

**Master Drainage Study  
For  
Motion Picture And Television Fund  
  
Woodland Hills Campus**

**In the City of  
  
Los Angeles**

*Prepared for:*

**Motion Picture And Television Fund  
23388 Mulholland Drive  
Woodland Hills, CA, 91364**

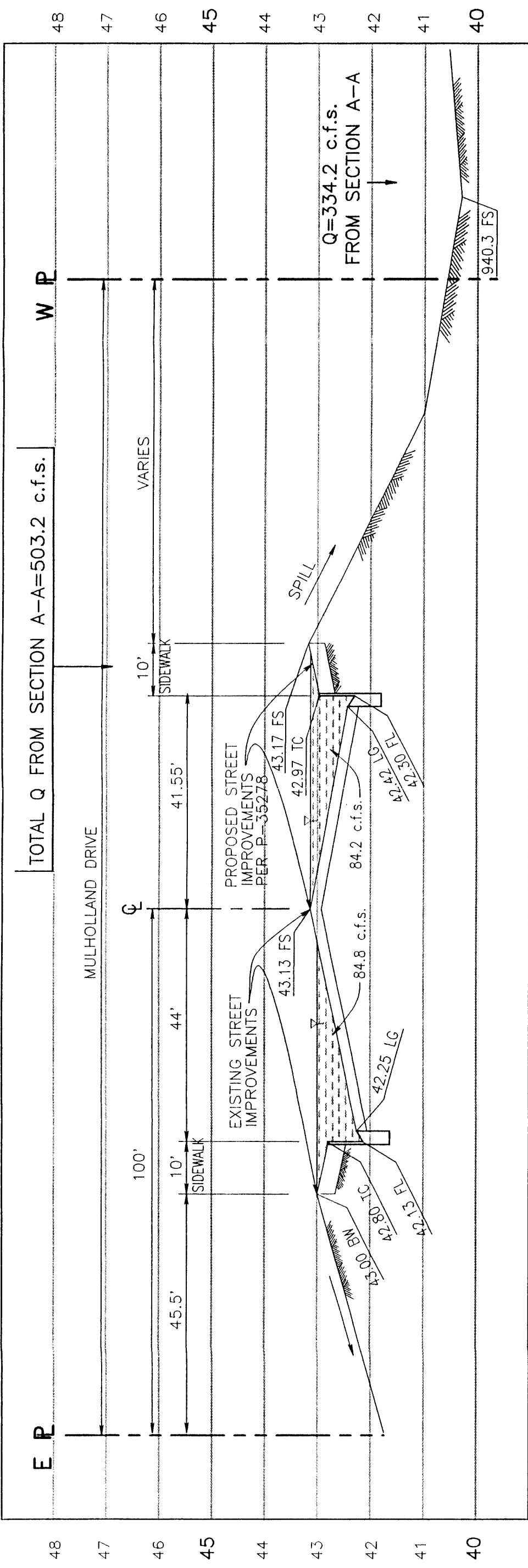
*Prepared By:*

**Pace Engineering, Inc.  
9310 Topanga Canyon Blvd., Suite 220A  
Chatsworth, CA, 91311**

Eldon C. Schierman  
R.C.E. 26383 Exp. 3/31/04

**October 27, 2000**

**Pace W.O. #2778**



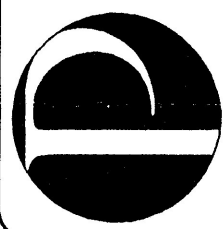
SEE PRE-DEVELOPMENT HYDROLOGY MAP - EXHIBIT "B"

790' NORTH OF  
 DRY CANYON CREEK  
 SECTION B-B

SCALES: HORIZ: 1" = 20'  
 VERT: 1" = 2'

MULHOLLAND DRIVE  
 POST STREET IMPROVEMENTS  
 PER PLAN P-35278

PREPARED BY:



**P ACE**  
 ENGINEERING INC.  
 ESTABLISHED 1967  
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Work Order:	2778
Date:	10-27-2000
Scale:	1" = 20'
Designed:	RH
Drawn:	AB
Checked:	ES
Sheet 1 of	1 Sheets

**TABLE 1  
PRE-DEVELOPMENT- SUMMARY**

<b>LINE "A" - EXIST. 36" R.C.P. UNDER MULHOLLAND DRIVE</b>				
SUB-AREA	LOCATION	PIPE DIA.	$\Sigma Q_{50}$ (c.f.s.)	REMARKS
1-A & 4-B	ON-SITE UNDEVELOPED	15"	6.5	UNDEVELOPED AREA TO STARK VILLA DRAIN
(PART OF 1-A & 4-B) 3A, 4A	DRIVE TO STARK VILLA	18"	15.5	STARK VILLA DRAIN IN DRIVE
1-A TO 7-A	EX. 24" R.C.P. OUTLET	24"	16.3	OUTLET OF EXIST. STARK VILLA DRAIN TO DITCH
1-A, 2-A, 3-A, & 4-A	DITCH W/O MULHOLLAND DRIVE S/O SPEILBERG DRIVE	36"	56.6	INLET TO EX. 36" R.C.P. TO SPEILBERG DRIVE
5-A	EX. 36" R.C.P. AT SPEILBERG DRIVE	36"	73.2	JUNCTION WITH EX. 18" C.M.P. FROM CAMPUS
6-A & 7-A	EX. 36" R.C.P. AT SPEILBERG DRIVE	36"	80.3	JUNCTION WITH DRIVE DRAIN & C.B. IN MULHOLLAND DRIVE - AND OUTLETS TO DRY CANYON CHANNEL
<b>LINE "B" - EXIST. CALTRANS 39" R.C.P.</b>				
SUB-AREA	LOCATION	PIPE DIA.	$\Sigma Q_{50}$ (c.f.s.)	REMARKS
3-B & 4-B	IN MULHOLLAND DRIVE	EX. 39"	18.7	EX. CATCH BASINS IN MULHOLLAND DRIVE 400' S/O CALABHASAS ROAD
1-B & 2-B	IN MULHOLLAND DRIVE 120' S/O CALABHASAS ROAD	EX. 39"	59.0	JUNCTION WITH SITE DRAINS FROM NORTHEAST CORNER OF CAMPUS
5-B & 6-B	IN AVENUE SAN LUIS 260' E/O MULHOLLAND DRIVE	EX. 39"	60.3	JUNCTION WITH CALTRANS DRAIN
7-B	IN AVENUE SAN LUIS 630' E/O MULHOLLAND DRIVE	EX. 39"	63.6	JUNCTION WITH CALTRANS DRAIN - AND OUTLETS TO DRY CANYON CHANNEL

**TABLE II  
POST DEVELOPMENT - SUMMARY**

<b>LINE "A" EXIST 36" R.C.P. UNDER MULHOLLAND DRIVE AT SPEILBERG DRIVE</b>				
<b>SUB-AREA</b>	<b>LOCATION</b>	<b>PIPE DIA.</b>	<b><math>\Sigma Q_{50}</math> (c.f.s.)</b>	<b>REMARKS</b>
1-A	ON-SITE FUTURE DRIVE	15"	7.7	FUTURE ON-SITE DRAIN
1-A1	IN DRIVE @ STARK VILLA	18"	11.1	FUTURE ON-SITE DRAIN
2-A	ON-SITE DRAIN JUNCTION	30"	30.8	FUTURE ON-SITE DRAIN
3-A1 4-A	ON-SITE DRAIN JUNCTION	30"	35.0	FUTURE ON-SITE DRAIN
3-A1 4-A	ON-SITE AT JUNCTION DRIVE	30"	42.5	FUTURE ON-SITE DRAIN
5-A & (X-A STARK VILLA)	JUNCTION WITH STARK VILLA DRAIN	36"	63.5	FUTURE ON-SITE DRAIN JUNCTION WITH EX. STARK VILLA DRAIN
6-A/2 & 7-A	JUNCTION WITH EX. C.M.P. & DRIVE	EX. 36"	74.4	SPLITTER STRUCTURE AT EX. C.M.P. TO DIRECT 11.8 C.F.S. TO LINE "B"
8-A	LATERAL FROM EX, C.B.	EX. 36"	80.3	TOTAL $Q_{50}$ IN EX. 36" R.C.P. ACROSS MULHOLLAND DRIVE AND OUTLETS TO DRY CANYON CHANNEL
<b>LINE "B" EXISTING CALTRANS 39" R.C.P.</b>				
<b>SUB-AREA</b>	<b>LOCATION</b>	<b>PIPE DIA.</b>	<b><math>\Sigma Q_{50}</math> (c.f.s.)</b>	<b>REMARKS</b>
3-B & 4-B	IN MULHOLLAND DRIVE	EX. 39" R.C.P.	18.7	EX. CATCH BASINS IN MULHOLLAND DRIVE 400' S/O CALABASAS ROAD
6-A/2	IN MULHOLLAND DRIVE	EX. 39" R.C.P.	29.3	24" R.C.P. FROM SPLITTER STRUCTURE AT SPEILBERG DRIVE
1-B & 2-B	MULHOLLAND DRIVE 120' S/O CALABASAS ROAD	EX. 39" R.C.P.	69.7	JUNCTION WITH SITE DRAINS FROM NORTHEAST CORNER OF CAMPUS
5-B & 6-B	AVENUE SAN LUIS 260' E/O MULHOLLAND DRIVE	EX. 39" R.C.P.	70.9	JUNCTION WITH CALTRANS DRAIN
7-B	AVENUE SAN LUIS 630' E/O MULHOLLAND DRIVE	EX. 39" R.C.P.	74.0	JUNCTION WITH CALTRANS DRAIN AND OUTLETS TO DRY CANYON CHANNEL

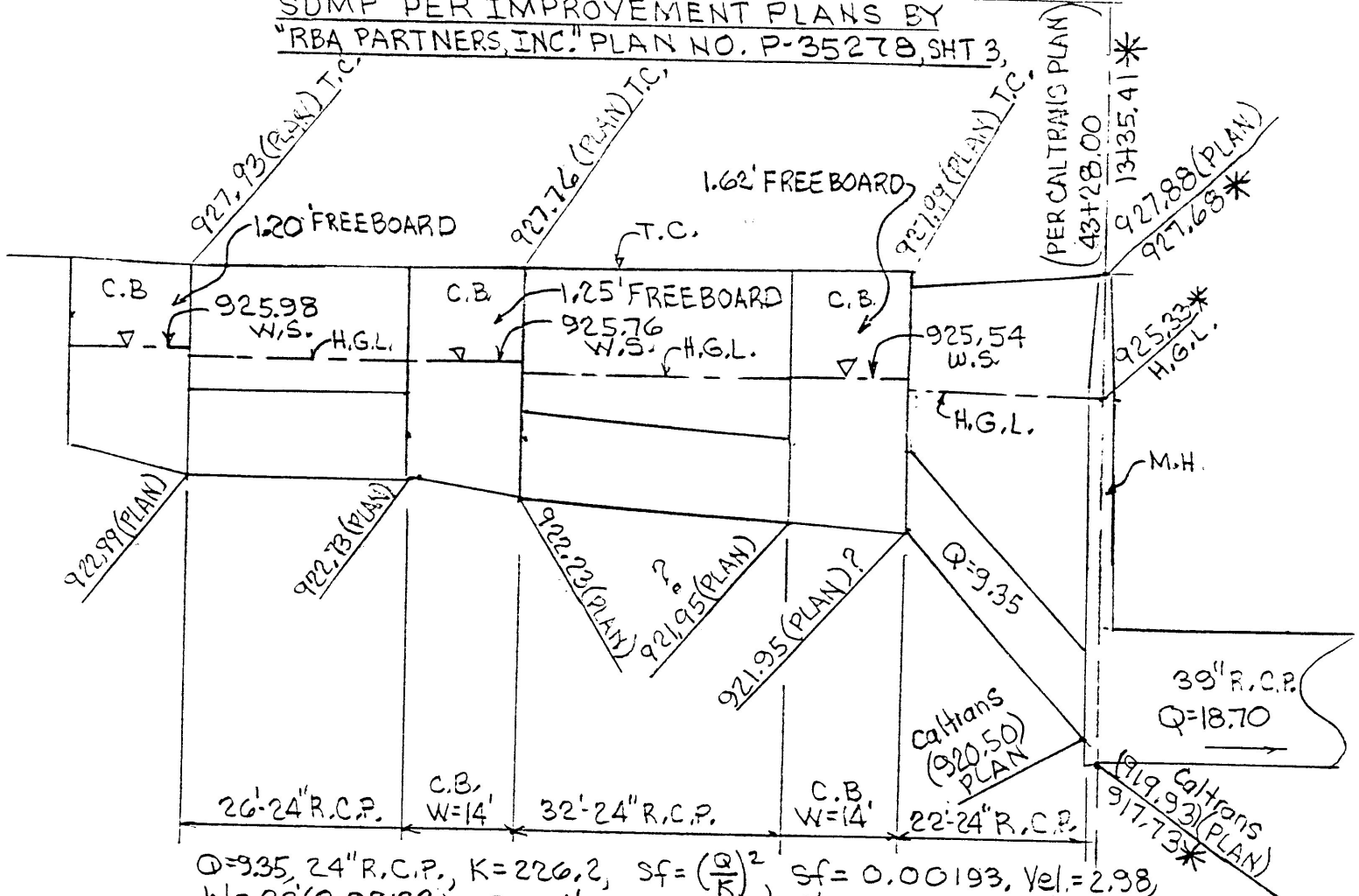
TABLE III

ANALYSIS TO DETERMINE THE MAXIMUM CAPACITY OF EXISTING 39" R.C.P.				
SUB-AREA	LOCATION	PIPE DIA.	$\Sigma Q_{50}$ (c.f.s.)	REMARKS
3-B & 4-B	IN MULHOLLAND DRIVE	EX. 39" R.C.P.	18.7	EX. CATCH BASINS IN MULHOLLAND DRIVE 400' S/O CALABASAS ROAD
6-A/2	IN MULHOLLAND DRIVE	EX. 39" R.C.P.	46.7	INCREASED Q FROM SPLITTER STRUCTURE TO DETERMINE MAXIMUM CAPACITY OF 39" R.C.P.
1-B & 2-B	MULHOLLAND DRIVE 120' S/O CALABASAS ROAD	EX. 39" R.C.P.	87.1	JUNCTION WITH SITE DRAINS FROM NORTHEAST CORNER OF CAMPUS
5-B & 6-B	AVENUE SAN LUIS 260' E/O MULHOLLAND DRIVE	EX. 39" R.C.P.	88.3	JUNCTION WITH CALTRANS DRAIN
7-B	AVENUE SAN LUIS 630' E/O MULHOLLAND DRIVE	EX. 39" R.C.P.	91.4	JUNCTION WITH CALTRANS DRAIN AND OUTLETS TO DRY CANYON CHANNEL

# **APPENDIX A**

## **Proposed Catch Basins in Mulholland Drive Sump**

PROPOSED CATCH BASINS IN MULHOLLAND DRIVE  
SUMP PER IMPROVEMENT PLANS BY  
"RBA PARTNERS, INC." PLAN NO. P-35278, SHT 3,



$Q=9.35$ , 24" R.C.P.,  $K=226.2$ ,  $S_f = \left(\frac{Q}{K}\right)^2$ ,  $S_f = 0.00193$ ,  $Vel. = 2.98$ ,  
 $h_f = 22(0.00193) = 0.04'$ ,  $Y^{2/2g} = 0.14$ ,  $1.2V^{2/2g} = 0.17$   
 $h_f = 24(0.00193) = 0.05'$ ,  
 $h_f = 26(0.00193) = 0.05'$

925.33 = H.G.L.
0.04
<u>0.17</u>
925.54 = W.S.
0.05
<u>0.17</u>
925.76 = W.S.
0.05
<u>0.17</u>
925.98 = W.S.

\* STATION, FLOW LINE ELEVATION AND HYDRAULIC GRADE LINE PER PACE SURVEY AND "W.S.P.G.W." PROGRAM RUN.

# **APPENDIX B**

## **Mulholland Cross Sections**



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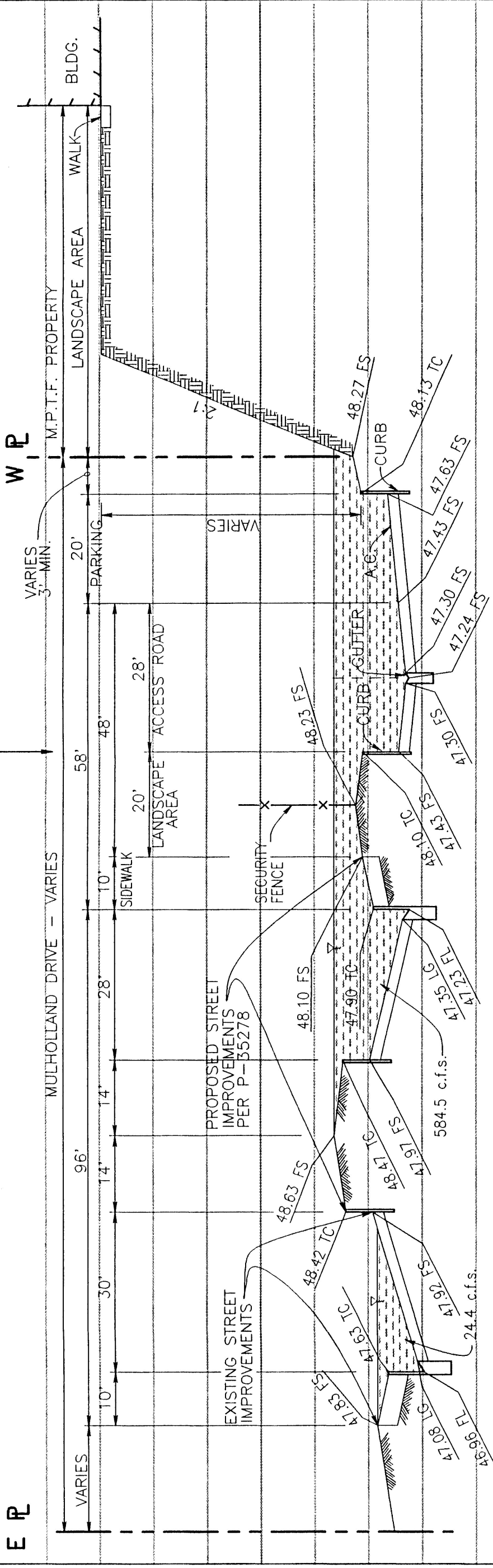
47

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46

TOTAL Q FROM SECTION A-A=503.2 c.f.s.



TOTAL CAPACITY=608.9 c.f.s.

