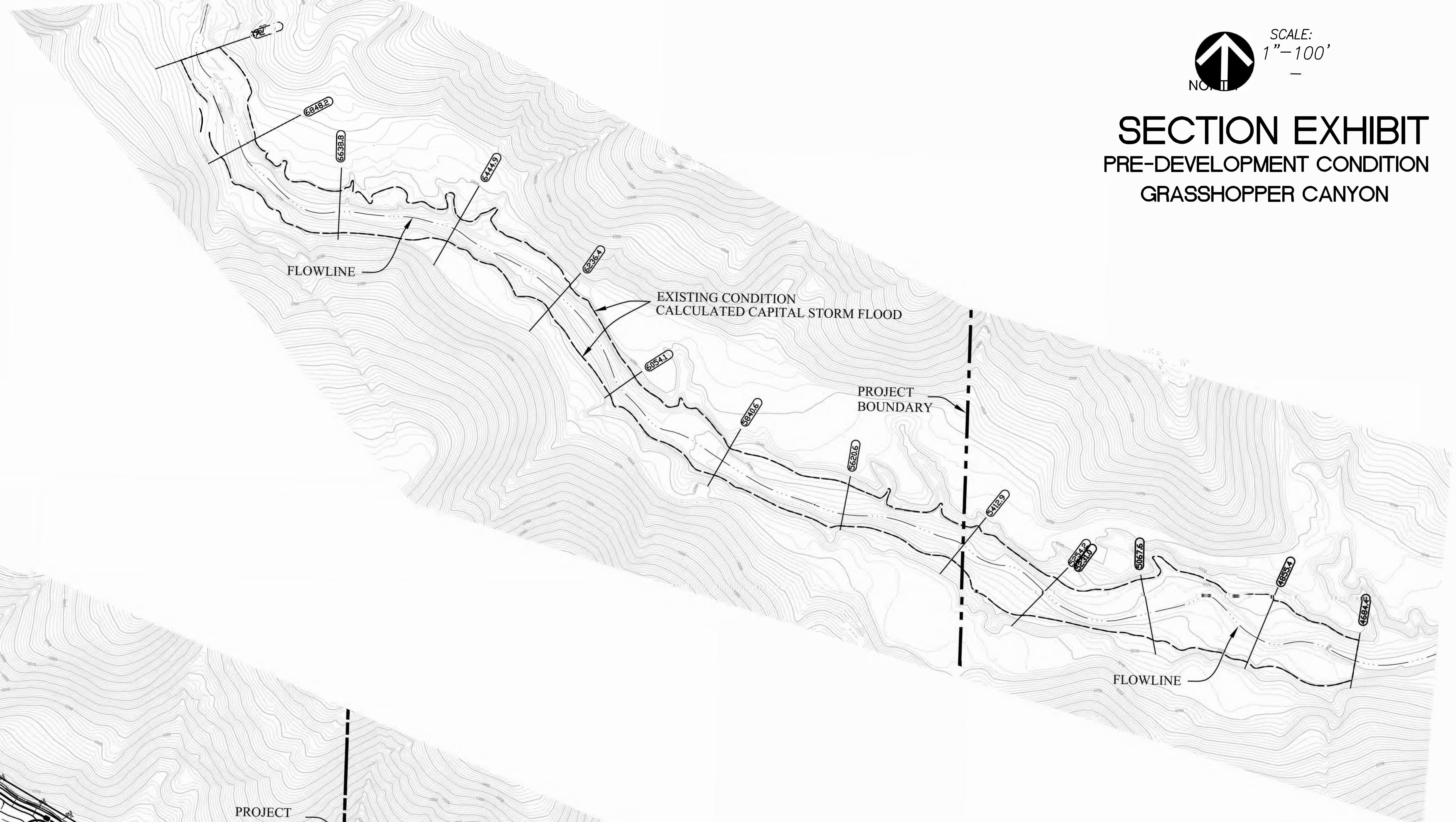
SECTION EXHIBIT

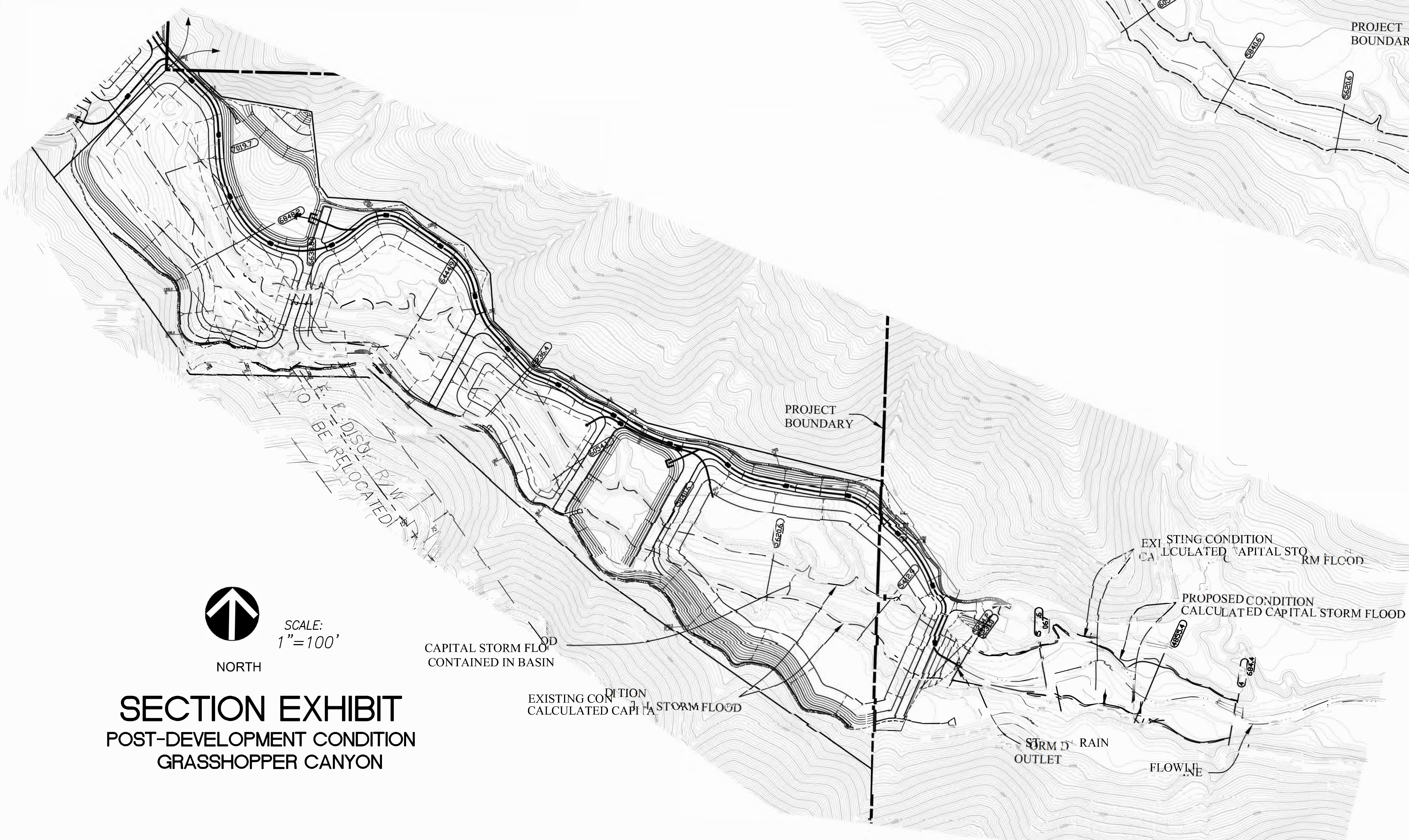
PRE-DEVELOPMENT CONDITION

GRASSHOPPER CANYON

NORTH

SCALE: 1"=100'





NORTH

SCALE: 1"=100'