SEE POST-DEVELOPMENT HYDROLOGY MAP - EXHIBIT "A"

180' NORTH OF  
DRY CANYON CREEK  
SECTION A'-A'

SCALES: HORIZ: 1"=20'  
VERT: 1"=2'

ACCESS ROAD AND PARKING ADJACENT TO  
MULHOLLAND DRIVE

PREPARED BY:

**P ACE**  
ENGINEERING INC.  
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2778

Date:  
10-27-2000

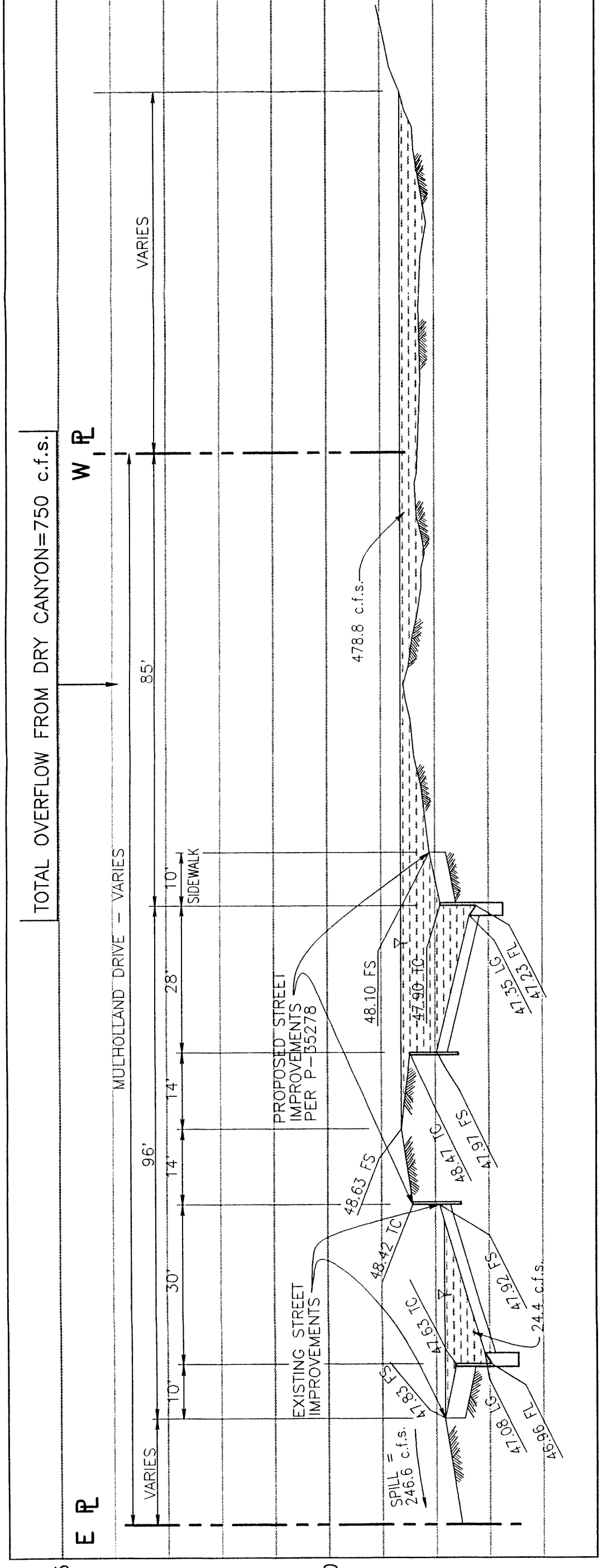
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1"=20'

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RH

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1 Sheets



TOTAL OVERFLOW FROM DRY CANYON=750 c.f.s.

MULHOLLAND DRIVE - VARIES

EXISTING STREET IMPROVEMENTS

PROPOSED STREET IMPROVEMENTS PER P-35278

478.8 c.f.s.

246.6 c.f.s.

24.4 c.f.s.

47.92 FS

48.63 FS

47.83 FS

47.08 TC

46.96 FL

55

54

53

52

51

50

49

48

47

46

VARIES

10'

30'

14'

14'

96'

10'

28'

10'

VARIES

85'

ER

WR

TOTAL CAPACITY=503.2 c.f.s.

SEE PRE-DEVELOPMENT HYDROLOGY MAP - EXHIBIT "B"

180' NORTH OF  
 DRY CANYON CREEK  
 SECTION A-A

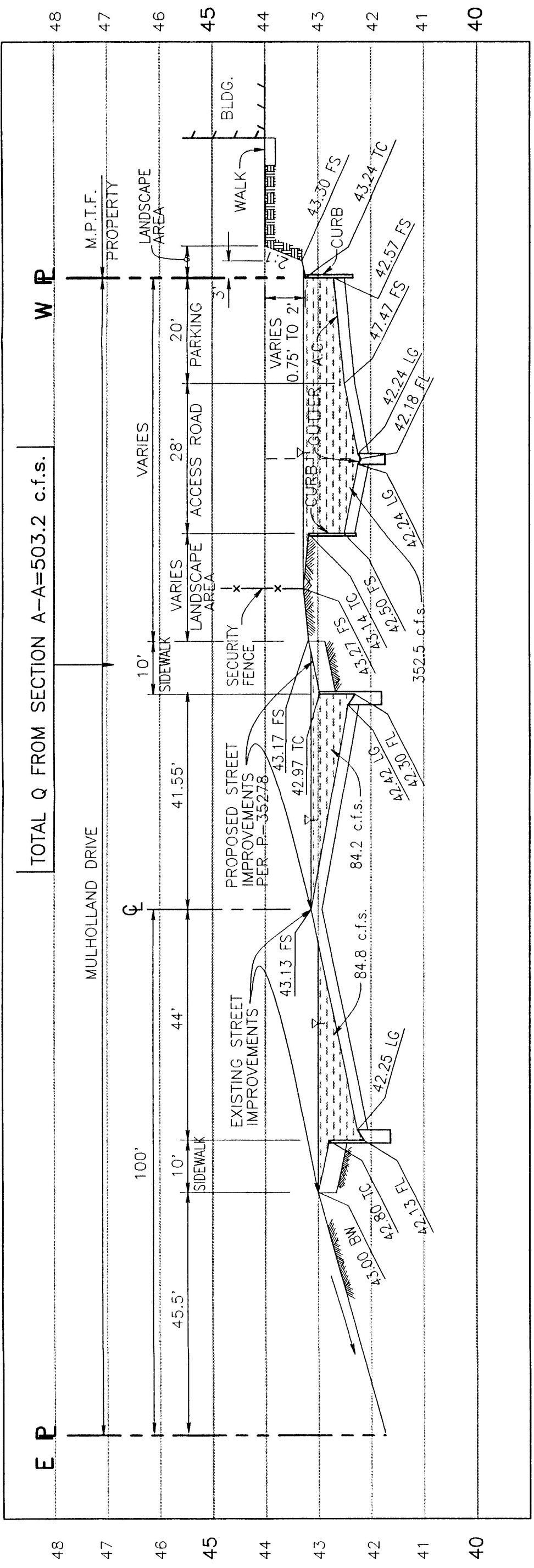
SCALES: HORIZ: 1" = 20'  
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MULHOLLAND DRIVE  
 POST STREET IMPROVEMENTS  
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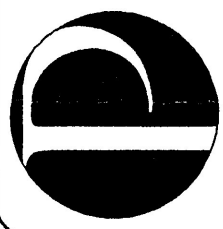
TOTAL CAPACITY=521.5 c.f.s. SEE POST-DEVELOPMENT HYDROLOGY MAP - EXHIBIT "A"

790' NORTH OF  
 DRY CANYON CREEK  
 SECTION B'-B'

SCALES: HORIZ: 1" = 20'  
 VERT: 1" = 2'

ACCESS ROAD AND PARKING ADJACENT TO  
 MULHOLLAND DRIVE

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Sheet 1 of	1 Sheets

# **APPENDIX C**

## Hydraulic Capacity of Mulholland Drive

HYDRAULIC CAPACITY OF MULHOLLAND DRIVE  
AFTER STREET WIDENING IMPROVEMENTS  
PLANS "ZA 86-0653, MULHOLLAND DRIVE  
(NLY/S) CALABASAS ROAD TO VALMAR ROAD."  
PLAN NO. P-35278.

SECTION A-A

180' NORTH OF DRY CANYON CREEK

Northbound Roadway To Elev. 47.83,  $st. s = 0.00739$ ,  $s^{1/2} = 0.0838$ ,  
 $A = 7.39'$ ,  $w.p. = 35.78'$ ,  $r = 0.207$ ,  $r^{2/3} = 0.350$ ,  
 $Q = \frac{1.486}{.014} (0.0838)(0.350)(7.39) = \underline{24.4 c.f.s.}$  To Elev. 47.83.

Southbound Roadway & Overflow Area To Elev. 48.63,  
 $st. s = 0.00745$ ,  $s^{1/2} = 0.0863$ ,  $A = 153'$ ,  $w.p. = 194'$ ,  
 $r = 0.789$ ,  $r^{2/3} = 0.854$ ,  
 $Q = \frac{1.486}{.035} (0.854)(0.0863)(153) = \underline{478.8 c.f.s.}$

SECTION B-B TOTAL CAPACITY = 503.2 c.f.s.

HYDRAULIC CAPACITY  
OF  
MULHOLLAND DRIVE

ACCESS ROAD AND PARKING ADJACENT TO MULHOLLAND DRIVE

SECTION B'-B'

Northbound Roadway To Elev. 43.00,  $st. s = 0.0108$ ,  $s^{1/2} = 0.1039$ ,  
 $A = 16.05^2$ ,  $W.P. = 48.50$ ,  $r = 0.331$ ,  $r^{2/3} = 0.479$ ,

$$Q = \frac{1.486}{.014} (0.1039)(0.479)(16.05) = \underline{84.8 \text{ c.f.s. To Elev. 43.00.}}$$

Southbound Roadway, To Elev. 43.13,  $st. s = 0.0108$ ,  $s^{1/2} = 0.1039$ ,  
 $A = 16.21^2$ ,  $W.P. = 50.2$ ,  $r = 0.323$ ,  $r^{2/3} = 0.471$ ,

$$Q = \frac{1.486}{.014} (0.1039)(0.471)(16.21) = \underline{84.2 \text{ c.f.s. To Elev. 43.13,}}$$

28' Access Road & Parking. To Elev. 43.27,  $st. s = 0.0108$ ,  $s^{1/2} = 0.1039$ ,  
 $A = 41.40^2$ ,  $W.P. = 61$ ,  $r = 0.679$ ,  $r^{2/3} = 0.772$ ,

$$Q = \frac{1.486}{.014} (0.1039)(0.772)(41.4) = \underline{352.5 \text{ c.f.s. To Elev. 43.27,}}$$

SECTION A-A TOTAL = 521.5 c.f.s.

SECTION A'A'

Northbound Roadway To Elev. 47.83,  $st. s = 0.00788$ ,  $s^{1/2} = 0.0888$ ,  
 $A = 7.39^2$ ,  $W.P. = 35.78$ ,  $r = 0.207$ ,  $r^{2/3} = 0.350$ ,

$$Q = \frac{1.486}{.014} (0.0888)(0.350)(7.39) = \underline{24.4 \text{ c.f.s. To Elev. 47.83}}$$

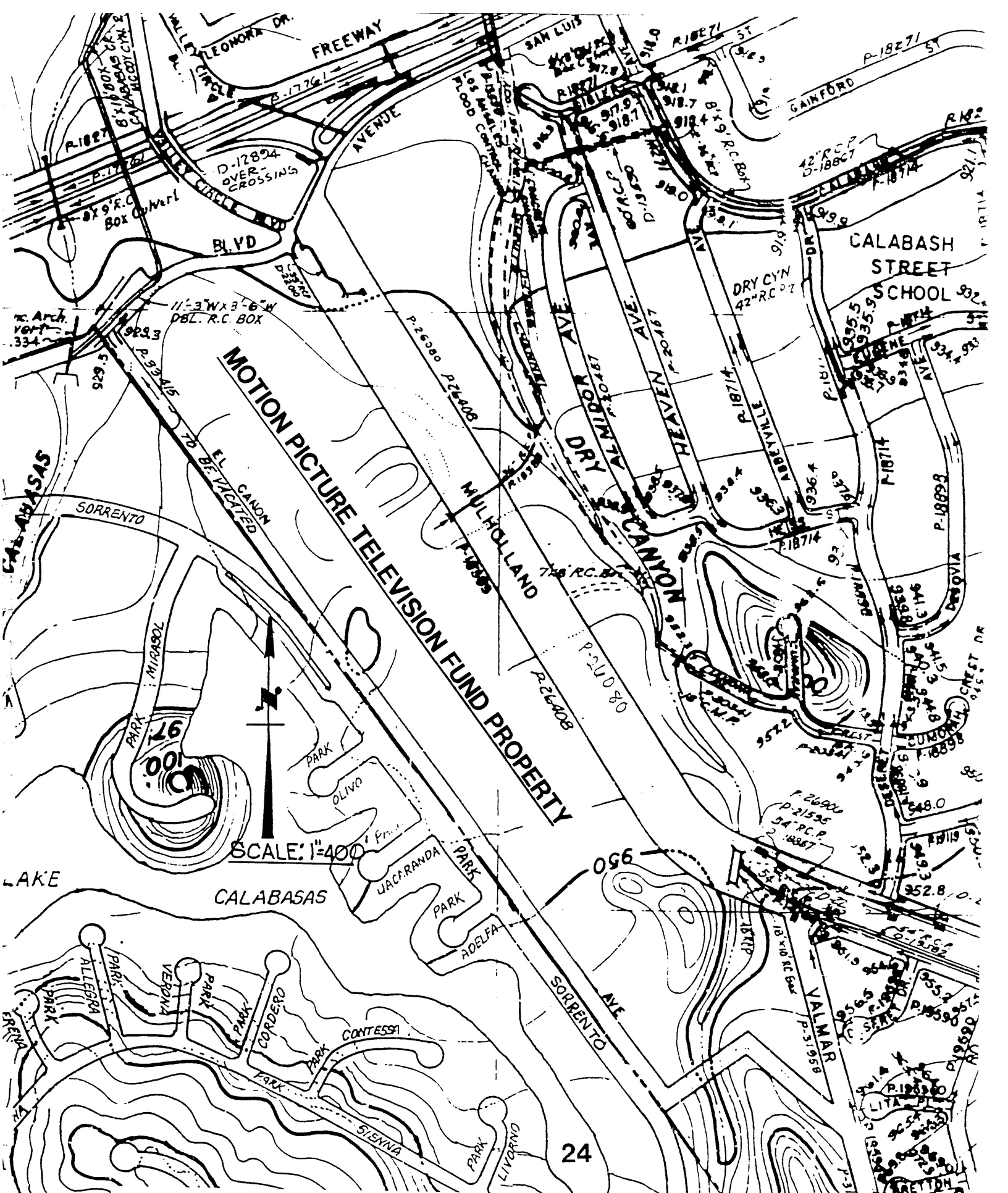
Southbound Roadway, 28' Access Road & Parking, To Elev. 48.63  
 $st. s = 0.00745$ ,  $s^{1/2} = 0.0863$ ,  $A = 103.83$ ,  $W.P. = 126.35$ ,  
 $r = 0.822$ ,  $r^{2/3} = 0.878$ ,

$$Q = \frac{1.486}{.020} (0.0863)(0.878)(103.83) = \underline{584.5 \text{ c.f.s. To Elev. 48.63}}$$

SECTION B-B TOTAL = 608.9 c.f.s.

# **APPENDIX D**

## City of Los Angeles Drainage Map

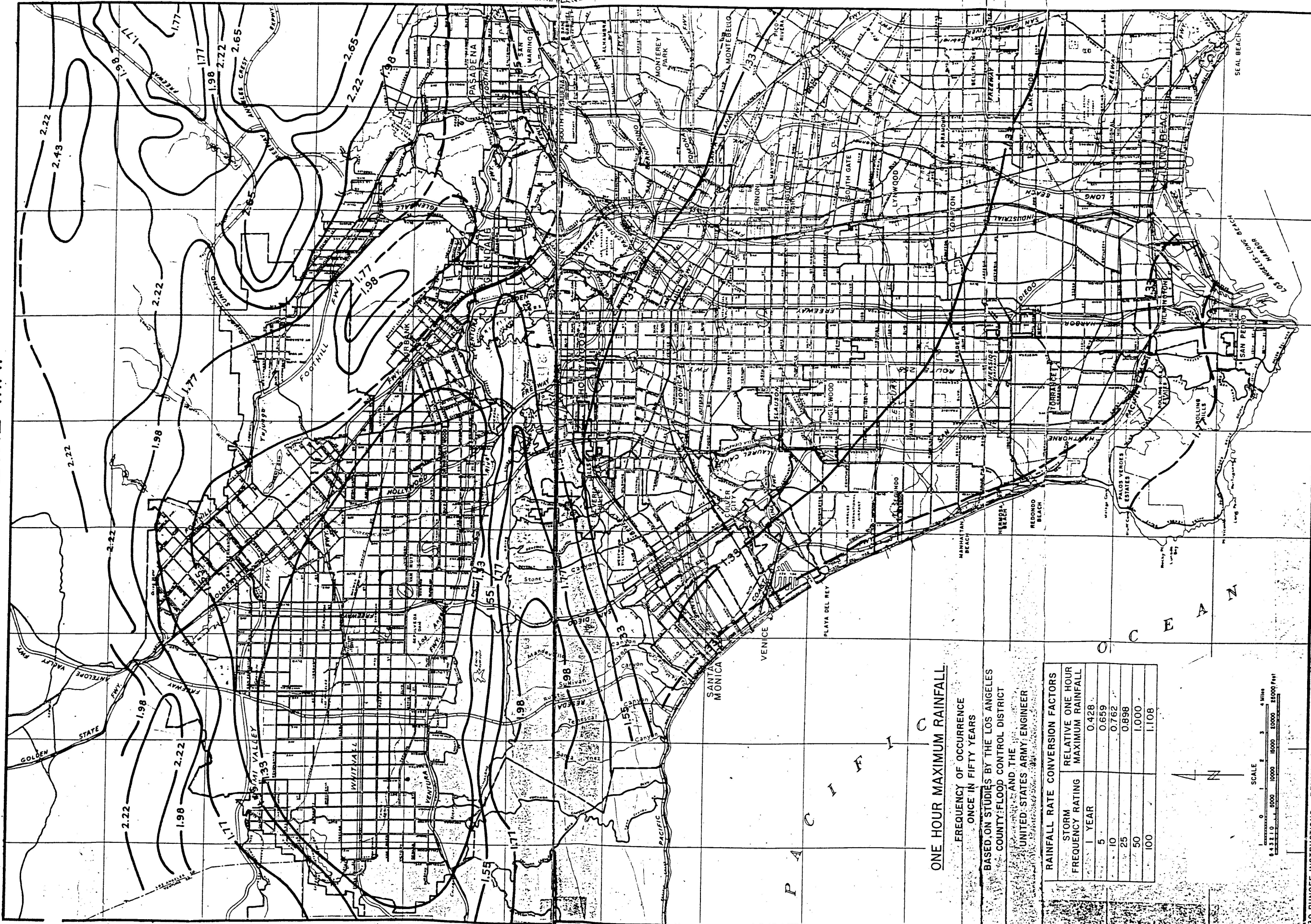


**CITY OF LOS ANGELES DRAINAGE MAP**





# ISOHYETAL MAP

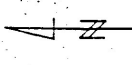
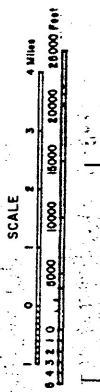


## ONE HOUR MAXIMUM RAINFALL

FREQUENCY OF OCCURRENCE  
ONCE IN FIFTY YEARS

BASED ON STUDIES BY THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT AND THE UNITED STATES ARMY ENGINEER

RAINFALL RATE CONVERSION FACTORS	
STORM FREQUENCY RATING	RELATIVE ONE HOUR MAXIMUM RAINFALL
1 YEAR	0.428
5	0.659
25	0.762
50	0.898
100	1.000
	1.108



# **APPENDIX F**

## Runoff Table

## DEVELOPMENT CLASSIFICATIONS

ZONING CLASSIFICATION	TYPE OF DEVELOPMENT	$I_d$
	Park (lawn areas only) .....	15
	*Undeveloped Hillside or Mountainous Areas .....	35
A1, A2, RA	Agricultural and One-Family Dwelling .....	35
RE11, RE15, RE20, RE 40	One-Family Dwelling — Level Area .....	35
	Hillside Area .....	50
R1 RD1.5, RD2	One-Family Dwelling — Large Hillside Lot .....	50
RS, R1, RE 9	One-Family Dwelling — Level Area .....	40
	Hillside Area .....	70
R2, RW1, RW2 RD3, RD4, RD5, RD6	Multiple Dwelling.....	60
R3	Multiple Dwelling .....	70
R4, R5, P, PB, CR C1, C2, C4, C5, CM MRI, MR2, MI, M2, M3	Multiple Dwelling — Parking, All Commercial, and Manufacturing .....	100
	Playgrounds, Schools .....	100
<sup>Δ</sup> RPD	3/4 of land area with $I_d$ per development above; 1/4 of land area with $I_d$ for park.	

$I_d$  is the percentage of imperviousness of a sub-area.

\*To be used in computing runoff prior to development regardless of zoning classification.

<sup>Δ</sup>Residential Planned Development — Investigate development  
(in field or from plans) before allocating value of  $I_d$

# BASE PEAK RUNOFF RATE TABLE

(cfs per acre)

t <sub>c</sub>	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
1	Max. BPRR = 3.40, to be used for all values up to 5.0 min.					BPRR = $\frac{6.87}{(t_c)^{.437}}$				
2										
3										
4										
5	3.40	3.37	3.35	3.32	3.29	3.26	3.24	3.21	3.18	3.16
6	3.13	3.11	3.09	3.07	3.05	3.03	3.01	2.99	2.97	2.95
7	2.93	2.91	2.90	2.88	2.86	2.85	2.83	2.81	2.79	2.78
8	2.76	2.75	2.73	2.72	2.70	2.69	2.68	2.67	2.66	2.64
9	2.63	2.62	2.60	2.59	2.58	2.57	2.55	2.54	2.53	2.51
10	2.50	2.49	2.48	2.47	2.46	2.45	2.45	2.44	2.43	2.42
11	2.41	2.40	2.39	2.38	2.37	2.36	2.36	2.35	2.34	2.33
12	2.32	2.31	2.30	2.30	2.29	2.28	2.27	2.26	2.26	2.25
13	2.24	2.23	2.23	2.22	2.21	2.21	2.20	2.19	2.18	2.18
14	2.17	2.16	2.16	2.15	2.14	2.14	2.13	2.12	2.11	2.11
15	2.10	2.10	2.09	2.09	2.08	2.08	2.07	2.07	2.06	2.06
16	2.05	2.04	2.04	2.03	2.03	2.02	2.01	2.01	2.00	2.00
17	1.99	1.99	1.98	1.98	1.97	1.97	1.96	1.96	1.95	1.95
18	1.94	1.94	1.93	1.93	1.93	1.92	1.92	1.92	1.91	1.91
19	1.90	1.90	1.89	1.89	1.88	1.88	1.87	1.87	1.86	1.86
20	1.85	1.85	1.84	1.84	1.84	1.83	1.83	1.83	1.82	1.82
21	1.82	1.81	1.81	1.80	1.80	1.80	1.79	1.79	1.79	1.78
22	1.78	1.78	1.77	1.77	1.77	1.76	1.76	1.76	1.75	1.75
23	1.75	1.74	1.74	1.73	1.73	1.73	1.72	1.72	1.72	1.71
24	1.71	1.71	1.70	1.70	1.70	1.70	1.69	1.69	1.69	1.68
25	1.68	1.68	1.67	1.67	1.67	1.67	1.66	1.66	1.66	1.65
26	1.65	1.65	1.65	1.64	1.64	1.64	1.64	1.63	1.63	1.63
27	1.63	1.62	1.62	1.62	1.62	1.61	1.61	1.61	1.61	1.60
28	1.60	1.60	1.60	1.59	1.59	1.59	1.59	1.58	1.58	1.58
29	1.58	1.57	1.57	1.57	1.57	1.56	1.56	1.56	1.56	1.55
30	1.55	1.55	1.55	1.54	1.54	1.54	1.54	1.54	1.53	1.53
31	1.53	1.53	1.53	1.52	1.52	1.52	1.52	1.52	1.51	1.51
32	1.51	1.51	1.51	1.50	1.50	1.50	1.50	1.50	1.49	1.49
33	1.49	1.49	1.49	1.48	1.48	1.48	1.48	1.48	1.47	1.47
34	1.47	1.47	1.47	1.46	1.46	1.46	1.46	1.46	1.45	1.45
35	1.45	1.45	1.45	1.44	1.44	1.44	1.44	1.44	1.44	1.43
36	1.43	1.43	1.43	1.43	1.42	1.42	1.42	1.42	1.42	1.42
37	1.42	1.41	1.41	1.41	1.41	1.41	1.41	1.40	1.40	1.40
38	1.40	1.40	1.40	1.40	1.39	1.39	1.39	1.39	1.39	1.39
39	1.39	1.38	1.38	1.38	1.38	1.38	1.38	1.37	1.37	1.37
40	1.37	1.37	1.37	1.37	1.36	1.36	1.36	1.36	1.36	1.36
41	1.36	1.35	1.35	1.35	1.35	1.35	1.35	1.34	1.34	1.34
42	1.34	1.34	1.34	1.34	1.33	1.33	1.33	1.33	1.33	1.33
43	1.33	1.32	1.32	1.32	1.32	1.32	1.32	1.31	1.31	1.31
44	1.31	1.31	1.31	1.31	1.31	1.30	1.30	1.30	1.30	1.30
45	1.30	1.30	1.30	1.30	1.30	1.29	1.29	1.29	1.29	1.29
46	1.29	1.29	1.29	1.29	1.29	1.28	1.28	1.28	1.28	1.28
47	1.28	1.28	1.28	1.28	1.28	1.27	1.27	1.27	1.27	1.27
48	1.27	1.27	1.27	1.27	1.26	1.26	1.26	1.26	1.26	1.26
49	1.26	1.25	1.25	1.25	1.25	1.25	1.25	1.24	1.24	1.24
50	1.24	1.24	1.24	1.24	1.24	1.23	1.23	1.23	1.23	1.23
51	1.23	1.23	1.23	1.23	1.23	1.22	1.22	1.22	1.22	1.22
52	1.22	1.22	1.22	1.22	1.22	1.21	1.21	1.21	1.21	1.21
53	1.21	1.21	1.21	1.21	1.21	1.20	1.20	1.20	1.20	1.20
54	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.19	1.19
55	1.19	1.19	1.19	1.19	1.19	1.18	1.18	1.18	1.18	1.18
56	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
57	1.18	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
58	1.17	1.17	1.17	1.17	1.17	1.16	1.16	1.16	1.16	1.16
59	1.16	1.16	1.16	1.16	1.16	1.15	1.15	1.15	1.15	1.15
60	1.15									

# TABLE OF RUNOFF FACTORS - FRO

* Zoning Classification	Perm. Class.	1.33 Isohyetal					1.55 Isohyetal					1.77 Isohyetal					1.98 Isohyetal				
		Year frequency					Year frequency					Year frequency					Year frequency				
		1	5	10	25	50	1	5	10	25	50	1	5	10	25	50	1	5	10	25	50
R4, R5, P, PB, CR, C, CM, M, Schools, Playgnds.	100	0.56	0.86	1.00	1.17	1.30	0.65	1.00	1.15	1.36	1.52	0.74	1.14	1.32	1.55	1.73	0.83	1.28	1.49	1.74	1.94
		0.50	0.77	0.89	1.04	1.16	0.59	0.90	1.04	1.23	1.37	0.68	1.04	1.20	1.42	1.58	0.77	1.18	1.36	1.60	1.78
		0.48	0.75	0.87	1.03	1.15	0.56	0.88	1.02	1.21	1.35	0.65	1.02	1.18	1.40	1.56	0.73	1.15	1.33	1.58	1.76
R3 (Level) RS, RI, RE9 (Hillside)	70-1 70-2 70-3	0.42	0.65	0.76	0.92	1.03	0.49	0.77	0.91	1.09	1.23	0.56	0.90	1.06	1.27	1.43	0.63	1.03	1.21	1.45	1.62
		0.46	0.73	0.85	1.00	1.11	0.55	0.87	1.01	1.18	1.31	0.65	1.01	1.16	1.37	1.52	0.74	1.15	1.40	1.55	1.72
		0.41	0.68	0.79	0.95	1.07	0.49	0.81	0.96	1.14	1.28	0.58	0.96	1.12	1.33	1.49	0.68	1.10	1.28	1.52	1.69
R2, RD3 to 6, RW1, RW2	60-1 60-2 60-3	0.37	0.57	0.67	0.82	0.93	0.42	0.68	0.82	0.99	1.12	0.49	0.81	0.96	1.16	1.31	0.56	0.93	1.10	1.33	1.50
		0.40	0.67	0.79	0.95	1.06	0.49	0.82	0.95	1.14	1.28	0.59	0.97	1.13	1.34	1.49	0.68	1.11	1.29	1.53	1.70
		0.33	0.51	0.61	0.78	0.90	0.38	0.62	0.78	0.98	1.13	0.43	0.77	0.95	1.18	1.35	0.49	0.92	1.12	1.38	1.56
RI, RD1.5, RD2, RE1 to 40 (Hillside)	50-1 50-2 50-3	0.28	0.44	0.51	0.60	0.66	0.33	0.51	0.59	0.70	0.80	0.38	0.58	0.67	0.82	0.97	0.42	0.65	0.77	0.98	1.16
		0.41	0.66	0.76	0.91	1.02	0.50	0.79	0.92	1.09	1.22	0.59	0.93	1.09	1.28	1.43	0.68	1.08	1.25	1.47	1.62
		0.29	0.54	0.65	0.80	0.91	0.35	0.68	0.81	0.98	1.12	0.47	0.82	0.97	1.18	1.33	0.56	0.96	1.13	1.36	1.52
RS, RI, RE9 (Level)	40-1 40-2 40-3	0.24	0.37	0.43	0.55	0.64	0.28	0.44	0.54	0.70	0.82	0.32	0.54	0.68	0.86	1.00	0.36	0.65	0.81	1.02	1.18
		0.34	0.60	0.72	0.87	0.98	0.43	0.74	0.88	1.06	1.19	0.54	0.89	1.05	1.26	1.41	0.63	1.04	1.21	1.45	1.62
		0.20	0.33	0.47	0.66	0.79	0.23	0.49	0.66	0.87	1.01	0.27	0.66	0.85	1.08	1.22	0.31	0.83	1.03	1.26	1.43
A1, A2, RA, RE1 to 40 (Level); Undevel. Hillside	35-1 35-2 35-3	0.19	0.30	0.35	0.41	0.46	0.22	0.35	0.40	0.47	0.57	0.26	0.40	0.46	0.60	0.74	0.29	0.45	0.54	0.76	0.92
		0.29	0.53	0.64	0.77	0.87	0.37	0.67	0.79	0.96	1.08	0.47	0.81	0.96	1.16	1.30	0.57	0.96	1.13	1.36	1.52
		0.11	0.21	0.32	0.48	0.60	0.12	0.34	0.48	0.67	0.81	0.14	0.49	0.66	0.88	1.03	0.19	0.64	0.83	1.08	1.25
Park (lawn only) RPD	15-1 15-2 15-3	0.10	0.16	0.18	0.22	0.24	0.11	0.18	0.21	0.25	0.30	0.13	0.21	0.24	0.32	0.43	0.15	0.24	0.29	0.44	0.59

Isohyetal Map - Figure G241.1A      FRO Valves - Figure G242.2 F to K  
 Soil Classifications - Figure G241.2      \*Refer to Figure G241.3 prior to application

# INITIAL OR INLET TIME CHART

FOR SOIL TYPE AND CLASSIFICATION 100; 70-1, 2, 3; 60-1, 2, 3

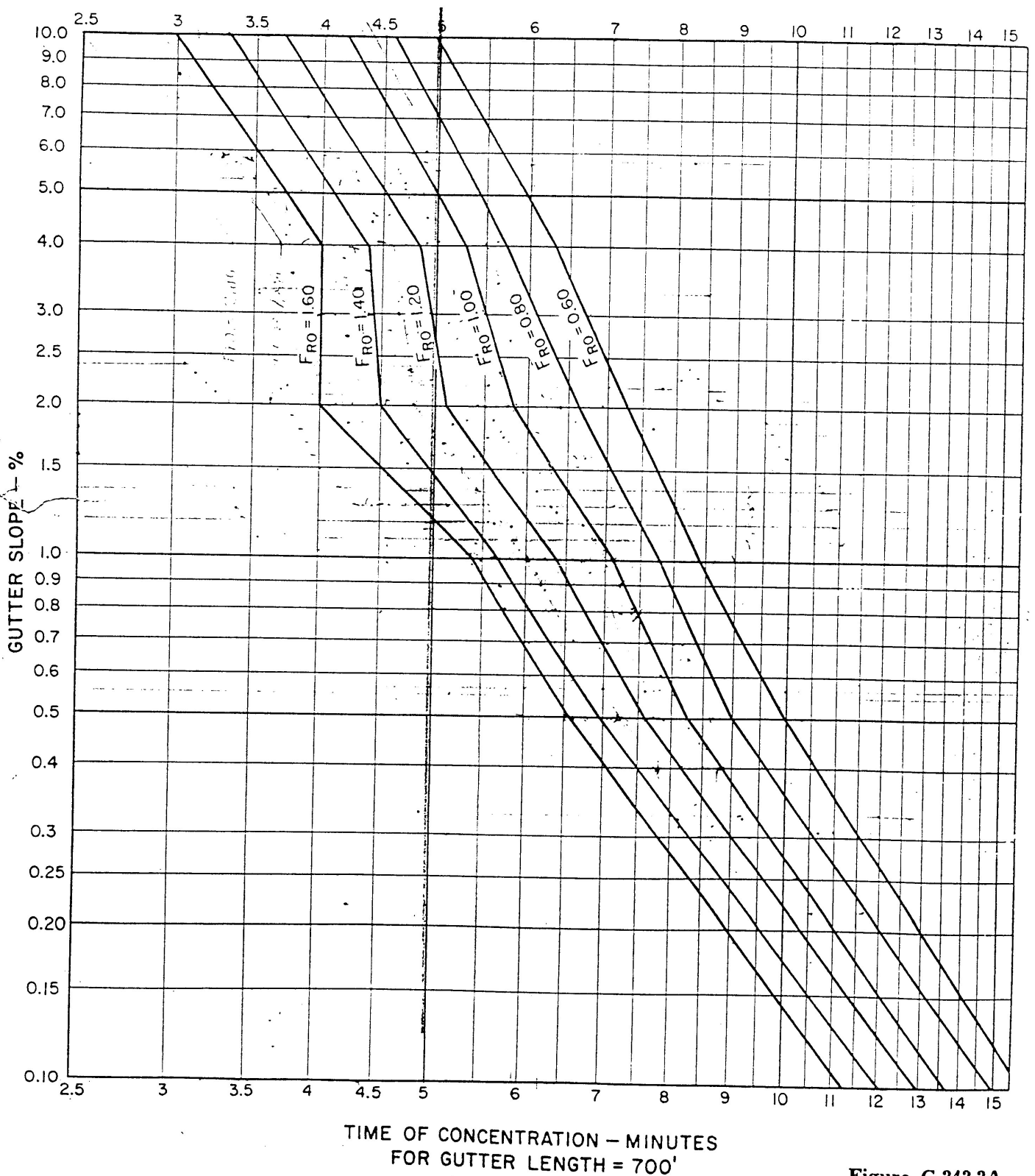
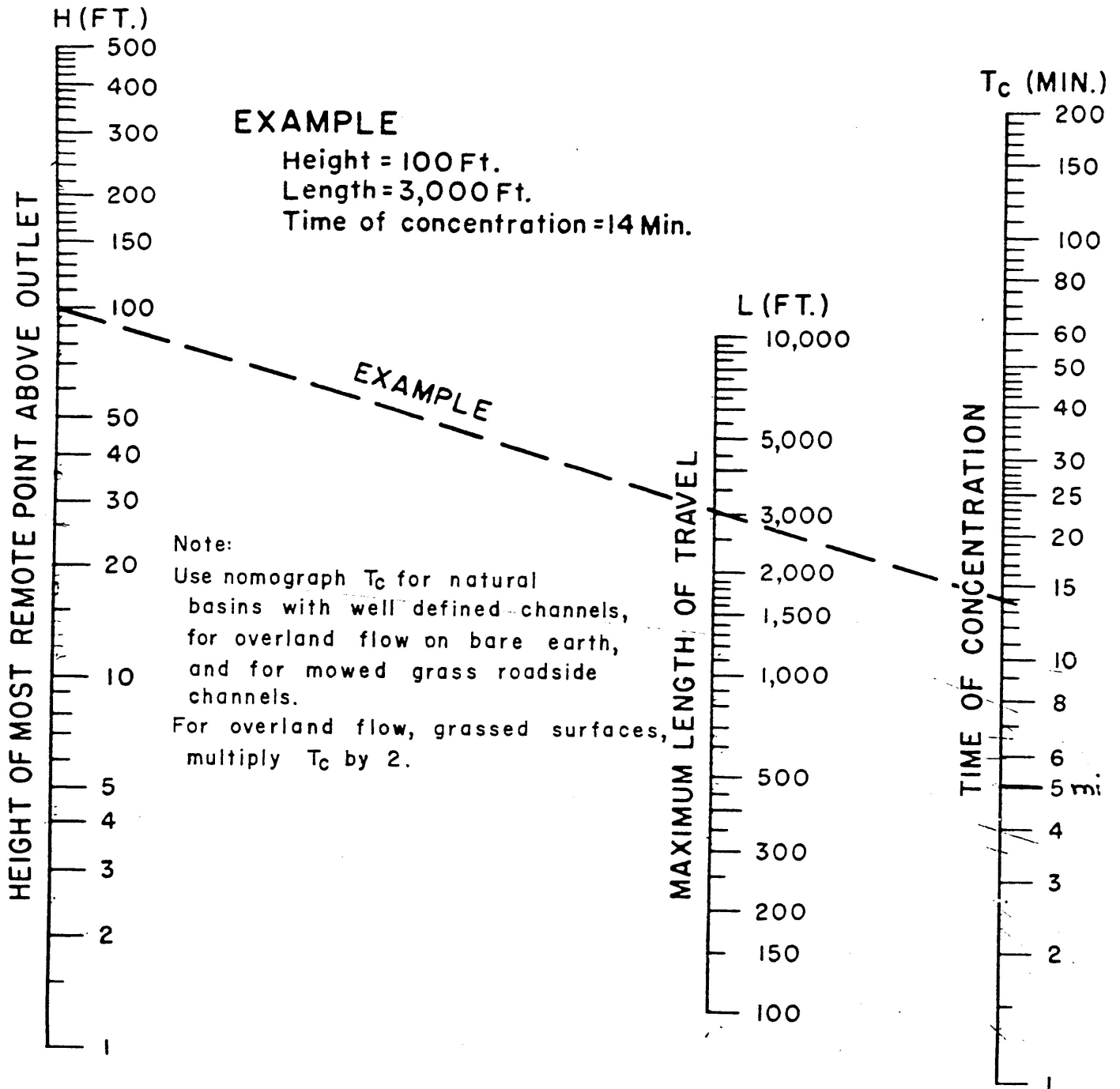