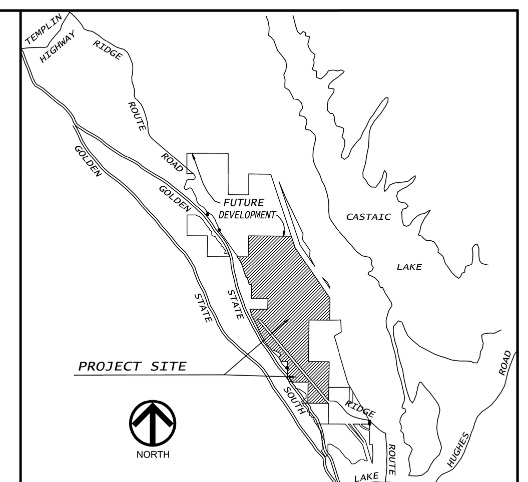
SECTION EXHIBIT

POST-DEVELOPMENT CONDITION

GRASSHOPPER CANYON

HYDROLOGIC SUMMARY

Node Number	Area (ac)	Qb (cfs)	Tc (min)	Freq (yrs)	Qbb (cfs)	DPV (cy)
1A	40.9	81.8	12	50	132.5	8,947
2A	50.6	111.8	10	50	181.1	11,069
3A	48.8	107.8	10	50	174.6	10,675
4A	37.8	87.6	9	50	141.9	8,269
5A	46.9	98.3	11	50	159.2	10,259
8B	55.4	122.4	10	50	198.3	12,119
9B	51.0	106.8	11	50	173.0	11,156
11A	46.3	92.6	12	50	150.0	10,128
12A	46.7	93.4	12	50	151.3	10,216
13A	55.0	115.2	11	50	186.6	12,031
14A	52.8	110.6	11	50	179.2	11,550
15A	52.6	105.2	12	50	170.4	11,506
16A	23.5	51.9	10	50	84.1	5,141
19C	26.0	68.0	7	50	110.2	5,688
20C	48.7	90.1	14	50	146.0	10,653
22A	49.7	89.0	15	50	144.2	10,872
25D	45.0	94.3	11	50	152.8	9,844
26D	31.1	62.2	12	50	100.8	6,803
27D	49.3	98.6	12	50	159.7	10,784
28D	47.5	87.9	14	50	142.4	10,391
29D	29.2	61.2	11	50	99.1	6,388
30D	48.6	107.4	10	50	174.0	10,631
31D	41.1	78.9	13	50	127.8	8,991
35A	41.3	79.3	13	50	128.5	9,034
36A	46.4	97.2	11	50	157.5	10,150
37A	26.8	59.2	10	50	95.9	5,863
38A	64.1	114.8	15	50	186.0	14,022
39A	41.6	87.2	11	50	141.3	9,100
42E	61.9	103.5	17	50	151.6	7,931
43E	50.1	100.2	12	50	146.8	6,419
44E	64.4	115.3	15	50	168.9	8,251
46A	47.5	91.2	13	50	133.6	6,086
47A	38.8	63.0	18	50	92.3	4,971
48A	38.8	64.9	17	50	95.1	4,971
49A	25.9	63.5	8	50	93.0	3,318
50A	68.3	114.2	17	50	167.3	8,751
53F	45.6	91.2	12	50	133.6	5,843
54F	53.1	95.1	15	50	139.3	6,803
56A	46.0	85.1	14	50	124.7	5,894
57A	50.8	91.0	15	50	133.3	6,509
60B	53.0	86.0	18	50	126.0	6,791
61B	38.3	84.6	10	50	123.9	4,907
63A	47.7	91.6	13	50	134.2	6,112
64A	50.0	104.8	11	50	153.5	6,406
65A	45.7	105.9	9	50	155.1	5,855
66A	38.3	88.7	9	50	129.9	4,907
OP1	2.5	7.9	5	50	11.6	513
OP5	4.0	12.6	5	50	18.5	320



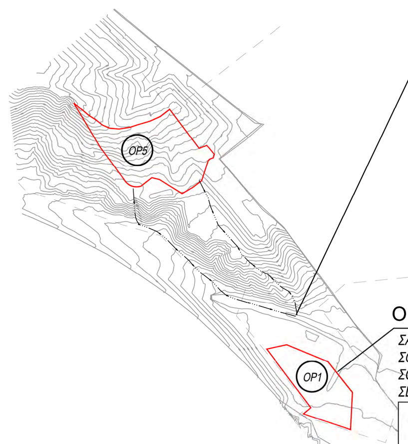
VICINITY MAP
NOT TO SCALE
T.G. 4279

LEGEND

MAIN DRAINAGE BOUNDARY
SUB-AREA BOUNDARY
FLOW LINE
ON PARCEL (OP) LOCATIONS
TRACT BOUNDARY
2A & 13AC ... LOCATION NAMES
A ... AREA IN ACRES, Ac
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
Σ ... TOTAL

HYDROLOGY CRITERIA

- DESIGN STORM FREQUENCY: 50-YR FOR UNDEVELOPED NATURAL AREAS
- DPA ZONE = 3 AND 5
- BASIN NAME = SANTA CLARA
- SOIL TYPE NUMBER = 094
- PEAK BULKING FACTOR:
  DPA ZONE 3 = 1.620 (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 1.465 (FOR AREAS 64 Ac. OR UNDER)
- DEBRIS PRODUCTION RATE:
  DPA ZONE 3 = 218.75 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 128.125 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
- ISOHYET = 5.8" (50-YR, 24-HOUR)
- % IMPERVIOUSNESS: 1% FOR UNDEVELOPED / NATURAL AREAS



OP-1 AND OP-5

OP-1 AND OP-5 SEE LEFT

HYDROLOGY STUDY APPROVED

CHECKED BY: ______ RCE NO. 82680 DATE 4/27/2017

APPROVED BY: ______ DATE 4/27/2017

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

EXISTING CONDITION
DRAINAGE CONCEPT
FOR VESTING TENTATIVE TRACT NO. 73336
(NORTHLAKE)
IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