Figure G 242.2A

# TIME OF CONCENTRATION FOR SMALL DRAINAGE BASINS



Based on study by P. Z. Kirpich,  
 Civil Engineering, Vol. 10, No. 6, June 1940, p. 332

Rev. 1973

Figure G 261

# **APPENDIX G**

## Summary of Hydrological Sub-Areas and Acreages

### Conversion Table Pre-Development - Line “A” and Tabling Sheets



SUMMARY OF HYDROLOGICAL SUB-AREAS ACREAGES  
 CONVERSION TABLE  
 PRE-DEVELOPMENT  
LINE "A"  
 EXIST. 36" R.C.P. UNDER MULHOLLAND DRIVE AT SPEILBERG DRIVE

Area No.	Dev	ACRES	ΣA	F CLASS	Ae	ISO.	ΣAe @ Point
				F 100%			
1-A	35-1	4.8	4.80	0.754	3.62	1.33	3.62
*2-A	100	1.29	6.09	1.000	1.29	1.33	7.06
	70-1	2.41	8.50	0.892	2.15		
3-A	35-1	9.40	17.90	0.754	7.09	1.33	14.15
4-A	70-1	2.7	20.60	0.892	2.41	1.33	16.56
5-A	70-1	6.0	26.60	0.892	5.35	1.33	21.91
6-A	100	0.5	27.10	1.000	0.50	1.33	22.41
7-A	100	1.8	28.90	1.000	1.80	1.33	24.21
*2-A DRAIN FROM STARK VILLA							
1A	100	0.93	0.93	1.000	0.93	1.33	0.93
2A	70-1	0.80	1.73	0.892	0.71	1.33	1.64
3A	70-1	0.10	1.83	0.892	0.09	1.33	1.73
4A	70-1	0.66	2.49	0.892	0.59	1.33	2.32
4B	70-1	0.85	3.34	0.892	0.76	1.33	3.08
6A	100	0.12	3.46	1.000	0.12	1.33	3.20
7A	100	0.24	3.70	1.000	0.24	1.33	3.44

Classifications  
 100, 50 yr., Fro = 1.30,  
 70-1, 50 yr Fro = 1.16,  
 35-1, 50 yr.Fro = 0.98,

Area Conversion Factors  
 1.30/1.30 = 1.00,  
 1.16/1.30 = 0.892,  
 0.98/1.30 = 0.754,

**TABLING SHEET**  
**PEAK RATE METHOD**  
 1939 RUNOFF INSTRUCTIONS

STORM DRAIN DESIGN DIVISION

Approved Dec 18 1968

*Henry P. Cole*  
 DIVISION ENGINEER

Designed by

RSH, IRC

Drawn by

RWF, RK

Reviewed by

J. D. Reny

Date

1969

TABLED BY PAGE ENGR,  
 CHECKED BY \_\_\_\_\_  
 SUPERVISED BY \_\_\_\_\_

CITY OF LOS ANGELES  
 Department of Public Works  
 Bureau of Engineering

STORM DRAIN DESIGN  
**RUNOFF TABLING SHEET**  
 Frequency 50 Year

POST DEVELOPMENT - LINE A  
 EXTENSION OF EX. 307, 308 AT  
 SPEILBERG DR. AT MULHOLLAND DR.

PAGE ENGR.  
 Date: 4-19-00

SHEET 2 OF 2  
 Lines:

Drainage Map Area No.	Acres	Runoff 100% A <sub>s</sub>	Flow Routing			Storm Drain	Isa	Freq. 1 hr. RFR	Dist. Factor	Amen. 1 hr. RFR	F <sub>no</sub>	BPRR	Friction Slope (S)	Q <sub>5/2</sub>	Size	Area (sq. ft)	Vel. (ft/sec)	T <sub>seg</sub> (min)	T <sub>c</sub> (min)	Storm Drain Station	Location	Remarks
			N	S	E																	
1A	1.73	IA 1.64													15"	1,23	5.9	330	4.7		ACCESS ROAD On Site In Sump	Per Fig. 644, 2A L=400', S=0.09 T <sub>c</sub> =6.2 (400) <sup>1/2</sup> , T <sub>c</sub> =4.7
2A	1.73	IA 1.64					7.2	1.33	1.00	1.36	3.46	1.0048			15"				0.9			
3A	1.61	IA 1.44													18" x 24" Ave. Area	2.46	5.3	232	5.6		Lateral Junction	
4A	0.36	IA 0.36													24"	1.75	7.8	205	6.3		"	
6A	3.70	IA 3.44					13.7				3.07	1.0065			24"			0.4			C.B. At Mulholland Dr.	
7A	3.70	IA 3.44					13.7				3.07	1.0065			24"			0.4			Junction With Main Line	See Sheet 1 of 1, Line 14
1A TO 7A	3.70	IA 3.44					(13.7) 13.4				2.99							6.7				
		A																				
		IA																				
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# **Appendix H**

## **Summary of Hydrological Sub-Areas and Acreages**

### **Conversion Table Pre-Development - Line “B” Existing Caltrans Storm Drain System In Calabasas and Tabling Sheets**

**SUMMARY OF HYDROLOGICAL SUB-AREAS ACREAGES  
CONVERSION TABLE  
FOR POST DEVELOPMENT**

**LINE "B" - EXIST CALTRANS 39" R.C.P.**

Area No.	Dev	ACRES	ΣA	F CLASS	Ae	ISO.	ΣAe @ Point
				F 100%			
1-B	100	1.7	1.7	1.00	1.7	1.33	1.7
2-B	70-1	11.4	13.1	0.892	10.17	1.33	11.87
3-B	100	3.6	16.7	1.00	3.6	1.33	3.60
4-B	100	2.3	19.0	1.00	2.3	1.33	5.90
(6-A)/2	70-1	3.0	22.0	0.892	2.68	1.33	8.58
5-B	100	0.4	22.4	1.00	0.4	1.33	20.85
6-B	35-1	0.5	22.9	0.754	0.38	1.33	21.23
7-B	100	2.1	25.0	1.00	2.1	1.33	23.33

**EXISTING CALTRANS STORM DRAIN SYSTEM IN CALABASAS ROAD**

Area No.	Dev	ACRES	ΣA	F CLASS	Ae	ISO.	ΣAe @ Point
				F 100%			
1-C	100	0.7	0.7	1.00	0.7	1.33	0.7

Classifications

100, 50 yr., Fro = 130,  
70-1, 50 yr., Fro = 1.16  
35-1, 50 yr., Fro = 0.98,

Area Conversion Factors

$1.30/1.30 = 1.00$   
 $1.16/1.30 = 0.892,$   
 $.098/1.30 = 0.754$



# **Appendix I**

## **Summary of Hydrological Sub-Areas and Acreages**

### **Conversion Table Post-Development - Line “A” and Tabling Sheets**

SUMMARY OF HYDROLOGICAL SUB-AREA ACREAGES  
 CONVERSION TABLE  
 POST DEVELOPMENT  
 LINE "A"

EXIST. 36" R.C.P. UNDER MULHOLLAND DRIVE AT SPEILBERG DRIVE

Area No.	Dev	ACRES	ΣA	F CLASS	Ae	ISO.	ΣAe @ Point
				F 100%			
1-A	70-1	2.2	2.2	0.892	1.96	1.33	1.96
1-A <sub>1</sub>	70-1	1.1	3.3	0.892	0.98	1.33	2.94
2-A	70-1	5.0	8.3	0.892	4.46	1.33	8.53
	35-1	1.5	9.8	0.754	1.13		
3-A	70-1	1.5	11.3	0.892	1.34	1.33	9.87
3-A <sub>1</sub>	70-1	1.1	12.4	0.892	0.98	1.33	10.85
4-A	100	1.4	13.8	1.00	1.4	1.33	12.25
X-A	100	1.29	15.09	1.00	1.29	1.33	15.69
	70-1	2.41	17.5	0.892	2.15		
5-A	70-1	2.7	20.2	0.892	2.41	1.33	18.10
(6-A)/2	70-1	3.0	28.2	0.892	2.68	1.33	20.78
7-A	100	0.9	24.1	1.00	0.9	1.33	21.68
8-A	100	1.8	25.9	1.00	1.8	1.33	23.48
X-A	DRAIN FROM STARK VILLA						
1A	100	0.93	0.93	1.00	0.93	1.33	0.93
2A	70-1	0.80	1.73	0.892	0.71	1.33	1.64
3A	70-1	0.10	1.83	0.892	0.09	1.33	1.73
4A	70-1	0.66	2.49	0.892	0.59	1.33	2.32
4B	70-1	0.85	3.34	0.892	0.76	1.33	3.08
6A	100	0.12	3.46	1.00	0.12	1.33	3.20
7A	100	0.24	3.70	1.00	0.24	1.33	3.44

**Classifications**

100, 50 yr., Fro = 1.30  
 70-1, 50 yr Fro = 1.16  
 35-1, 50 yr.Fro = 0.98,

**Area Conversion Factors**

$1.30/1.30 = 1.00$   
 $1.16/1.30 = 0.892$ ,  
 $0.98/1.30 = 0.754$

OFFICE STANDARD

NO. 91A

STORM DRAIN DESIGN DIVISION  
 TABLED BY: LANCE ENGR  
 CHECKED BY: \_\_\_\_\_  
 SUPERVISED BY: \_\_\_\_\_  
 CITY OF LOS ANGELES  
 Department of Public Works  
 Bureau of Engineering  
 STORM DRAIN DESIGN  
 RUNOFF TABLING SHEET  
 Frequency 50 Year

STORM DRAIN DESIGN DIVISION

Approved: Dec 10 1968  
Henry P. Cole  
 DIVISION ENGINEER

Designed by: RSH, IRC  
 Drawn by: RWF, RK  
 Date: 1969  
 Revised by: J. D. Reny

Drainage Map Area No.	Acres	Runoff %	Flow Routing					Storm Drain	Isa.	Freq. 1 hr. RFR	Dist. Factor	Amen. 1 hr. RFR	F <sub>no</sub>	BPRR	Friction Slope (S)	Q <sub>5/2</sub>	Size	Area (sq. ft)	Vel. (ft/sec)	E <sub>5/2</sub> (ft)	L <sub>c</sub> or L <sub>ex</sub> (ft)	Storm Drain Station	Location	Remarks	
			N	S	E	W	Drain																		
1-A	2.2	100						1.33	1.00		1.30	3.03	.010	77	15" PVC	0.99	7.78	320	6.5		Future Drive	IN SITE	Per Fig. 242.2A L=700', ST.S.=0.010 L <sub>c</sub> =6.5		
1-A1	3.3	100																							
			1.1	A	0.98																				
2-A	6.5	100																							
			3.3	IA	2.94																				
3-A	11.3	100																							
			1.5	A	1.34																				
3-A1	13.8	100																							
			2.5	A	2.38																				
4-A	13.8	100																							
			4.4	IA	12.25																				
4-A TO 4-A	6.4	100																							
			13.8	IA	12.25																				
KA (Stark Villa)	6.4	100																							
			4.4	A	5.85																				
5-A	20.2	100																							
			2.5	IA	18.10																				
5-A	3.9	100																							
			24.1	IA	3.51																				
7-A	1.8	100																							
			25.9	IA	21.68																				
8-A	1.8	100																							
			25.9	IA	3.42																				

Number sequence of tabling sheets for entire drain \* Surface flow contributing to the storm drain Δ Initial time of concentration

Project: M.P.T.F. PROPERTY LINE "A"  
 POST DEVELOPMENT OF EX. 301 R.C.P. AT  
 SYSTEM: EXTENSION OF S. PELTBURG DR. AT MULHOLLAND DR.  
 Date: 4-19-60  
 Des. Office: RICE ENGRS.  
 Sheet 1 of Lines:



TABLING SHEET  
PEAK RATE METHOD  
1939 RUNOFF INSTRUCTIONS

STORM DRAIN DESIGN DIVISION

Approved Dec 18 1968

Ray P. Cole  
DIVISION ENGINEER

Designed by  
RSH, IRC

Drawn by  
RWF, RK

Revised by  
J. D. Reny

Date  
1969

CHECKED BY  
SUPERVISED BY

Department of Public Works  
Bureau of Engineering

RUNOFF TABLING SHEET  
Frequency 50 Year

System: EX. CALTRANS STORM DRAIN IN CALABASAS ROAD  
DATE EX. CALTRANS DRAIN IN CALABASAS ROAD

DATE: 4-5-00  
Rev. 10-20-00

Sheet 1 of 1  
Lines

Drainage Map Area No.	Acres	Runoff 100% Ag	Flow Routing							Storm Drain	Isa.	Freq 1 hr. RFR	Dist Factor	Amen 1 hr. RFR	F <sub>no</sub>	BPRR	Friction Slope (S)	Q <sub>1/2</sub>	Size	Area (sq. ft)	Vel. (ft/sec)	E <sub>g</sub> (ft)	L <sub>c</sub> (ft)	Storm Drain Station	Location	Remarks	
			N	S	E	W																					
1-B	1.7	A 1.7 q 3.84 0 6.77							4.7	1.33	1.00	11	1.30	3.03	.0176	(226) 51	EX 24"	(314) 0.87	7.7	1080	4.5	2.3	10+35.99	PVT. STORM DRAIN			
2-B	11.4	A 10.17 IA 11.87 q 3.46 0 41.1							41.1	"	"	"	4	2.66							8.8	10+35.99	AT 30" R.C.P. MULHOLLAND DR				
3-B, 4-B, 7-A, 2	8.9	A 8.58 IA 20.45 q 3.41 0 69.7							69.7	"	"	"	4	2.62	.0176	(825) 525	30" EXIST	(830) 4.98	14.0	326	9.1	0.4	10+35.99	AVE SAN LUIS Add 10' extend from Area 7-A	See Line 20		
5-B, 6-B	0.9	A 0.78 IA 21.23 q 3.34 0 70.9							70.9	"	"	"	11	2.57	.0037	(825) 1166	30" EXIST	8.30	8.5	628	9.5	1.2	11+10.00	Mulholland Dr.	Lateral From Venturia Frewy.		
7-B	2.1	A 2.1 IA 23.33 q 3.17 0 74.0							74.0	"	"	"	11	2.44	.0030	(825) 1351	"	8.30	8.9	72	10.7	0.1	0+10.00	Mulholland Dr.	Lateral From Venturia Frewy.		
1-B to 7-B, 4, 2-A, 2	25.0	IA 23.33 q 3.16 0 73.7							(74.0) 73.7	11	11	11	4	2.43							10.8	0.1	0+10.00	AT L.R.C.D. P.W. Dr. Canyon			
1-C	0.7	A 0.7 IA 0.42 q 3.1							3.1	"	"	"	11	3.40							5.0				CALABASAS ROAD	use 5.0	
6-A, 2	3.0	A 2.68 IA 2.68 q 4.42 0 11.8							11.8	"	"	"	11	3.40	.020	(226) 83	24" O	1.25	9.4	725	5.0	1.3			Mulholland Dr.	Area 6-A split Area A=3.0, A=1.34, Tc=	
11	3.0	IA 2.68 q 3.44 0 10.1							(11.8) 10.1	"	"	"	11	3.07							6.3	0.3	13+02.00	AT 30" R.C.P.	(See Line 21)		
3-B	5.9	A 5.9 IA 5.9 q 3.17 0 18.7							18.7	"	"	"	11	2.94	.0176	(825) 141	30" EXIST	(830) 1.90	9.1	29	10.7	0.1	13+31.00	MULHOLLAND DR AT Sum?	St.S. = .0098, L=2222, Tc=6.0 (700) Tc=10.7		
4-B	5.9	A 5.9 IA 5.9 q 3.16 0 18.6							(18.7) 18.6	"	"	"	11	2.43							10.8		13+02.00	Junction with lateral from Area 6-A	Add 1/2 of 6-A A=3.020 (see line 24) Tc=9.1		
3-B, 4-B, 6-A, 2	8.9	IA 8.58 q 3.41 0 29.3							29.3	"	"	"	11	2.62	.0176		30" EXIST				9.1		13+02.00	"	Tc=9.1		

Number sequence of tabling sheets for entire drain \* Surface flow contributing to the storm drain Δ Initial time of concentration

# **Appendix J**

## **Summary of Hydrological Sub-Areas and Acreages**

## **Conversion Table Post-Development - Line “B” and Tabling Sheets**

# **APPENDIX K**

Line “A”

Existing 36" R.C.P. Under

Mulholland Drive at

Speilberg Drive -

Pre-Development

and

“W.S.P.G.W.” Hydraulic Printouts

T1	EXISTING 36" R.C.P. UNDER MULHOLLAND DRIVE										
T2	AT SPEILBERG DRIVE-PRE-DEVELOPMENT										0
T3	LINE "A" -W.O. 2778										
SO	742.000	921.250	1								
R	1028.000	929.390	1		.013				926.100		
JX	1032.000	929.420	1	2	.013	7.100				.000	.000 0
R	1072.000	929.500	1		.013				930.140	-90.0	.000
JX	1074.000	929.600	1	2	.013	16.600				.000	-90.000 1
R	1222.000	930.750	1		.013				931.200	74.3	.000
SH	1222.000	930.750	1							.000	.000 0
CD	1	4	1		.000	3.000	.000	.000	.000	930.750	.00
CD	2	4	1		.000	1.500	.000	.000	.000		.00
CD	3	4	1		.000	2.000	.000	.000	.000		.00
Q		56.600		.0							

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING 36" R.C.P. UNDER MULHOLLAND DRIVE  
 AT SPEILBERG DRIVE-PRE-DEVELOPMENT  
 LINE "A" -W.O. 2778

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wth Prs/Pip	
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	"N"	X-Fall	ZR	Type Ch				
742.000	921.250	4.850	926.100	80.30	11.36	2.00	928.10	.00	2.77	.00	.00	3.000	.000	.00	1	.0
62.242	.0285				.0145	.90	4.85		.00	1.87		.013	.00	.00		PIPE
804.242	923.022	3.981	927.002	80.30	11.36	2.00	929.01	.00	2.77	.00	.00	3.000	.000	.00	1	.0
HYDRAULIC JUMP																
804.242	923.022	1.919	924.941	80.30	16.81	4.39	929.33	.00	2.77	2.88		3.000	.000	.00	1	.0
69.870	.0285				.0258	1.80	1.92		2.30	1.87		.013	.00	.00		PIPE
874.112	925.010	1.958	926.969	80.30	16.43	4.19	931.16	.00	2.77	2.86		3.000	.000	.00	1	.0
61.544	.0285				.0236	1.46	1.96		2.21	1.87		.013	.00	.00		PIPE
935.656	926.762	2.043	928.805	80.30	15.66	3.81	932.61	.00	2.77	2.80		3.000	.000	.00	1	.0
34.520	.0285				.0211	.73	2.04		2.04	1.87		.013	.00	.00		PIPE
970.176	927.744	2.133	929.878	80.30	14.94	3.46	933.34	.00	2.77	2.72		3.000	.000	.00	1	.0
22.451	.0285				.0188	.42	2.13		1.87	1.87		.013	.00	.00		PIPE
992.628	928.383	2.232	930.615	80.30	14.24	3.15	933.76	.00	2.77	2.62		3.000	.000	.00	1	.0
15.413	.0285				.0169	.26	2.23		1.71	1.87		.013	.00	.00		PIPE
1008.040	928.822	2.339	931.161	80.30	13.58	2.86	934.02	.00	2.77	2.49		3.000	.000	.00	1	.0
10.573	.0285				.0152	.16	2.34		1.55	1.87		.013	.00	.00		PIPE
1018.613	929.123	2.460	931.583	80.30	12.95	2.60	934.18	.00	2.77	2.31		3.000	.000	.00	1	.0
6.704	.0285				.0139	.09	2.46		1.39	1.87		.013	.00	.00		PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING 36" R.C.P. UNDER MULHOLLAND DRIVE  
 AT SPEILBERG DRIVE-PRE-DEVELOPMENT  
 LINE "A" -W.O. 2778