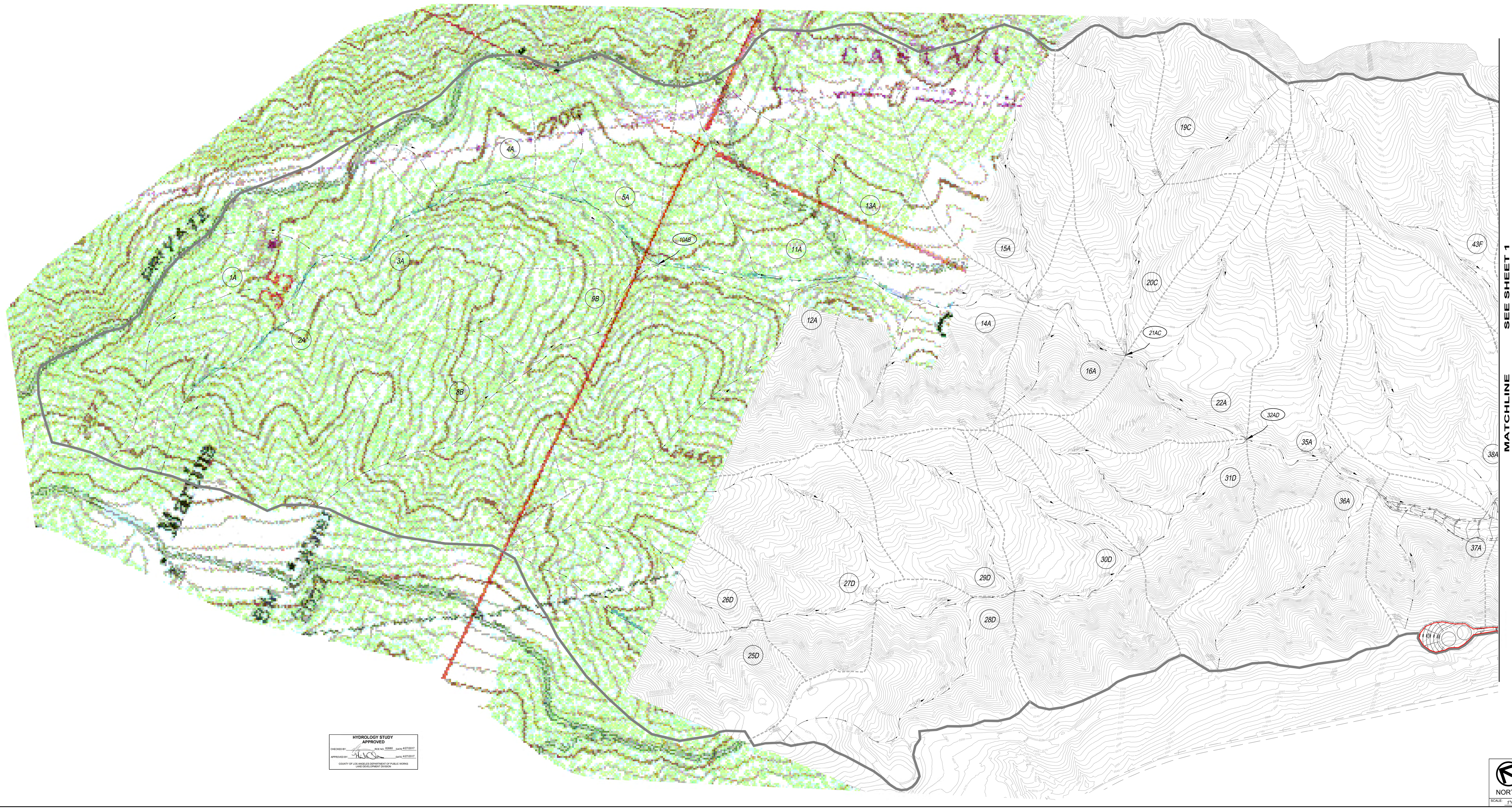
NORTH

PREPARED FOR:
Northlake Associates, LLC
1999 AVENUE OF THE STARS, SUITE 2650, LOS ANGELES, CA 90067
ATTN: JOHN ARVIN
(310) 824-2200

PREPARED BY:
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

SCALE: 1"=400'
DATE: 02/21/2017
W.O. NO.: 5090-033-35

SHEET 1 OF 1 SHEETS



HYDROLOGY STUDY APPROVED

CHECKED BY: ______ RCE NO. 82680 DATE 4/27/2017

APPROVED BY: ______ DATE 4/27/2017

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

LEGEND

- MAIN DRAINAGE BOUNDARY
- SUB-AREA BOUNDARY
- FLOW LINE
- PROPOSED STORM DRAIN
- TRACT BOUNDARY

3A & 13AC	....	LOCATION NAMES
A	....	AREA IN ACRES, Ac
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
Qd	....	50-YR OR 25-YR, DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qb+d	....	MIXED 25- & 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qbb+d	....	MIXED 25- & 50-YR, BURNED & BULKED DESIGN FLOW IN CUBIC FEET PER SECOND, cfs
Qpm	....	WATER QUALITY FLOW IN CUBIC FEET PER SECOND, cfs
Vm	....	WATER QUALITY VOLUME IN CUBIC YARDS, cu-ft
DPV	....	DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, cy
Σ	....	TOTAL
1	....	DESILTING BASIN WITH PAVED VEHICULAR ACCESS & TITLE FEE LOT (TO BE PUBLICLY MAINTAINED)
2	....	DEBRIS CARRYING PAVED DITCH WITH 3% MIN SLOPE, OR OTHERWISE SHOWN, & SELF-CLEANING VELOCITY (TO BE PRIVATELY MAINTAINED)