Date: 4-19-2000 Time: 2:16:47

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.	Base Wt or I.D.	ZL	ZR	No Wth Prs/Pip
1025.317	929.314	2.599	931.912	80.30	12.34	2.37	934.28	.00	2.77	2.04	3.000	.000	.00	.00	1 .0
2.683	.0285					.0129	.03	2.60	1.22	1.87	.013	.00	.00		PIPE
1028.000	929.390	2.773	932.163	80.30	11.77	2.15	934.31	.00	2.77	1.59	3.000	.000	.00	.00	1 .0
JUJCT STR	.0075					.0123	.05	2.77	1.00		.013	.00	.00		PIPE
1032.000	929.420	3.627	933.047	73.20	10.36	1.67	934.71	.00	2.70	.00	3.000	.000	.00	.00	1 .0
40.000	.0020					.0120	.48	3.63	.00	3.00	.013	.00	.00		PIPE
1072.000	929.500	4.607	934.107	73.20	10.36	1.67	935.77	.00	2.70	.00	3.000	.000	.00	.00	1 .0
JUJCT STR	.0500					.0096	.02	4.61	.00		.013	.00	.00		PIPE
1074.000	929.600	5.680	935.280	56.60	8.01	1.00	936.28	.00	2.44	.00	3.000	.000	.00	.00	1 .0
148.000	.0078					.0072	1.07	5.68	.00	2.36	.013	.00	.00		PIPE
1222.000	930.750	5.596	936.346	56.60	8.01	1.00	937.34	.00	2.44	.00	3.000	.000	.00	.00	1 .0

# APPENDIX L

Line "A"  
Existing 36" R.C.P. Under  
Mulholland Drive at  
Speilberg Drive -  
Post-Development  
and  
"W.S.P.G.W." Hydraulic Printouts

T1	EXISTING 36" R.C.P UNDER MULHOLLAND DRIVE AT										0
T2	SPEILBERG DRIVE- REMODEL UPSTREAM END TO ELIMINATE										
T3	90 DEG. ANGLE POINT-POST DEVELOPMENT. W.O.2778										
SO	742.000	921.250	1							926.100	
R	1028.000	929.390	1		.013						
JX	1032.000	929.420	1	2	.013	5.900				930.140	.000 .000 0
R	1057.000	929.620	1		.013						90.0 .000
JX	1059.000	929.640	1	2	.013	10.900				931.500	31.831 .000 1
R	1103.000	929.830	1		.013						30.0 2.546
R	1209.000	930.750	1		.013						56.023 .000 0
SH	1209.000	930.750	1								.000 .000 0
CD	1	4	1		.000	3.000	.000	.000	.000	930.750	.00
CD	2	4	1		.000	1.500	.000	.000	.000	.00	.00
CD	3	4	1		.000	1.500	.000	.000	.000	.00	.00
Q		63.500	.0				.000	.000	.000	.00	



W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING 36" R.C.P UNDER MULHOLLAND DRIVE AT  
 SPEILBERG DRIVE- REMODEL UPSTREAM END TO ELIMINATE  
 90 DEG. ANGLE POINT-POST DEVELOPMENT. W.O.2778

Date: 4-19-2000 Time: 2:21:11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave		HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	Type Ch
742.000	921.250	4.850	926.100	80.30	11.36	2.00	928.10	.00	2.77	.00	3.000	.000	1 .0
62.242	.0285					.0145	.90	4.85	.00	1.87	.013	.00	PIPE
804.242	923.022	3.981	927.002	80.30	11.36	2.00	929.01	.00	2.77	.00	3.000	.000	1 .0
HYDRAULIC JUMP													
804.242	923.022	1.919	924.941	80.30	16.81	4.39	929.33	.00	2.77	2.88	3.000	.000	1 .0
69.870	.0285				.0258		1.80	1.92	2.30	1.87	.013	.00	PIPE
874.112	925.010	1.958	926.969	80.30	16.43	4.19	931.16	.00	2.77	2.86	3.000	.000	1 .0
61.544	.0285				.0236		1.46	1.96	2.21	1.87	.013	.00	PIPE
935.656	926.762	2.043	928.805	80.30	15.66	3.81	932.61	.00	2.77	2.80	3.000	.000	1 .0
34.520	.0285				.0211		.73	2.04	2.04	1.87	.013	.00	PIPE
970.176	927.744	2.133	929.878	80.30	14.94	3.46	933.34	.00	2.77	2.72	3.000	.000	1 .0
22.451	.0285				.0188		.42	2.13	1.87	1.87	.013	.00	PIPE
992.628	928.383	2.232	930.615	80.30	14.24	3.15	933.76	.00	2.77	2.62	3.000	.000	1 .0
15.413	.0285				.0169		.26	2.23	1.71	1.87	.013	.00	PIPE
1008.040	928.822	2.339	931.161	80.30	13.58	2.86	934.02	.00	2.77	2.49	3.000	.000	1 .0
10.573	.0285				.0152		.16	2.34	1.55	1.87	.013	.00	PIPE
1018.613	929.123	2.460	931.583	80.30	12.95	2.60	934.18	.00	2.77	2.31	3.000	.000	1 .0
6.704	.0285				.0139		.09	2.46	1.39	1.87	.013	.00	PIPE



# **APPENDIX M**

Line "B"  
Existing 39" R.C.P.  
Caltrans Drain -  
Pre-Development  
and  
"W.S.P.G.W." Hydraulic Printouts

T1	EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND										0
T2	MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS										
T3	W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW										
SO	40.000	906.000	1								
R	82.220	906.150	1	.013			910.683				
JX	82.220	906.160	1	2	.013	3.300		906.790	.000	.000	0
R	325.000	907.000	1		.013				90.0		.000
R	412.880	907.270	1		.013				.000	.000	1
R	550.000	907.700	1		.013				.000	.000	0
R	710.000	909.000	1		.013				15.465	.000	0
JX	710.000	909.010	1	2	.013	1.300		909.640	-18.046	.000	1
R	748.880	909.680	1		.013				55.5		.000
R	933.880	912.940	1		.013				.000	.000	0
R	1022.500	914.500	1		.013				.000	.000	0
R	1035.990	914.750	1		.013				-56.417	.000	0
JX	1035.990	914.760	1	2	.013	40.300		915.380	.000	.000	0
R	1050.990	915.000	1		.013				65.0		.000
JX	1050.990	915.010	1	2	.013	.001		915.730	.000	.000	1
R	1137.870	915.760	1		.013				70.0		.000
R	1184.990	916.180	1		.013				.000	.000	0
R	1201.730	916.330	1		.013				29.998	.000	0
R	1248.850	916.740	1		.013				.000	.000	0
R	1266.910	916.900	1		.013				29.998	.000	0
R	1335.410	919.920	1		.013				.000	.000	1
JX	1335.410	919.930	1	2	2.013	9.350	9.350	920.560	.000	.000	0
SH	1335.410	919.930	1					919.930	920.560	47.0-65.0	.000
CD	1	4	1		.000	3.250	.000	.000	.000	.00	
CD	2	4	1		.000	2.000	.000	.000	.000	.00	
CD	3	4	1		.000	2.000	.000	.000	.000	.00	
Q					.001	.0					

For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
40.000	906.000	4.683	910.683	63.60	7.67	.91	911.60	.00	2.54	.00	3.250	.000	.00	1 .0
42.220	.0036					.0059	.25	4.68	.00	3.25	.013	.00	.00	PIPE
82.220	906.150	4.783	910.933	63.60	7.67	.91	911.85	.00	2.54	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0056	.00	4.78	.00		.013	.00	.00	PIPE
82.220	906.160	4.958	911.118	60.30	7.27	.82	911.94	.00	2.48	.00	3.250	.000	.00	1 .0
242.780	.0035					.0053	1.29	4.96	.00	3.25	.013	.00	.00	PIPE
325.000	907.000	5.454	912.454	60.30	7.27	.82	913.27	.00	2.48	.00	3.250	.000	.00	1 .0
87.880	.0031					.0053	.47	5.45	.00	3.25	.013	.00	.00	PIPE
412.880	907.270	5.653	912.923	60.30	7.27	.82	913.74	.00	2.48	.00	3.250	.000	.00	1 .0
137.120	.0031					.0053	.73	.00	.00	3.25	.013	.00	.00	PIPE
550.000	907.700	6.022	913.722	60.30	7.27	.82	914.54	.00	2.48	.00	3.250	.000	.00	1 .0
160.000	.0081					.0053	.85	.00	.00	2.22	.013	.00	.00	PIPE
710.000	909.000	5.690	914.690	60.30	7.27	.82	915.51	.00	2.48	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0052	.00	5.69	.00		.013	.00	.00	PIPE
710.000	909.010	5.749	914.759	59.00	7.11	.79	915.54	.00	2.45	.00	3.250	.000	.00	1 .0
38.880	.0172					.0051	.20	5.75	.00	1.71	.013	.00	.00	PIPE
748.880	909.680	5.277	914.957	59.00	7.11	.79	915.74	.00	2.45	.00	3.250	.000	.00	1 .0
158.608	.0175					.0051	.81	5.28	.00	1.70	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Date: 10-20-2000 Time: 1:38:21

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wth Prs/Pip
907.488	912.475	3.291	915.766	59.00	7.11	.79	916.55	.00	2.45	.00	3.250	.000	.00	1 .0
HYDRAULIC JUMP														
907.488	912.475	1.768	914.243	59.00	12.80	2.54	916.79	.00	2.45	3.24	3.250	.000	.00	1 .0
26.392	.0176					.0151	.40	1.77	1.89	1.70	.013	.00	.00	PIPE
933.880	912.940	1.794	914.734	59.00	12.56	2.45	917.19	.18	2.45	3.23	3.250	.000	.00	1 .0
34.822	.0176					.0140	.49	1.97	1.84	1.70	.013	.00	.00	PIPE
968.702	913.553	1.852	915.404	59.00	12.09	2.27	917.67	.16	2.45	3.22	3.250	.000	.00	1 .0
25.969	.0176					.0125	.33	2.01	1.73	1.70	.013	.00	.00	PIPE
994.672	914.010	1.926	915.936	59.00	11.52	2.06	918.00	.15	2.45	3.19	3.250	.000	.00	1 .0
16.671	.0176					.0111	.18	2.07	1.60	1.70	.013	.00	.00	PIPE
1011.343	914.304	2.005	916.308	59.00	10.99	1.87	918.18	.13	2.45	3.16	3.250	.000	.00	1 .0
11.157	.0176					.0098	.11	2.14	1.49	1.70	.013	.00	.00	PIPE
1022.500	914.500	2.088	916.588	59.00	10.48	1.70	918.29	.00	2.45	3.12	3.250	.000	.00	1 .0
4.844	.0185					.0089	.04	2.09	1.37	1.67	.013	.00	.00	PIPE
1027.344	914.590	2.147	916.737	59.00	10.14	1.60	918.34	.00	2.45	3.08	3.250	.000	.00	1 .0
4.969	.0185					.0081	.04	2.15	1.30	1.67	.013	.00	.00	PIPE
1032.313	914.682	2.241	916.922	59.00	9.67	1.45	918.38	.00	2.45	3.01	3.250	.000	.00	1 .0
2.780	.0185					.0072	.02	2.24	1.20	1.67	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Date: 10-20-2000 Time: 1:38:21

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1035.093	914.733	2.341	917.075	59.00	9.22	1.32	918.40	.00	2.45	2.92	3.250	.000	.00	1 .0
	.0185					.0064	.01	2.34	1.10	1.67	.013	.00	.00	PIPE
1035.990	914.750	2.451	917.201	59.00	8.79	1.20	918.40	.00	2.45	2.80	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0033	.00	2.45	1.00		.013	.00	.00	PIPE
1035.990	914.760	3.562	918.322	18.70	2.25	.08	918.40	.00	1.35	.00	3.250	.000	.00	1 .0
	.0160					.0005	.01	3.56	.00	.93	.013	.00	.00	PIPE
JUNCT STR	.0000					.0005	.00	3.33	.00		.013	.00	.00	PIPE
1050.990	915.010	3.324	918.334	18.70	2.25	.08	918.41	.00	1.35	.00	3.250	.000	.00	1 .0
	.0086					.0005	.00	3.32	.00	1.09	.013	.00	.00	PIPE
1060.063	915.088	3.250	918.338	18.70	2.25	.08	918.42	.00	1.35	.00	3.250	.000	.00	1 .0
	.0086					.0005	.02	3.25	.00	1.09	.013	.00	.00	PIPE
1095.916	915.398	2.949	918.347	18.70	2.36	.09	918.43	.00	1.35	1.89	3.250	.000	.00	1 .0
	.0086					.0005	.01	2.95	.20	1.09	.013	.00	.00	PIPE
20.362														
1116.278	915.574	2.774	918.347	18.70	2.48	.10	918.44	.00	1.35	2.30	3.250	.000	.00	1 .0
	.0086					.0005	.01	2.77	.24	1.09	.013	.00	.00	PIPE
16.575														
1132.853	915.717	2.629	918.346	18.70	2.60	.11	918.45	.00	1.35	2.55	3.250	.000	.00	1 .0
	.0086					.0005	.00	2.63	.27	1.09	.013	.00	.00	PIPE
5.017														





W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
1208.409	916.388	.925	917.313	18.70	9.62	1.44	918.75	.09	1.35	2.93	3.250	.000	.00	1 .0
8.611	.0087					.0171	.15	1.02	2.08	1.09	.013	.00	.00	PIPE
1217.020	916.463	.905	917.368	18.70	9.90	1.52	918.89	.10	1.35	2.91	3.250	.000	.00	1 .0
11.715	.0087					.0191	.22	1.00	2.17	1.09	.013	.00	.00	PIPE
1228.735	916.565	.875	917.440	18.70	10.39	1.68	919.12	.11	1.35	2.88	3.250	.000	.00	1 .0
10.522	.0087					.0218	.23	.98	2.32	1.09	.013	.00	.00	PIPE
1239.257	916.656	.846	917.502	18.70	10.89	1.84	919.35	.12	1.35	2.85	3.250	.000	.00	1 .0
9.593	.0087					.0250	.24	.96	2.47	1.09	.013	.00	.00	PIPE
1248.850	916.740	.818	917.558	18.70	11.43	2.03	919.59	.00	1.35	2.82	3.250	.000	.00	1 .0
1.019	.0089					.0269	.03	.82	2.64	1.09	.013	.00	.00	PIPE
1249.869	916.749	.815	917.564	18.70	11.49	2.05	919.61	.00	1.35	2.82	3.250	.000	.00	1 .0
8.836	.0089					.0290	.26	.81	2.66	1.09	.013	.00	.00	PIPE
1258.705	916.827	.788	917.615	18.70	12.05	2.25	919.87	.00	1.35	2.79	3.250	.000	.00	1 .0
8.205	.0089					.0332	.27	.79	2.84	1.09	.013	.00	.00	PIPE
1266.910	916.900	.761	917.661	18.70	12.64	2.48	920.14	.00	1.35	2.75	3.250	.000	.00	1 .0
12.026	.0441					.0341	.41	.76	3.04	.72	.013	.00	.00	PIPE
1278.936	917.430	.777	918.207	18.70	12.29	2.35	920.55	.00	1.35	2.77	3.250	.000	.00	1 .0
13.920	.0441					.0307	.43	.78	2.92	.72	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Date: 10-20-2000 Time: 1:38:21

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Height/Dia.-FT	Base Wt or I.D.	ZL	NO Wth Prs/Pip
L/Elem	Ch Slope				SF Ave		HF	SE Dpth	Froude N	"N" X-Fall	ZR	Type Ch		
1292.856	918.044	.803	918.847	18.70	11.72	2.13	920.98	.00	1.35	2.80	3.250	.000	.00	1 .0
9.635	.0441					.0268	.26	.80	2.74	.72	.013	.00	.00	PIPE
1302.491	918.469	.831	919.299	18.70	11.17	1.94	921.24	.00	1.35	2.84	3.250	.000	.00	1 .0
7.156	.0441					.0235	.17	.83	2.56	.72	.013	.00	.00	PIPE
1309.647	918.784	.859	919.644	18.70	10.65	1.76	921.41	.00	1.35	2.87	3.250	.000	.00	1 .0
5.542	.0441					.0205	.11	.86	2.40	.72	.013	.00	.00	PIPE
1315.189	919.029	.889	919.918	18.70	10.16	1.60	921.52	.00	1.35	2.90	3.250	.000	.00	1 .0
4.397	.0441					.0180	.08	.89	2.25	.72	.013	.00	.00	PIPE
1319.586	919.222	.920	920.142	18.70	9.69	1.46	921.60	.00	1.35	2.93	3.250	.000	.00	1 .0
3.537	.0441					.0157	.06	.92	2.10	.72	.013	.00	.00	PIPE
1323.123	919.378	.952	920.330	18.70	9.24	1.32	921.65	.00	1.35	2.96	3.250	.000	.00	1 .0
2.875	.0441					.0138	.04	.95	1.97	.72	.013	.00	.00	PIPE
1325.999	919.505	.985	920.490	18.70	8.81	1.20	921.69	.00	1.35	2.99	3.250	.000	.00	1 .0
2.339	.0441					.0120	.03	.99	1.84	.72	.013	.00	.00	PIPE
1328.338	919.608	1.020	920.628	18.70	8.40	1.09	921.72	.00	1.35	3.02	3.250	.000	.00	1 .0
1.897	.0441					.0105	.02	1.02	1.72	.72	.013	.00	.00	PIPE
1330.235	919.692	1.056	920.747	18.70	8.01	1.00	921.74	.00	1.35	3.04	3.250	.000	.00	1 .0
1.526	.0441					.0092	.01	1.06	1.61	.72	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-PRE-DEVELOPMENT CONDITIONS-LINE "B"-2778PRE.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	NO Wth Prs/Pip
1331.760	919.759	1.093	920.852	18.70	7.63	.90	921.76	.00	1.35	3.07	3.250	.000	.00	1 .0
1.207	.0441					.0081	.01	1.09	1.51	.72	.013	.00	.00	PIPE
1332.967	919.812	1.132	920.944	18.70	7.28	.82	921.77	.00	1.35	3.10	3.250	.000	.00	1 .0
.932	.0441					.0071	.01	1.13	1.41	.72	.013	.00	.00	PIPE
1333.899	919.853	1.172	921.025	18.70	6.94	.75	921.77	.00	1.35	3.12	3.250	.000	.00	1 .0
.686	.0441					.0062	.00	1.17	1.32	.72	.013	.00	.00	PIPE
1334.585	919.884	1.214	921.098	18.70	6.62	.68	921.78	.00	1.35	3.14	3.250	.000	.00	1 .0
.468	.0441					.0055	.00	1.21	1.23	.72	.013	.00	.00	PIPE
1335.053	919.904	1.258	921.162	18.70	6.31	.62	921.78	.00	1.35	3.17	3.250	.000	.00	1 .0
.269	.0441					.0048	.00	1.26	1.15	.72	.013	.00	.00	PIPE
1335.322	919.916	1.303	921.219	18.70	6.01	.56	921.78	.00	1.35	3.19	3.250	.000	.00	1 .0
.088	.0441					.0042	.00	1.30	1.07	.72	.013	.00	.00	PIPE
1335.410	919.920	1.352	921.272	18.70	5.73	.51	921.78	.00	1.35	3.20	3.250	.000	.00	1 .0
JUNCT STR	.0000													
----- WARNING - Junction Analysis - Large Lateral Flow(s) -----														
1335.410	919.930	.009	919.939	.00	.45	.00	919.94	.00	.01	.35	3.250	.000	.00	1 .0