PROPOSED CONDITION

DRAINAGE CONCEPT

FOR VESTING TENTATIVE TRACT NO. 73336
(NORTHLAKE PHASE 1)
IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

NORTH

SCALE: 1"=200'

PREPARED FOR :
Northlake Associates, LLC
1999 AVENUE OF THE STARS, SUITE 2850, LOS ANGELES, CA 90067
ATTN: JOHN ARVIN
(310) 824-2200

DATE: 03/16/2017

W.O. NO.: 5090-033-35

PREPARED BY :
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REGISTERED PROFESSIONAL ENGINEER
DOUG FARMER
No.49041
Exp. 09-30-2018
CIVIL
STATE OF CALIFORNIA

SHEET
2
OF 2 SHEETS

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HYDROLOGY CRITERIA

DESIGN STORM FREQUENCY:
50-YR FOR DEVELOPED SUMP & UNDEVELOPED NATURAL AREAS
25-YR FOR DEVELOPED AREAS.

- DPA ZONE = 3 AND 5
- BASIN NAME = SANTA CLARA
- SOIL TYPE NUMBER = 094
- PEAK BULKING FACTOR:
  DPA ZONE 3 = 1.620 (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 1.465 (FOR AREAS 64 Ac. OR UNDER)
- DEBRIS PRODUCTION RATE:
  DPA ZONE 3 = 218.75 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
  DPA ZONE 5 = 128.125 Cy / Ac (FOR AREAS 64 Ac. OR UNDER)
- ISOHYET = 5.8" (50-YR, 24-HOUR)

% IMPERVIOUSNESS:
1% FOR UNDEVELOPED / NATURAL AREAS
5% GRADED, LANDSCAPED, OR PARK AREAS
42% FOR SINGLE - FAMILY RESIDENTIAL AREAS
86% FOR MULTI - FAMILY RESIDENTIAL AREAS
91% FOR PAVED STREET AREAS

BEST MANAGEMENT PRACTICES (BMP'S) LIST

1. WATER QUALITY RUNOFF FROM IMPERVIOUS AREAS OF THE DEVELOPMENT MUST BE TREATED THROUGH BIOFILTRATION BMPS, OR APPROVED EQUAL, PRIOR TO DISCHARGING OFFSITE.
2. VEGETATE SLOPES WITH NATIVE OR DROUGHT TOLERANT VEGETATION TO MINIMIZE EROSION.
3. PROVIDE RIPRAP AT THE OUTLETS OF STORM DRAINS, CULVERTS, CONDUITS TO MINIMIZE EROSION.
4. WATER QUALITY RUNOFF FROM PUBLIC STREETS SHALL BE COLLECTED INTO CATCH BASINS AND BE TREATED USING CDS UNIT (OR APPROVED EQUAL) WITH PIPE OUTLETS TO THE PROPOSED PERMANENT WATER QUALITY BASINS OR BMPS, SUBJECT TO THE SATISFACTION OF THE DEPT. OF PUBLIC WORKS.
5. ALL CATCH BASINS AND INLETS SHALL BE STENCILED WITH "WARNING! DRAIN TO OCEAN" NOTES & SYMBOLS PER NPDES BMP STANDARDS.

GENERAL NOTES

1. STORM DRAIN ALIGNMENTS SHOWN ARE NOT NECESSARILY APPROVED.
2. COMPLY WITH ALL STREET DRAINAGE REQUIREMENTS TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
3. DEDICATE THE NECESSARY EASEMENTS FOR THE STORM DRAIN SYSTEM TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS. EASEMENTS TO THE FCD FOR COVERED STORM DRAINS, APPURTENANT STRUCTURES, AND INGRESS & EGRESS PURPOSES SHALL BE DEDICATED OVER ALL PRIVATE DRIVEWAYS AND FIRELANES.
4. PROVIDE VEHICULAR ACCESS TO ALL INLETS AND OUTLETS TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
5. ALL PROPOSED STORM DRAINS & APPURTENANT STRUCTURES TO BE PUBLICLY MAINTAINED UNLESS OTHERWISE NOTED. ALL OTHER DRAINAGE DEVICES TO BE MAINTAINED BY HOA.
6. WATER QUALITY BASINS TO BE MAINTAINED BY LA COUNTY DBAA, HOA, OR PRIVATELY MAINTAINED AS NOTED ON PLAN. NOT TO BE MAINTAINED BY LACFCD.

FLOOD HAZARD NOTES

1. NOT WITHIN FEMA FLOOD ZONE 'A'.
2. NOT WITHIN COUNTY ADOPTED FLOODWAY.

BASIN A THROUGH E SUMMARY

Basin	Retention Volume, below orifice (ac-ft)	Detention Volume, below spillway crest and above orifice (ac-ft)	Total Volume, below top elev of basin (ac-ft)
A	5.26	16.38	25.55
B	4.65	14.42	23.08
C	3.70	5.14	11.16
D	1.98	2.97	6.33
E	9.11	26.12	41.18

SIZE AND LOCATION OF BASIN ORIFICES AND WEIRS ARE DICTATED IN GEOSYNTEC'S LID REPORT.

REGIONAL FACILITY HYDROMODIFICATION SUMMARY

	Pre-Development				Post-Development					Delta			
Freq.	Q (cfs)	Vol (ac-ft)	Velocity (ft/s)	Depth/Width (ft/ft)	Q (cfs)	Vol (ac-ft)	Geomorphically Significant Flow Volume, > 11 cfs	Velocity (ft/s)	Depth/ Width (ft/ft)	%Δ Q	%Δ Volume	%Δ Velocity	%Δ Depth/ Width
50	2817.3	326.4	7.24	0.12	2812.7	340.6	316.9	7.24	0.12	-0.2	-3	0	0
25	2415.4	270.6	6.89	0.11	2180.6	269.4	245.7	6.68	0.11	-10	-9	-3	-2
10	1636.4	175.2	6.12	0.11	1423.8	183.5	160.5	5.88	0.11	-13	-8	-4	-1
5	1243.5	136.0	5.65	0.11	1019.3	129.8	112.6	5.33	0.10	-18	-17	-6	-2
2	535.0	69.4	4.55	0.10	469.3	67.2	54.9	4.42	0.10	-12	-21	-3	0

Pre and Post Development Q, Volume, Velocity, and Depth/Width at Outlet Node provided by Geosyntec