# APPENDIX N

Line “B”  
Existing 39" R.C.P.  
Caltrans Drain in  
Mulholland Drive and  
Avenue San Luis  
Per Storm Drain Plans -  
Post-Development  
and  
“W.S.P.G.W.” Hydraulic Printouts

EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW										0	
T1	40.000	906.000	1								
T2	82.220	906.150	1								
T3	82.220	906.160	1	2	.013	3.100			.000	.000	0
SO	325.000	907.000	1		.013		906.790		90.0		.000
R	412.880	907.270	1		.013				.000	.000	1
R	550.000	907.700	1		.013				.000	.000	0
R	710.000	909.000	1		.013				15.465	.000	0
JX	710.000	909.010	1	2	.013	1.200			-18.046	.000	1
R	748.880	909.680	1		.013		909.640		55.5		.000
R	933.880	912.940	1		.013				.000	.000	0
R	1022.500	914.500	1		.013				.000	.000	0
R	1035.990	914.750	1		.013				-56.417	.000	0
JX	1035.990	914.760	1	2	.013	40.400			.000	.000	0
R	1050.990	915.000	1		.013		915.380		65.0		.000
JX	1050.990	915.010	1	2	.013	.001			.000	.000	1
R	1137.870	915.760	1		.013		915.730		70.0		.000
R	1184.990	916.180	1		.013				.000	.000	0
R	1201.730	916.330	1		.013				29.998	.000	0
R	1248.850	916.740	1		.013				.000	.000	0
R	1266.910	916.900	1		.013				29.998	.000	0
R	1307.410	918.680	1		.013				.000	.000	1
JX	1307.410	918.690	1	3	.013	10.600			.000	.000	0
R	1335.410	919.920	1		.013		919.320		45.0		.000
JX	1335.410	919.930	1	2	.013	9.350			.000	.000	0
SH	1335.410	919.930	1	2	2.013	9.350	9.350	920.560	920.560	47.0-65.0	.000
CD	1	4	1		.000	3.250			919.930		
CD	2	4	1		.000	2.000	.000	.000	.000	.00	
CD	3	4	1		.000	2.000	.000	.000	.000	.00	
Q					.001	.0	.000	.000	.000	.00	

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS

Date: 10-18-2000 Time: 1:11:21

W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
40.000	906.000	4.683	910.683	74.00	8.92	1.24	911.92	.00	2.72	.00	3.250	.000	.00	1 .0
42.220	.0036					.0080	.34	4.68	.00	3.25	.013	.00	.00	PIPE
82.220	906.150	4.872	911.022	74.00	8.92	1.24	912.26	.00	2.72	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0077	.00	4.87	.00		.013	.00	.00	PIPE
82.220	906.160	5.065	911.225	70.90	8.55	1.13	912.36	.00	2.67	.00	3.250	.000	.00	1 .0
242.780	.0035					.0074	1.79	5.06	.00	3.25	.013	.00	.00	PIPE
325.000	907.000	6.072	913.072	70.90	8.55	1.13	914.21	.00	2.67	.00	3.250	.000	.00	1 .0
87.880	.0031					.0074	.65	6.07	.00	3.25	.013	.00	.00	PIPE
412.880	907.270	6.450	913.720	70.90	8.55	1.13	914.85	.00	2.67	.00	3.250	.000	.00	1 .0
137.120	.0031					.0074	1.01	.00	.00	3.25	.013	.00	.00	PIPE
550.000	907.700	7.125	914.825	70.90	8.55	1.13	915.96	.00	2.67	.00	3.250	.000	.00	1 .0
160.000	.0081					.0074	1.18	.00	.00	2.54	.013	.00	.00	PIPE
710.000	909.000	7.163	916.163	70.90	8.55	1.13	917.30	.00	2.67	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0072	.00	7.16	.00		.013	.00	.00	PIPE
710.000	909.010	7.228	916.238	69.70	8.40	1.10	917.33	.00	2.65	.00	3.250	.000	.00	1 .0
38.880	.0172					.0071	.28	7.23	.00	1.90	.013	.00	.00	PIPE
748.880	909.680	6.835	916.515	69.70	8.40	1.10	917.61	.00	2.65	.00	3.250	.000	.00	1 .0
185.000	.0176					.0071	1.32	6.84	.00	1.88	.013	.00	.00	PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS

Date: 10-18-2000 Time: 1:11:21

W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Height/Dia.-FT	Base Wt or I.D.	ZL	NO Wth Prs/Pip
933.880	912.940	4.894	917.834	69.70	8.40	1.10	918.93	.00	2.65	.00	3.250	.000	.00	1 .0
88.620	.0176					.0071	.63	.00	.00	1.88	.013	.00	.00	PIPE
1022.500	914.500	4.139	918.639	69.70	8.40	1.10	919.73	.00	2.65	.00	3.250	.000	.00	1 .0
13.490	.0185					.0071	.10	4.14	.00	1.85	.013	.00	.00	PIPE
1035.990	914.750	3.985	918.735	69.70	8.40	1.10	919.83	.00	2.65	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0042	.00	3.98	.00	.00	.013	.000	.00	PIPE
1035.990	914.760	4.958	919.718	29.30	3.53	.19	919.91	.00	1.71	.00	3.250	.000	.00	1 .0
15.000	.0160					.0013	.02	.00	.00	1.18	.013	.00	.00	PIPE
JUNCT STR	.0000					.0013	.00	4.75	.00	.00	.013	.00	.00	PIPE
1050.990	915.010	4.736	919.746	29.30	3.53	.19	919.94	.00	1.71	.00	3.250	.000	.00	1 .0
86.880	.0086					.0013	.11	4.74	.00	1.39	.013	.00	.00	PIPE
1137.870	915.760	4.096	919.856	29.30	3.53	.19	920.05	.00	1.71	.00	3.250	.000	.00	1 .0
47.120	.0089					.0013	.06	.00	.00	1.38	.013	.00	.00	PIPE
1184.990	916.180	3.758	919.938	29.30	3.53	.19	920.13	.00	1.71	.00	3.250	.000	.00	1 .0
16.740	.0090					.0013	.02	3.76	.00	1.38	.013	.00	.00	PIPE
1201.730	916.330	3.629	919.959	29.30	3.53	.19	920.15	.00	1.71	.00	3.250	.000	.00	1 .0
47.120	.0087					.0013	.06	.00	.00	1.39	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS  
 W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Date: 10-18-2000 Time: 1:11:21

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wth Prs/Pip	
L/Elem	Ch Slope										"N"	X-Fall	ZR	Type Ch	
1248.850	916.740	3.300	920.040	29.30	3.53	.19	920.23	.00	1.71	.00	3.250	.000	.00	1	.0
7.133	.0089					.0012	.01	3.30	.00	1.38	.013	.00	.00		PIPE
1255.983	916.803	3.250	920.053	29.30	3.53	.19	920.25	.00	1.71	.00	3.250	.000	.00	1	.0
10.927	.0089					.0012	.01	3.25	.00	1.38	.013	.00	.00		PIPE
1266.910	916.900	3.162	920.062	29.30	3.56	.20	920.26	.00	1.71	1.05	3.250	.000	.00	1	.0
5.239	.0439					.0011	.01	3.16	.22	.90	.013	.00	.00		PIPE
1272.149	917.130	2.918	920.048	29.30	3.73	.22	920.26	.00	1.71	1.97	3.250	.000	.00	1	.0
3.434	.0439					.0012	.00	2.92	.33	.90	.013	.00	.00		PIPE
1275.583	917.281	2.750	920.031	29.30	3.91	.24	920.27	.00	1.71	2.35	3.250	.000	.00	1	.0
2.362	.0439					.0012	.00	2.75	.39	.90	.013	.00	.00		PIPE
1277.946	917.385	2.628	920.013	29.30	4.08	.26	920.27	.00	1.71	2.56	3.250	.000	.00	1	.0
HYDRAULIC JUMP															
1277.946	917.385	1.062	918.448	29.30	12.43	2.40	920.85	.00	1.71	3.05	3.250	.000	.00	1	.0
6.911	.0439					.0223	.15	1.06	2.49	.90	.013	.00	.00		PIPE
1284.856	917.689	1.096	918.784	29.30	11.92	2.21	920.99	.00	1.71	3.07	3.250	.000	.00	1	.0
6.657	.0439					.0197	.13	1.10	2.35	.90	.013	.00	.00		PIPE
1291.514	917.981	1.135	919.116	29.30	11.36	2.00	921.12	.00	1.71	3.10	3.250	.000	.00	1	.0
5.309	.0439					.0173	.09	1.13	2.19	.90	.013	.00	.00		PIPE



EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS

W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1296.823	918.215	1.175	919.390	29.30	10.83	1.82	921.21	.00	1.71	3.12	3.250	.000	.00	1 .0
4.287	.0439					.0151	.06	1.18	2.05	.90	.013	.00	.00	PIPE
1301.109	918.403	1.217	919.620	29.30	10.33	1.66	921.28	.00	1.71	3.15	3.250	.000	.00	1 .0
3.478	.0439					.0133	.05	1.22	1.92	.90	.013	.00	.00	PIPE
1304.587	918.556	1.261	919.817	29.30	9.85	1.51	921.32	.00	1.71	3.17	3.250	.000	.00	1 .0
2.823	.0439					.0116	.03	1.26	1.79	.90	.013	.00	.00	PIPE
1307.410	918.680	1.307	919.987	29.30	9.39	1.37	921.36	.00	1.71	3.19	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0169	.00	1.31	1.67		.013	.00	.00	PIPE
1307.410	918.690	.850	919.540	18.70	10.82	1.82	921.36	.00	1.35	2.86	3.250	.000	.00	1 .0
2.094	.0439					.0224	.05	.85	2.45	.72	.013	.00	.00	PIPE
1309.504	918.782	.859	919.642	18.70	10.65	1.76	921.40	.00	1.35	2.87	3.250	.000	.00	1 .0
5.579	.0439					.0205	.11	.86	2.40	.72	.013	.00	.00	PIPE
1315.083	919.027	.889	919.916	18.70	10.16	1.60	921.52	.00	1.35	2.90	3.250	.000	.00	1 .0
4.424	.0439					.0180	.08	.89	2.25	.72	.013	.00	.00	PIPE
1319.508	919.221	.920	920.141	18.70	9.69	1.46	921.60	.00	1.35	2.93	3.250	.000	.00	1 .0
3.557	.0439					.0157	.06	.92	2.10	.72	.013	.00	.00	PIPE
1323.065	919.378	.952	920.330	18.70	9.24	1.32	921.65	.00	1.35	2.96	3.250	.000	.00	1 .0
2.891	.0439					.0138	.04	.95	1.97	.72	.013	.00	.00	PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS

W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia. -FT or I.D.	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SE Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1325.955	919.505	.985	920.490	18.70	8.81	1.20	921.69	.00	1.35	2.99	3.250	.000	.00	1 .0
2.351	.0439					.0120	.03	.99	1.84	.72	.013	.00	.00	PIPE
1328.307	919.608	1.020	920.628	18.70	8.40	1.09	921.72	.00	1.35	3.02	3.250	.000	.00	1 .0
1.906	.0439					.0105	.02	1.02	1.72	.72	.013	.00	.00	PIPE
1330.212	919.692	1.056	920.747	18.70	8.01	1.00	921.74	.00	1.35	3.04	3.250	.000	.00	1 .0
1.533	.0439					.0092	.01	1.06	1.61	.72	.013	.00	.00	PIPE
1331.745	919.759	1.093	920.852	18.70	7.63	.90	921.76	.00	1.35	3.07	3.250	.000	.00	1 .0
1.212	.0439					.0081	.01	1.09	1.51	.72	.013	.00	.00	PIPE
1332.957	919.812	1.132	920.944	18.70	7.28	.82	921.77	.00	1.35	3.10	3.250	.000	.00	1 .0
.936	.0439					.0071	.01	1.13	1.41	.72	.013	.00	.00	PIPE
1333.893	919.853	1.172	921.025	18.70	6.94	.75	921.77	.00	1.35	3.12	3.250	.000	.00	1 .0
.689	.0439					.0062	.00	1.17	1.32	.72	.013	.00	.00	PIPE
1334.581	919.884	1.214	921.098	18.70	6.62	.68	921.78	.00	1.35	3.14	3.250	.000	.00	1 .0
.470	.0439					.0055	.00	1.21	1.23	.72	.013	.00	.00	PIPE
1335.051	919.904	1.258	921.162	18.70	6.31	.62	921.78	.00	1.35	3.17	3.250	.000	.00	1 .0
.270	.0439					.0048	.00	1.26	1.15	.72	.013	.00	.00	PIPE
1335.321	919.916	1.303	921.219	18.70	6.01	.56	921.78	.00	1.35	3.19	3.250	.000	.00	1 .0
.089	.0439					.0042	.00	1.30	1.07	.72	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 12.4  
 For: Pace Engineering, Inc., Chatsworth, California - S/N 747  
 WATER SURFACE PROFILE LISTING  
 EXISTING CALTRANS DRAIN IN AVE SAN LUIS AND  
 MULHOLLAND DRIVE S/O 101 FRWY. PER EX. S.D. PLANS

Date: 10-18-2000 Time: 1:11:21

W.O. 2778-POST-DEVELOPMENT CONDITIONS-LINE "B"-2778.WSW

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Flow Top	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip	
L/Elem	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
*****	*****	*****	*****	*****	*****	SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	*****	ZR	Type Ch	
1335.410	919.920	1.352	921.272	18.70	5.73	.51	921.78	.00	1.35	3.20	3.250	.000	.00	.00	1	.0
JUNCT STR	.0000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1335.410	919.930	.009	919.939	.00	.45	.00	919.94	.00	1.00	.013	.00	.00	.00	.00	1	.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

----- WARNING - Junction Analysis - Large Lateral Flow(s) -----

# APPENDIX O

Line "B"  
Existing 39" R.C.P.  
Caltrans Drain in  
Mulholland Drive and  
Avenue San Luis  
Per Survey - Post-Development  
and  
"W.S.P.G.W." Hydraulic Printouts

T1	EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND										0
T2	DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY										
T3	-"2778SUR-WSW"-LINE "B"										
SO	40.000	905.110	1								
R	82.220	905.320	1			909.793					
JX	82.220	905.330	1	2	.013				.000	.000	0
R	325.000	906.570	1		.013	3.100		905.330	90.0		.000
R	412.880	907.000	1		.013				.000	.000	1
R	550.000	907.700	1		.013				.000	.000	0
R	710.000	909.000	1		.013				15.465	.000	0
JX	710.000	909.010	1	2	.013	1.200		909.630	-18.046	.000	1
R	748.880	909.690	1		.013				55.5		.000
R	933.880	912.930	1		.013				.000	.000	0
R	1022.500	914.490	1		.013				.000	.000	0
R	1035.990	914.730	1		.013				-56.417	.000	0
JX	1035.990	914.740	1	2	.013	40.400		915.380	.000	.000	0
R	1050.990	915.000	1		.013				65.0		.000
JX	1050.990	915.010	1	2	.013	.001		915.630	.000	.000	1
R	1137.870	915.760	1		.013				70.0		.000
R	1184.990	916.180	1		.013				.000	.000	0
R	1201.730	916.330	1		.013				-29.998	.000	0
R	1248.850	916.740	1		.013				.000	.000	0
R	1266.910	916.800	1		.013				29.998	.000	0
R	1307.410	917.350	1		.013				.000	.000	1
JX	1307.410	917.360	1	3	.013	10.600		917.980	.000	.000	0
R	1335.410	917.730	1		.013				45.0		.000
JX	1335.410	917.740	1	2	2.013	9.350		9.350	.000	.000	0
SH	1335.410	917.740	1					917.740	918.360	918.360	47.0-65.0
CD	1	4	1		.000	3.250	.000	.000	.000	.00	
CD	2	4	1		.000	2.000	.000	.000	.000	.00	
CD	3	4	1		.000	2.000	.000	.000	.000	.00	
Q		.001	.0				.000	.000	.000	.00	