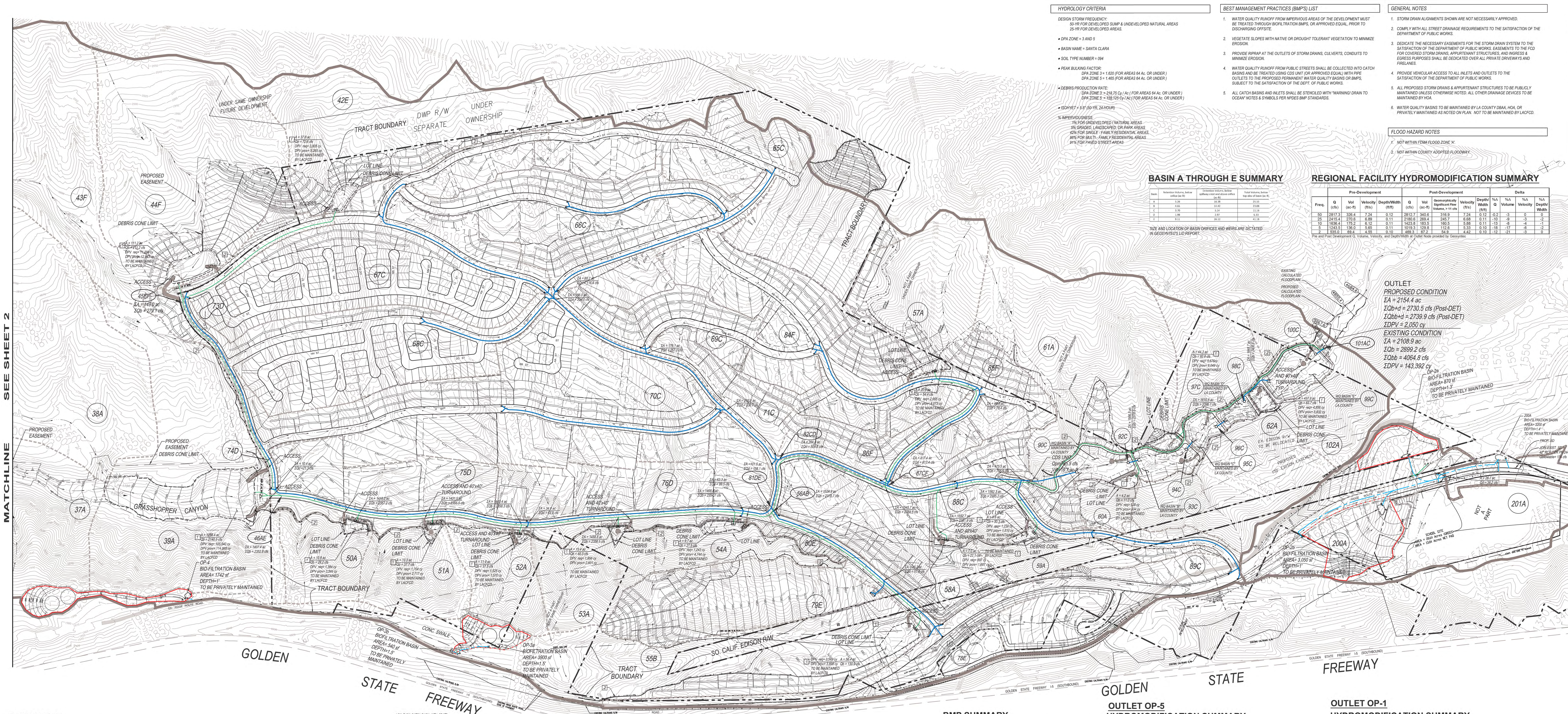
HYDROLOGIC SUMMARY

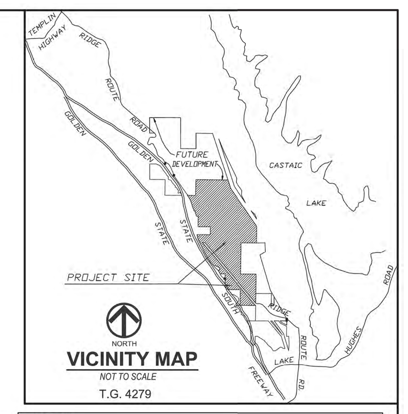
Subarea	Area (acres)	Qb (cfs)	Qd (cfs)	Tc (minutes)	Frequency	Qbb (cfs)	DPV (cy)
[illegible]							
69C	13.1		25.8	10	25		
70C	63.7		81.2	25	25		
71C	10.0		19.7	10	25		
73D	7.0		16.2	7	25		
74D	3.4		6.2	12	25		
75D	23.6		35.9	17	25		
76D	29.3		54	15	50		
78E	15.8		23.8	17	25		
79E	17.4		28.1	14	25		
80E	5.0		9.1	12	25		
84F	21.4		38.3	12	25		
85F	27.1		50.8	11	25		
86F	14.6		30.1	9	25		
88C	34.4		66.3	13	50		
89C	23.7		34.4	19	25		
90C	6.9		17.7	7	50		
93C	2.8		8.7	5	50		
95C	1.9		5.9	5	50		
97C	1.2		3.7	5	50		
99C	4.3		7.5	5	50		
102A	16.0	50.4		5	50	75.3	2,050
200A	26.7		36.2	21	25		
201A	21.3		46.8	8	25		
OP1	2.5		7.8	5	50		
OP5	5.0		15.5	5	50		

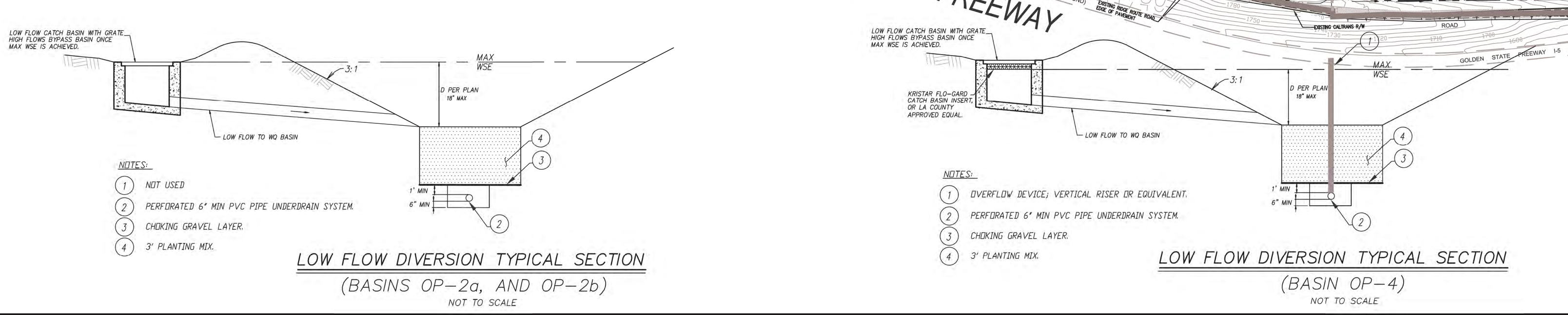
LID SUMMARY

Basin ID	85th Percentile Storm Size (in)	95th Percentile Storm Size	Hydromod Design Criteria	Project Design Storm	Project Design Storm Volume (CF)
A	1.2	2.4	Clear Flow Frequency	1.2	228,951
B	1.2	2.4	Clear Flow Frequency	1.2	202,467
C	1.2	2.4	Clear Flow Frequency	1.2	160,998
D	1.2	2.4	Clear Flow Frequency	1.2	86,075
E	1.2	2.4	Clear Flow Frequency	1.2	396,919
200A	1.2	2.4	Clear Flow Frequency	1.2	21,553
202A	1.2	2.4	Clear Flow Frequency	1.2	13,821
OP-1	1.2	2.4	Clear Flow Frequency	1.2	8,712
OP-2a	1.2	2.4	Clear Flow Frequency	1.2	5,619
OP-2b	1.2	2.4	Clear Flow Frequency	1.2	16,317
OP-3a	1.2	2.4	Clear Flow Frequency	1.2	25,478
OP-3b	1.2	2.4	Clear Flow Frequency	1.2	3,637
OP-4	1.2	2.4	Clear Flow Frequency	1.2	8,276
OP-5	1.2	2.4	Clear Flow Frequency	1.2	7,405

Data provided by Geosyntec. Refer to Geosyntec's LID Report for calculations.