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 -"2778SUR-WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	"N"	X-Fall	ZR	Type Ch		
40.000	905.110	4.683	909.793	74.00	1.24	911.03	.00	2.72	.00	3.250	.000	.00	1	.0
42.220	.0050				.0080	.34	4.68	.00	3.25	.013	.00	.00		PIPE
82.220	905.320	4.812	910.132	74.00	1.24	911.37	.00	2.72	.00	3.250	.000	.00	1	.0
JUNCT STR	.0000				.0077	.00	4.81	.00		.013	.00	.00		PIPE
82.220	905.330	5.005	910.335	70.90	1.13	911.47	.00	2.67	.00	3.250	.000	.00	1	.0
242.780	.0051				.0074	1.79	5.00	.00	3.25	.013	.00	.00		PIPE
325.000	906.570	5.612	912.182	70.90	1.13	913.32	.00	2.67	.00	3.250	.000	.00	1	.0
87.880	.0049				.0074	.65	5.61	.00	3.25	.013	.00	.00		PIPE
412.880	907.000	5.830	912.830	70.90	1.13	913.96	.00	2.67	.00	3.250	.000	.00	1	.0
137.120	.0051				.0074	1.01	.00	.00	3.25	.013	.00	.00		PIPE
550.000	907.700	6.235	913.935	70.90	1.13	915.07	.00	2.67	.00	3.250	.000	.00	1	.0
160.000	.0081				.0074	1.18	.00	.00	2.54	.013	.00	.00		PIPE
710.000	909.000	6.273	915.273	70.90	1.13	916.41	.00	2.67	.00	3.250	.000	.00	1	.0
JUNCT STR	.0000				.0072	.00	6.27	.00		.013	.00	.00		PIPE
710.000	909.010	6.338	915.348	69.70	1.10	916.44	.00	2.65	.00	3.250	.000	.00	1	.0
38.880	.0175				.0071	.28	6.34	.00	1.89	.013	.00	.00		PIPE
748.880	909.690	5.935	915.625	69.70	1.10	916.72	.00	2.65	.00	3.250	.000	.00	1	.0
185.000	.0175				.0071	1.32	5.94	.00	1.89	.013	.00	.00		PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 -"2778SUR-WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	Type Ch
933.880	912.930	4.014	916.944	69.70	8.40	1.10	918.04	.00	2.65	.00	3.250	.000	.00 1 .0
88.620	.0176					.0071	.63	.00	.00	1.88	.013	.00	.00 PIPE
1022.500	914.490	3.259	917.749	69.70	8.40	1.10	918.84	.00	2.65	.00	3.250	.000	.00 1 .0
.818	.0178					.0071	.01	3.26	.00	1.88	.013	.00	.00 PIPE
1023.318	914.505	3.250	917.755	69.70	8.40	1.10	918.85	.00	2.65	.00	3.250	.000	.00 1 .0
12.672	.0178					.0066	.08	3.25	.00	1.88	.013	.00	.00 PIPE
1035.990	914.730	3.049	917.779	69.70	8.62	1.15	918.93	.00	2.65	1.57	3.250	.000	.00 1 .0
JUNCT STR	.0000					.0037	.00	3.05	.67	.00	.013	.00	.00 PIPE
1035.990	914.740	4.093	918.833	29.30	3.53	.19	919.03	.00	1.71	.00	3.250	.000	.00 1 .0
15.000	.0173					.0013	.02	4.09	.00	1.15	.013	.00	.00 PIPE
JUNCT STR	.0000					.0013	.00	3.86	.00	.00	.013	.00	.00 PIPE
1050.990	915.010	3.852	918.862	29.30	3.53	.19	919.06	.00	1.71	.00	3.250	.000	.00 1 .0
81.584	.0086					.0012	.10	3.85	.00	1.39	.013	.00	.00 PIPE
1132.574	915.714	3.250	918.964	29.30	3.53	.19	919.16	.00	1.71	.00	3.250	.000	.00 1 .0
5.296	.0086					.0012	.01	3.25	.00	1.39	.013	.00	.00 PIPE
1137.870	915.760	3.209	918.969	29.30	3.54	.19	919.16	.00	1.71	.73	3.250	.000	.00 1 .0
32.173	.0089					.0011	.04	3.21	.19	1.38	.013	.00	.00 PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 -"2778SUR-WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wch Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1170.043	916.047	2.939	918.985	29.30	3.71	.21	919.20	.01	1.71	1.91	3.250	.000	.00	1 .0
14.947	.0089					.0011	.02	2.95	.32	1.38	.013	.00	.00	PIPE
1184.990	916.180	2.807	918.987	29.30	3.85	.23	919.22	.00	1.71	2.23	3.250	.000	.00	1 .0
16.292	.0090					.0012	.02	2.81	.37	1.38	.013	.00	.00	PIPE
1201.281	916.326	2.658	918.984	29.30	4.03	.25	919.24	.00	1.71	2.51	3.250	.000	.00	1 .0
.448	.0090					.0013	.00	2.66	.42	1.38	.013	.00	.00	PIPE
1201.730	916.330	2.654	918.984	29.30	4.04	.25	919.24	.01	1.71	2.52	3.250	.000	.00	1 .0
14.086	.0087					.0013	.02	2.67	.42	1.39	.013	.00	.00	PIPE
1215.816	916.453	2.525	918.977	29.30	4.24	.28	919.26	.02	1.71	2.71	3.250	.000	.00	1 .0
12.173	.0087					.0015	.02	2.54	.47	1.39	.013	.00	.00	PIPE
1227.989	916.558	2.409	918.967	29.30	4.44	.31	919.27	.02	1.71	2.85	3.250	.000	.00	1 .0
10.639	.0087					.0016	.02	2.43	.51	1.39	.013	.00	.00	PIPE
1238.628	916.651	2.303	918.954	29.30	4.66	.34	919.29	.02	1.71	2.95	3.250	.000	.00	1 .0
9.331	.0087					.0018	.02	2.33	.56	1.39	.013	.00	.00	PIPE
1247.959	916.732	2.205	918.938	29.30	4.89	.37	919.31	.03	1.71	3.04	3.250	.000	.00	1 .0
.891	.0087					.0020	.00	2.23	.61	1.39	.013	.00	.00	PIPE
1248.850	916.740	2.196	918.936	29.30	4.91	.37	919.31	.00	1.71	3.04	3.250	.000	.00	1 .0
18.060	.0033					.0020	.04	2.20	.62	1.84	.013	.00	.00	PIPE



EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 -"2778SUR-WSW"-LINE "B"

Date: 10-17-2000 Time: 8:21:37

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Flow Top Dia.	Height/FT or I.D.	Base Wt	ZL	No Wth Prs/Pip	
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	"N"	X-Fall	ZR	Type Ch	*****			
1266.910	916.800	2.157	918.957	29.30	5.01	.39	919.35	.00	1.71	3.07	3.250	.000	.00		1 .0	
	.0136					.0021										
1267.256	916.805	2.157	918.962	29.30	5.01	.39	919.35	.00	1.71	3.07	3.250	.000	.00		PIPE	
HYDRAULIC JUMP																
1267.256	916.805	1.341	918.146	29.30	9.07	1.28	919.42	.00	1.71	3.20	3.250	.000	.00		1 .0	
	.0136					.0095	.09	1.34	1.59	1.23	.013	.00			PIPE	
1276.915	916.936	1.370	918.305	29.30	8.82	1.21	919.51	.00	1.71	3.21	3.250	.000	.00		1 .0	
	.0136					.0086	.10	1.37	1.53	1.23	.013	.00			PIPE	
1288.892	917.099	1.420	918.518	29.30	8.41	1.10	919.62	.00	1.71	3.22	3.250	.000	.00		1 .0	
	.0136					.0076	.06	1.42	1.43	1.23	.013	.00			PIPE	
1296.740	917.205	1.473	918.678	29.30	8.02	1.00	919.68	.00	1.71	3.24	3.250	.000	.00		1 .0	
	.0136					.0067	.03	1.47	1.33	1.23	.013	.00			PIPE	
1301.908	917.275	1.528	918.803	29.30	7.65	.91	919.71	.00	1.71	3.24	3.250	.000	.00		1 .0	
	.0136					.0059	.02	1.53	1.24	1.23	.013	.00			PIPE	
1305.135	917.319	1.585	918.904	29.30	7.29	.83	919.73	.00	1.71	3.25	3.250	.000	.00		1 .0	
	.0136					.0052	.01	1.59	1.16	1.23	.013	.00			PIPE	
1306.872	917.343	1.646	918.988	29.30	6.95	.75	919.74	.00	1.71	3.25	3.250	.000	.00		1 .0	
	.0136					.0045	.00	1.65	1.08	1.23	.013	.00			PIPE	



# APPENDIX P

Line “B”

Existing 39" R.C.P.

Caltrans Drain in  
Mulholland Drive and  
Avenue San Luis.

Adjusted Per Survey to  
Determine Maximum Capacity.  
“W.S.P.G.W.” Hydraulic Printouts



EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 TO DETERMINE MAXIMUM CAPACITY- "2778POS.WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia. -FT	Base Wt or I.D.	ZL	NO Wth Prs/Pip
40.000	905.110	4.683	909.793	91.40	11.02	1.89	911.68	.00	2.94	.00	3.250	.000	.00	1 .0
42.220	.0050					.0123	.52	4.68	.00	3.25	.013	.00	.00	PIPE
82.220	905.320	4.990	910.310	91.40	11.02	1.89	912.20	.00	2.94	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0118	.00	4.99	.00		.013	.00	.00	PIPE
82.220	905.330	5.232	910.562	88.30	10.64	1.76	912.32	.00	2.91	.00	3.250	.000	.00	1 .0
242.780	.0051					.0114	2.78	5.23	.00	3.25	.013	.00	.00	PIPE
325.000	906.570	6.856	913.426	88.30	10.64	1.76	915.19	.00	2.91	.00	3.250	.000	.00	1 .0
87.880	.0049					.0114	1.01	6.86	.00	3.25	.013	.00	.00	PIPE
412.880	907.000	7.431	914.431	88.30	10.64	1.76	916.19	.00	2.91	.00	3.250	.000	.00	1 .0
137.120	.0051					.0114	1.57	.00	.00	3.25	.013	.00	.00	PIPE
550.000	907.700	8.446	916.146	88.30	10.64	1.76	917.90	.00	2.91	.00	3.250	.000	.00	1 .0
160.000	.0081					.0114	1.83	.00	.00	3.25	.013	.00	.00	PIPE
710.000	909.000	9.221	918.221	88.30	10.64	1.76	919.98	.00	2.91	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0113	.00	9.22	.00		.013	.00	.00	PIPE
710.000	909.010	9.305	918.315	87.10	10.50	1.71	920.03	.00	2.90	.00	3.250	.000	.00	1 .0
38.880	.0175					.0111	.43	9.31	.00	2.19	.013	.00	.00	PIPE
748.880	909.690	9.058	918.748	87.10	10.50	1.71	920.46	.00	2.90	.00	3.250	.000	.00	1 .0
185.000	.0175					.0111	2.06	9.06	.00	2.19	.013	.00	.00	PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 TO DETERMINE MAXIMUM CAPACITY- "2778POS.WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	Base Wt	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
933.880	912.930	7.876	920.806	87.10	10.50	1.71	922.52	.00	2.90	.00	3.250	.000	.00	1 .0
88.620	.0176					.0111	.99	.00	.00	2.19	.013	.00	.00	PIPE
1022.500	914.490	7.574	922.064	87.10	10.50	1.71	923.78	.00	2.90	.00	3.250	.000	.00	1 .0
13.490	.0178					.0111	.15	7.57	.00	2.18	.013	.00	.00	PIPE
1035.990	914.730	7.484	922.214	87.10	10.50	1.71	923.93	.00	2.90	.00	3.250	.000	.00	1 .0
JUNCT STR	.0000					.0072	.00	7.48	.00		.013	.00	.00	PIPE
1035.990	914.740	9.091	923.831	46.70	5.63	.49	924.32	.00	2.18	.00	3.250	.000	.00	1 .0
15.000	.0173					.0032	.05	9.09	.00	1.49	.013	.00	.00	PIPE
JUNCT STR	.0000					.0032	.00	8.88	.00		.013	.00	.00	PIPE
1050.990	915.010	8.869	923.879	46.70	5.63	.49	924.37	.00	2.18	.00	3.250	.000	.00	1 .0
86.880	.0086					.0032	.28	8.87	.00	1.83	.013	.00	.00	PIPE
1137.870	915.760	8.422	924.182	46.70	5.63	.49	924.67	.00	2.18	.00	3.250	.000	.00	1 .0
47.120	.0089					.0032	.15	.00	.00	1.81	.013	.00	.00	PIPE
1184.990	916.180	8.209	924.389	46.70	5.63	.49	924.88	.00	2.18	.00	3.250	.000	.00	1 .0
16.740	.0090					.0032	.05	8.21	.00	1.81	.013	.00	.00	PIPE
1201.730	916.330	8.113	924.443	46.70	5.63	.49	924.94	.00	2.18	.00	3.250	.000	.00	1 .0
47.120	.0087					.0032	.15	.00	.00	1.83	.013	.00	.00	PIPE

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 TO DETERMINE MAXIMUM CAPACITY- "2778POS.WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch slope				SF Ave	SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	ZR	Type Ch
1248.850	916.740	7.911	924.651	46.70	5.63	.49	925.14	.00	2.18	.00	3.250	.00	1 .0
18.060	.0033					.0032	.06	7.91	.00	2.61	.013	.00	PIPE
1266.910	916.800	7.933	924.733	46.70	5.63	.49	925.22	.00	2.18	.00	3.250	.00	1 .0
40.500	.0136					.0032	.13	7.93	.00	1.60	.013	.00	PIPE
1307.410	917.350	7.512	924.862	46.70	5.63	.49	925.35	.00	2.18	.00	3.250	.00	1 .0
JUNCT STR	.0000					.0019	.00	7.51	.00		.013	.00	PIPE
1307.410	917.360	7.916	925.276	18.70	2.25	.08	925.35	.00	1.35	.00	3.250	.00	1 .0
28.000	.0132					.0005	.01	7.92	.00	.98	.013	.00	PIPE
1335.410	917.730	7.560	925.290	18.70	2.25	.08	925.37	.00	1.35	.00	3.250	.00	1 .0
JUNCT STR	.0000					.0003	.00	7.56	.00		.013	.00	PIPE
----- WARNING - Junction Analysis - Large Lateral Flow(s) -----													
1335.410	917.740	7.593	925.333	.00	.00	.00	925.33	.00	.01	.00	3.250	.00	1 .0

EXISTING CALTRANS DRAIN IN AVE SAN LUIS & MULHOLLAND  
 DRIVE S/O 101 FRWY. STORM DRAIN ADJUSTED PER SURVEY  
 TO DETERMINE MAXIMUM CAPACITY- "2778POS.WSW"-LINE "B"

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	ZR	Type Ch
1248.850	916.740	7.911	924.651	46.70	5.63	.49	925.14	.00	2.18	.00	3.250	.00	1 .0
18.060	.0033					.0032	.06	7.91	.00	2.61	.013	.00	PIPE
1266.910	916.800	7.933	924.733	46.70	5.63	.49	925.22	.00	2.18	.00	3.250	.00	1 .0
40.500	.0136					.0032	.13	7.93	.00	1.60	.013	.00	PIPE
1307.410	917.350	7.512	924.862	46.70	5.63	.49	925.35	.00	2.18	.00	3.250	.00	1 .0
JUNCT STR	.0000					.0019	.00	7.51	.00		.013	.00	PIPE
1307.410	917.360	7.916	925.276	18.70	2.25	.08	925.35	.00	1.35	.00	3.250	.00	1 .0
28.000	.0132					.0005	.01	7.92	.00	.98	.013	.00	PIPE
1335.410	917.730	7.560	925.290	18.70	2.25	.08	925.37	.00	1.35	.00	3.250	.00	1 .0
JUNCT STR	.0000					.0003	.00	7.56	.00		.013	.00	PIPE
----- WARNING - Junction Analysis - Large Lateral Flow(s) -----													
1335.410	917.740	7.593	925.333	.00	.00	.00	925.33	.00	.01	.00	3.250	.00	1 .0



# **APPENDIX Q**

GM Engineering  
“Hydraulic Analysis  
Dry Canyon Creek at  
Mulholland Dr. Crossing”


**MOTION PICTURE AND  
TELEVISION FUND**

**12100 Wilshire Boulevard, Suite 1950  
Los Angeles, CA 90025**

**HYDRAULIC ANALYSIS  
DRY CANYON CREEK AT  
MULHOLLAND DR. CROSSING**



PREPARED UNDER THE DIRECTION OF:

  
RUVIN GRUTMAN, RCE 41480



1988

**GM Engineering**

**GM Engineering Business Center  
14401 Gilmore Street, Suite 100  
Van Nuys, CA 91401**

**March 6, 2000  
Job #8340102**



1988

GRUTMAN - MAZLER ENGINEERING, INC.  
CALIF. LICENSES: CE 41480, LS 5910, AB 703665

# GM Engineering

civil engineers, land surveyors & general contractors

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## HYDRAULIC ANALYSIS

### 1. Purpose

The purpose of this analysis was to establish a magnitude of an overflow from Dry Canyon Creek at Mulholland Drive in the case Dry Canyon Creek experiencing the 5,610 cfs. 50-year frequency peak flow. The analysis was performed per the request of MPTF.

### 2. Project Site

The project site covers the area in the vicinity of the existing 18 ft. x 10 ft. culvert under Mulholland Drive just northerly of Valmar Road. The culvert was constructed by the City of Los Angeles in 1969.

### 3. Area of Concern

A portion of Dry Canyon Creek upstream of the site limits is an unimproved natural channel. This channel is within the jurisdiction of US Army Corps of Engineers (blue line stream) and it is also a designated Flood Control Channel. Per the County data this portion of the channel conveys runoff from the upstream 2350-acre (3.7 sq. miles) watershed. The 50-year frequency runoff from this watershed was estimated by the County engineers in their 1992 study to be 5,610 cfs.

The maximum capacity of the 18'x10' culvert is estimated to be approximately 3,000 cfs (much less than the clear water flow of 5,610 cfs). Therefore, an overflow above the road surface is expected to occur. The concern about consequences of the overflow generated the need for this hydraulic analysis of the flow in the culvert and along the street.

### 4. Hydrology

In 1934 the channel improvements for Dry Canyon Wash were designed by Los Angeles County Flood Control District (the District). The peak discharge at that time was estimated to be 1,350 cfs.

The 1970-1971 budget estimate by the District included channel improvements of Dry Canyon Creek downstream of Mulholland Drive. The improvements were sized for 4,370 cfs. flow.

In 1984 drainage improvements upstream of the project site were performed as a part of Tract No.37893. The design peak

discharge at this time was estimated to be 5,170 cfs.

In 1992 the clear water peak runoff was estimated by the County engineers to be 5,610 cfs. The channel improvements designed to handle this peak discharge were initiated by the County in 1995.

## 5. Topographic Survey

The field survey was conducted to obtain accurate cross-sections of the creek and other geometrical features of the stream, the street and the culvert. The survey also verified the location and profile of the ridge line along the left bank. The aerial mapping of the stream was performed to obtain a base map for delineating the flood plain.

## 6. Hydraulic Model

Hydraulic modeling of the stream was performed by utilizing U.S. Army Corps of Engineers computer program HEC-2.

Hydraulic analysis consisted of two HEC-2 computer runs.

1. The purpose of the 1-st computer run was to determine the portion of the total overflow to the street.

The attached computer printout shows the input data: Surveyed stream cross-sections, Culvert geometry, Roughness coefficients, Peak discharges, etc.

The output shows that the 5,610 cfs. clear flow peak discharge splits at the culvert entrance. The water surface at this point, Section M-330 (Stream Section No.490) raises to elevation 953.41. It is 3.8 feet above the lowest elevation of the street. During this flood stage, the 3,090 cfs. is conveyed by the culvert and 2,520 cfs. spread over the street pavement.

2. The purpose of the 2-nd computer run was to establish consequences of the 2,520 cfs. flow across and along the street.

The street cross-slope in this area is estimated to be 1%. The longitudinal slope along the street is also 1%. The flow therefore tends to proceed across the pavement at 45° angle to the street as shown in Exhibit 1.

The line projected from the corner of the building at the culvert outlet effectively splits the street flow into westerly and easterly routes.

The easterly route crosses the street and joins the Dry Canyon Creek channel flow. The westerly route proceeds northwesterly along Mulholland Drive.

The 2-nd computer run shows flow distribution at the section M-250. It is estimated that at this section, the 750 cfs portion of the flow (30% of the 2,520 cfs) will proceed along westerly route. The easterly route therefore, will consist of the remaining 1,770 cfs (70%). The westerly route also splits. 280 cfs will enter the adjacent agricultural area and the remaining 470 cfs will flow along the pavement and the existing buildings toward the commercial center.