BMP SUMMARY

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	1.5*SWQDv (Ac-ft)	Biofiltration Provided (Ac-ft)	Storage Provided (Ac-ft)	Total Vol Provided (Ac-ft)
OP-2a	0.7	0.13	0.20	0.17	0.03	0.20
OP-4	1.3	0.19	0.29	0.25	0.04	0.29

Q and SWQDv Data provided by Geosyntec. Refer to Geosyntec's LID Report for calculations.

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	1.5*SWQDv (Ac-ft)	Biofiltration Provided (Ac-ft)	Storage Provided (Ac-ft)	Total Vol Provided (Ac-ft)
OP-2b	1.6	0.37	0.56	0.49	0.07	0.56
OP-3a	4.7	0.58	0.87	0.75	0.13	0.88
OP-3b	0.6	0.08	0.12	0.11	0.02	0.13
200A	1.2	0.49	0.74	0.64	0.10	0.74
202A	1.0	0.32	0.48	0.41	0.07	0.48

OUTLET OP-5 HYDROMODIFICATION SUMMARY

Design Event	Peak Flow (cfs) Existing	Peak Flow (cfs) Proposed	% difference	Flow Volume (ac-ft) Existing	Flow Volume (ac-ft) Proposed	% difference (Total Volume)	Existing (Geomorphically Significant Flow Volume, >0.144 cfs)	Proposed (Geomorphically Significant Flow Volume, >0.144 cfs)	% difference (Geomorphically Significant Flow Volume)
LID	0.54	0.06	-89%	0.05	0.16	221%	0.01	0.00	-100%
2-yr	3.03	0.09	-97%	0.14	0.36	162%	0.07	0.00	-100%
5-yr	6.20	0.12	-98%	0.26	0.59	130%	0.17	0.00	-100%
10-yr	8.54	0.65	-92%	0.36	0.76	113%	0.26	0.12	-65%
25-yr	10.76	6.15	-43%	0.50	0.99	96%	0.41	0.35	-31%
50-yr	12.37	8.45	-32%	0.63	1.18	87%	0.54	0.54	-0.1%

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	Total Vol Provided (Ac-ft)
OP-5	15.5	0.48	0.55

Q and Hydromodification Control Volumes provided by Geosyntec. Refer to Geosyntec's LID report for calculations.

OUTLET OP-1 HYDROMODIFICATION SUMMARY

Design Event	Peak Flow (cfs) Existing	Peak Flow (cfs) Proposed	% difference	Flow Volume (ac-ft) Existing	Flow Volume (ac-ft) Proposed	% difference (Total Volume)	Proposed (<0.145 cfs)	Existing (Geomorphically Significant Flow Volume, >0.145 cfs)	Proposed (Geomorphically Significant Flow Volume, >0.145 cfs)	% difference (Geomorphically Significant Flow Volume)
LID	0.3	0.07	-73%	0.03	0.20	533%	0.20	0.01	0.00	-100%
2-yr	1.6	0.10	-94%	0.09	0.39	355%	0.39	0.04	0.00	-100%
5-yr	3.4	0.13	-96%	0.16	0.60	266%	0.60	0.10	0.00	-100%
10-yr	4.5	0.14	-97%	0.23	0.73	224%	0.73	0.16	0.00	-100%
25-yr	6.2	0.33	-95%	0.32	0.90	182%	0.70	0.25	0.20	-38%
50-yr	7.9	1.27	-84%	0.40	1.03	157%	0.71	0.33	0.32	-2%

Basin ID	Qpm (cfs)	SWQDv (Ac-ft)	Total Vol Provided (Ac-ft)
OP-1	7.9	0.67	0.69

Q and Hydromodification Control Volumes provided by Geosyntec. Refer to Geosyntec's LID report for calculations.

PROPOSED CONDITION
DRAINAGE CONCEPT
FOR VESTING TENTATIVE TRACT NO. 73336
(NORTHLAKE PHASE 1)
IN THE UNINCORPORATED TERRITORY OF LOS ANGELES COUNTY

NORTH
SCALE: 1"=200'

PREPARED FOR:
Northlake Associates, LLC

PREPARED BY:
SIKAND

SHEET 1 OF 2 SHEETS