## 7. Conclusions

- a) During 5,610 cfs. flow (50 year frequency) in Dry Canyon Creek, a 2,520 cfs. overflow occurs at the culvert crossing Mulholland Drive. This flow splits and 1770 cfs. crosses the street, outfalls back into the stream channel and joins 3090 cfs. conveyed by the culvert.
- b) A 750 cfs portion of the overflow proceeds northwesterly along Mulholland Drive. This street flow splits along the ridge line at the left bank (Section M-150, see Exhibit 1). A 280 cfs. portion is expected to enter the adjacent agricultural area. The remaining 470 cfs. will flow northwesterly along the pavement and existing buildings toward the commercial center.

```

1*****
* HEC-2 WATER SURFACE PROFILES
*
* Version 4.6.2; May 1991
*
* RUN DATE 05MAR00 TIME 22:15:42
*****

```

```

X X XXXXXXXX XXXXX
X X X X X
X X X X X
XXXXXXXX XXXX
X X X X X
X X X X X
X X XXXXXXXX XXXXX

```

THIS RUN EXECUTED 05MAR00 22:15:42

```

*****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
*****

```

```

FR
T1 GM ENGINEERING JOB#8340102
T2 SPLIT FLOW DETERMINATION
T3 DRY CANYON CREEK

```

```

J1 ICHECK INQ NINV IDIR STRT METRIC HVINS Q WSEL FQ
          2          0.01          31          929.8          38          936.4          59
J2 NPROF IPLOT PRFVS XSECV XSECH FN ALLDC IBW CHNIM ITRACE
          -1          -1

```

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

```

101 105
QT 1 4860
NC .05 .07 .05 0.1 0.3
X1 7 29 59
GR 938.3 20 936.1 29 932.1 31 929.8 38 936.4 59
GR 941.2 95 950 142

```

SECNO	Q	DEPTH	CWSEL	CRIS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV	R-BANK ELEV	PAGE
X1	70	8	38	87	22	100	70					
GR	938.3	20	937.1	35	932.8	38	929.7		47	929.6	76	
GR	939.8	87	942.1	100	950	120						
X1	210	7	8	49	65	190	140					
GR	944	8	938.5	8	930.8	10	930.9		29	937.7	49	
GR	940.12	80	949.4	174								
NC				0.6	0.8	80	100					
X1	310	8	75	97	85							
X2												15
X3	10								948	949		
GR	948.8		948.2	45	944.69	75	932.4		77	932.4	95	
GR	946.85	97	950	209	951	287						

05MAR00 22:15:42

SECNO	Q	DEPTH	CWSEL	CRIS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV	R-BANK ELEV	PAGE
NC		.04										
SC	1.015	0.5	2.63	180	10	18	180		8.1	934.4	932.4	
X1	490	13	103	123	180	180						
X2	5610		2	944.5	949.6							
X3	10											
BT	6	0	954	126	12	952			949.7	950.5		
BT	53	949.6		126	951		180		22	950		
GR	956		954	20	952	32	180		952			
GR	946.8	103	934.4	104	934.4	122	950		44	948	71	
GR	950	146	951.6	210	951.8	370	946.8		123	948	125	
X1	530	9	45	98	35	45	40					
GR	956		950	15	948	25	945.5		45	937.2	64	
GR	938.9	81	946.1	98	950	120	952		151			

05MAR00 22:15:42

\*PROF 1  
 CCHV= .100 CEHV= .300  
 \*SECNO .000  
 3280 CROSS SECTION .00 EXTENDED 4.36 FEET

SECNO	Q	DEPTH	CWSEL	CRIS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV	R-BANK ELEV	PAGE
.000		12.86	942.66	.00	950.00	944.71	2.05	.00	.00	936.10		
4860.0	341.3	3792.7	726.0	49.1	299.7	144.4	.0	.0	.0	936.40		
.00	6.95	12.65	5.03	.050	.050	.070	.000	.000	929.80	20.00		
.009899	0.	0.	0.	0.	0.	5	.00	.00	82.77	102.77		

\*SECNO 70.000

3280 CROSS SECTION 70.00 EXTENDED 6.18 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.40

70.000	14.88	944.48	.00	.00	945.09	.61	.23	.14	932.80
4860.0	464.3	4296.6	99.2	130.3	656.6	53.0	1.0	.1	939.80
.00	3.56	6.54	1.87	.050	.050	.070	.000	929.60	20.00
.001713	22.	70.	100.	3	0	0	.00	86.02	106.02

\*SECNO 210.000

3280 CROSS SECTION 210.00 EXTENDED .67 FEET

210.000	13.86	944.66	.00	.00	945.47	.80	.32	.06	938.50
4860.0	87.6	3869.1	903.3	27.3	489.9	283.2	3.7	.5	937.70
.01	3.21	7.90	3.19	.050	.050	.070	.000	930.80	.00
.003196	65.	140.	190.	2	0	0	.00	126.06	126.06

CCHV=.600 CEHV=.800

\*SECNO 310.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY  
3720 CRITICAL DEPTH ASSUMED

1 05MAR00 22:15:42

SECNO	DEPTH	QLOB	VLOB	XLOB	QCH	VCH	XCH	CRIWS	QROB	VROB	XROB	WSELK	ACH	XNCH	IDC	EG	ACH	XNCH	IDC	EG	HL	VOL	WTN	CORAR	OLOSS	TWA	ELMIN	TOPWID	L-BANK ELEV	R-BANK ELEV	SSTA	ENDST
-------	-------	------	------	------	-----	-----	-----	-------	------	------	------	-------	-----	------	-----	----	-----	------	-----	----	----	-----	-----	-------	-------	-----	-------	--------	-------------	-------------	------	-------

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 948.00 ELREA= 949.00

310.000	12.60	945.00	945.00	945.00	.00	.00	.00	950.84	5.84	.76	4.03	944.69
4860.0	.0	4860.0	.0	.0	.0	250.7	.0	4.9	946.85			
.01	.00	19.39	.00	.000	.050	.000	.000	932.40	75.00			
.040779	85.	100.	80.	2	11	0	.00	21.74	96.74			

FLOW DISTRIBUTION FOR SECNO= 310.00 CWSEL= 945.00

STA= 75. 97.  
PER Q= 100.0  
AREA= 250.7  
VEL= 19.4  
DEPTH= 11.5

SPECIAL CULVERT



SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
1		.015	.50	2.63	.00	10.00	18.00	180.00	8	1	934.40	932.40

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL  
 SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 970.51..MAY BE TOO LARGE IF INLET CONTROLS.  
 5135, EGOC= 964.80 ..MAY BE TOO LARGE IF OUTLET CONTROLS.  
 \*SECNO 490.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 953.79  
 3280 CROSS SECTION 490.00 EXTENDED 1.62 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.70

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
970.51	964.80	2.95	2537.	3090.	6.185	180.0	949.60	179.
490.000	19.01	953.41	.00	.00	953.79	.38	2.95	.00
5610.0	1497.0	2275.9	1837.1	347.1	368.0	547.7	8.0	1.4
.02	4.31	6.18	3.35	.050	.050	.040	.000	934.40
.002464	180.	180.	180.	2	0	0	.00	346.52
								370.00

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SECNO	DEPTH	CWSEL	CRISW	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

\*SECNO 530.000  
 3280 CROSS SECTION 530.00 EXTENDED 1.47 FEET

530.000	16.27	953.47	.00	.00	953.96	.49	.08	.09	945.50
5610.0	718.6	4163.6	727.7	194.1	678.8	195.7	9.1	1.7	946.10
.02	3.70	6.13	3.72	.050	.050	.040	.000	937.20	6.33
.001540	35.	40.	45.	2	0	0	.00	144.67	151.00

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 THIS RUN EXECUTED 05MAR00 22:15:42

HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ANYON CREEK

SUMMARY PRINTOUT TABLE 101

SECNO	EGOC	ELLC	EGIC	ELTRD	QCULV	QWEIR	CLASS	H4	DEPTH	CWSEL	VCH	EG
* 490.000	964.80	944.50	970.51	949.60	3089.66	2537.37	16.00	2.95	19.01	953.41	6.18	953.79

1 05MAR00 22:15:42

PAGE 7

ANYON CREEK

SUMMARY PRINTOUT TABLE 105

SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
210.000	944.66	.32	.06	126.06	87.62	3869.10	903.27
* 310.000	945.00	.76	4.03	21.74	.00	4860.00	.00
* 490.000	953.41	2.95	.00	346.52	1496.98	2275.91	1837.11
530.000	953.47	.08	.09	144.67	718.62	4163.63	727.75

1 05MAR00 22:15:42

PAGE 8

SUMMARY OF ERRORS AND SPECIAL NOTES

- WARNING SECNO= 70.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
- CAUTION SECNO= 310.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
- CAUTION SECNO= 310.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
- WARNING SECNO= 490.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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*****
* HEC-2 WATER SURFACE PROFILES
*
* Version 4.6.2; May 1991
*
* RUN DATE 05MAR00 TIME 22:00:44
*****

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X X X XXXXXXXX XXXXX X
X X X X X X
X X X X X X
XXXXXXXXXX XXXX X
X X X X X X
X X X X X X
X X X XXXXXXXX XXXXX

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1 05MAR00 22:00:44 PAGE 1

THIS RUN EXECUTED 05MAR00 22:00:44

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*****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
*****

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FR

SPLIT FLOW BEING PERFORMED

SF SPLIT FLOW ANALYSIS

TW SPLIT AT MULHOLLAND	250	-1	2.6
WS 4	80	948.9	180
WC	948.3	80	949.62
		220	950

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T1 GM ENGINEERING JOB#8340102
T2 SPLIT FLOW DETERMINATION
T3 MULHOLLAND DRIVE

```

J1 ICHECK	INQ	NINW	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
				0.01				950	

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE	PAGE
			-1								
OT	1	750									
NC	.035	.035	.015	0.1	0.3						
X1		7	83								
GR	948.3		947.6	2	947.8	40		947.4	60	947	83
GR	947.8	110	945.1	140							
X1	70	11	0	85	80	60		70			
GR	948.9		948.16	.5	948.43	14		948.09	43	947.65	60
GR	947.55	72	947.16	85	947	87		948.13	99	944.4	122
GR	948.54	132									
X1	150	13	66	152	80	80		80			
X2											
GR	950		949.50	16	949.56	32		949.57	50	949.62	15
GR	949.62	66	948.95	68	948.68	75		948.8	110	948.35	56
GR	947.83	152	949.43	180	949.89	200					126
X1	250	8	80	240	35	150		100			
X2	2500										
GR	949.5	200	949.30	35	950.31	80		949.9	112	950	15
GR	949.6		949.6	240	950.8	325					160
NC	.05	.05	.05	0.1	0.3						
X1	330	6	22	126	65	90		80			
X2	2500										
GR	954		952	12	950	22		949.6	53	951	126
GR	952	180									

1 05MAR00 22:00:44

SECNO DEPTH CWSEL CRIWS WSELK EG HV HL OLOSS L-BANK ELEV  
 Q QLOB QLOB QROB QROB ALOB AROB AROB TWA R-BANK ELEV  
 TIME VLOB VLOB VROB VROB XNL XNCH XNR XNCH ELMIN SSTA  
 SLOPE XLOBL XLOBL XLCH XLCH ITRIAL IDC ICNT CORAR TOPWID ENDST

\*PROF 1

CCHV= .100 CEHV= .300

\*SECNO .000

3280 CROSS SECTION .00 EXTENDED 2.86 FEET

.000	2.86	947.96	947.92	950.00	948.35	.39	.00	.00	.00	948.30
469.8	.0	190.5	279.2	.0	34.4	60.2	.0	.0	.0	947.00
.00	.00	5.54	4.64	.000	.015	.035	.000	.000	945.10	.98
.009972	0.	0.	0.	0	11	0	.00	.00	139.02	140.00

\*SECNO 70.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.80

70.000	4.09	948.49	948.02	.00	948.69	.20	.32	.02	948.90
469.8	.0	161.7	308.1	.0	45.0	85.1	.2	.2	947.16
.00	.00	3.59	3.62	.000	.015	.035	.000	944.40	947.83
.003070	80.	70.	60.	8	11	0	.00	131.59	131.87

\*SECNO 150.000  
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL  
 3693 PROBABLE MINIMUM SPECIFIC ENERGY  
 3720 CRITICAL DEPTH ASSUMED

150.000	1.57	949.40	949.40	.00	949.85	.45	.27	.07	949.62
469.8	.0	421.4	48.4	.0	75.0	21.7	.4	.4	947.83
.01	.00	5.62	2.23	.000	.015	.035	.000	947.83	66.65
.003824	80.	80.	80.	20	22	0	.00	112.88	179.53

FLOW DISTRIBUTION FOR SECNO= 150.00 CWSEL= 949.40

STA= 67. 152. 180.  
 PER Q= 89.7 10.3  
 AREA= 75.0 21.7  
 VEL= 5.6 2.2  
 DEPTH= .9 .8

\*SECNO 250.000

1

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SECNO	DEPTH	CWSEL	CRIS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	OROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3280 CROSS SECTION 250.00 EXTENDED 1.77 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL  
 3693 PROBABLE MINIMUM SPECIFIC ENERGY  
 3720 CRITICAL DEPTH ASSUMED

250.000	1.97	951.27	951.27	.00	951.99	.72	.38	.08	950.31
2500.0	480.9	1766.8	252.3	131.8	227.0	91.4	1.0	.9	949.60
.01	3.65	7.78	2.76	.035	.015	.035	.000	949.30	.00
.003872	35.	100.	150.	20	11	0	.00	325.00	325.00

FLOW DISTRIBUTION FOR SECNO= 250.00 CWSEL= 951.27

STA= 0. 35. 80. 240.  
 PER Q= 10.2 9.0 80. 240.  
 AREA= 65.6 66.1 227.0 91.4  
 VEL= 3.9 3.4 7.8 2.8  
 DEPTH= 1.9 1.5 1.4 1.1

CCHV= .100 CEHV= .300

\*SECNO 330.000

3280 CROSS SECTION 330.00 EXTENDED .61 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL  
 3693 PROBABLE MINIMUM SPECIFIC ENERGY  
 3720 CRITICAL DEPTH ASSUMED  
 330.000 3.01 952.61 952.61 .00 953.57 .96 .62 .07 950.00  
 2500.0 101.0 2110.7 288.3 17.2 255.5 59.8 1.7 1.4 951.00  
 .02 5.88 8.26 4.82 .050 .050 .050 949.60 8.36  
 .023322 65. 80. 90. 20 14 0 .00 171.64 180.00

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TW SPLIT AT MULHOLLAND

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
280.23	280.24	.00	280.23	280.24	.00	5	947.956	951.275	.000	250.000

1 05MAR00 22:00:44 PAGE 6

THIS RUN EXECUTED 05MAR00 22:00:44

\*\*\*\*\*  
 HEC-2 WATER SURFACE PROFILES  
 Version 4.6.2; May 1991  
 \*\*\*\*\*

NOTE- ASTERISK (\*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LLAND DRIVE

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRWS	EG	10*KS	VCH	AREA	.01K
.000	.00	.00	.00	945.10	469.77	947.96	947.92	948.35	99.72	5.54	94.58	47.04
* 70.000	70.00	.00	.00	944.40	469.77	948.49	948.02	948.69	30.70	3.59	130.10	84.78
* 150.000	80.00	.00	.00	947.83	469.77	949.40	949.40	949.85	38.24	5.62	96.67	75.97
* 250.000	100.00	.00	.00	949.30	2500.00	951.27	951.27	951.99	38.72	7.78	450.12	401.77
* 330.000	80.00	.00	.00	949.60	2500.00	952.61	952.61	953.57	233.22	8.26	332.43	163.70

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LLAND DRIVE

SUMMARY PRINTOUT TABLE 150

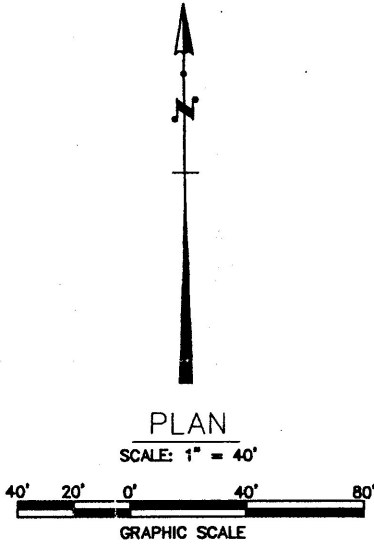
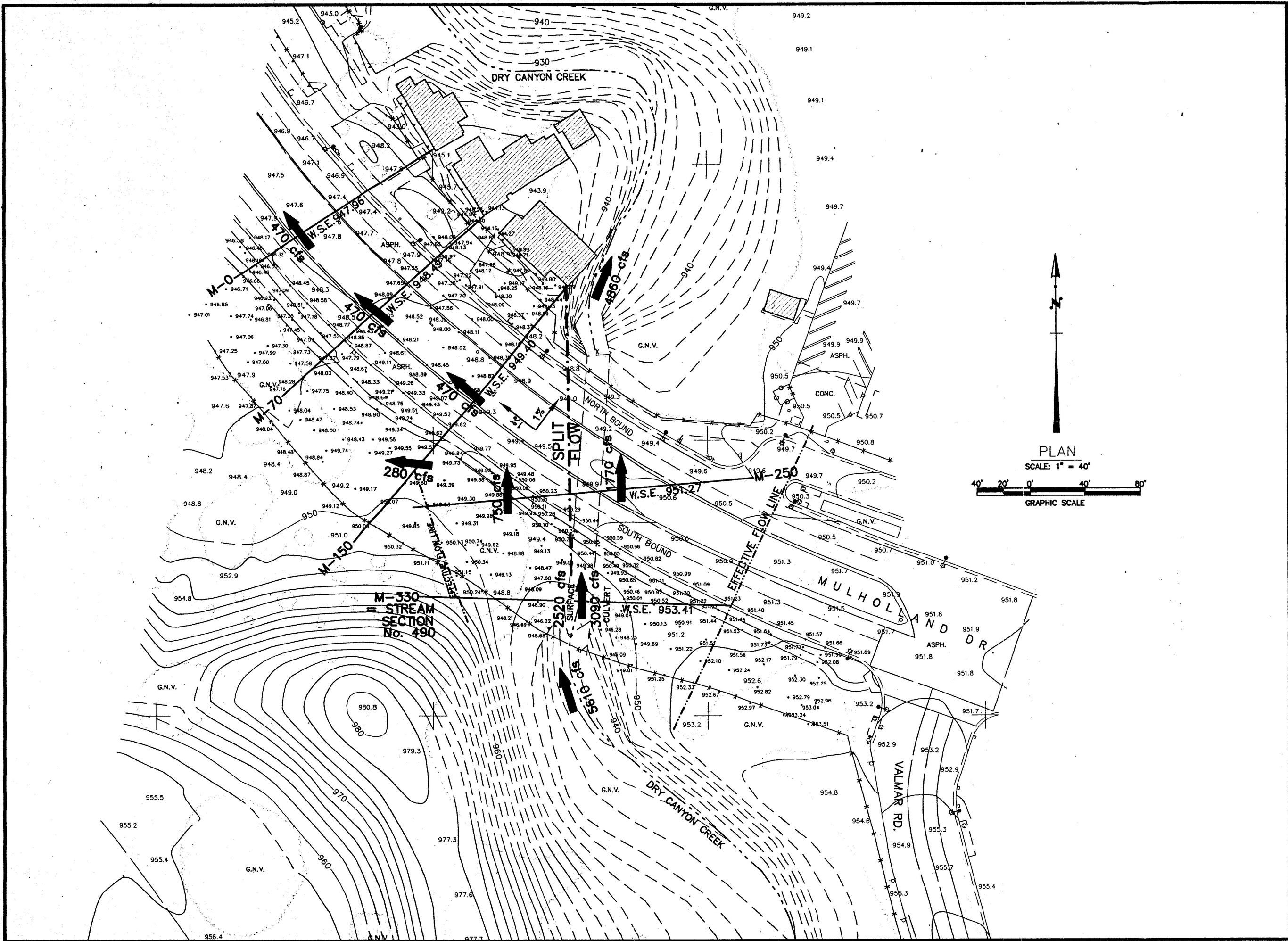
SECNO	Q	CWSEL	DIEWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.000	469.77	947.96	.00	.00	-2.04	139.02	.00
* 70.000	469.77	948.49	.00	.53	.00	131.59	70.00
* 150.000	469.77	949.40	.00	.92	.00	112.88	80.00
* 250.000	2500.00	951.27	.00	1.87	.00	325.00	100.00
* 330.000	2500.00	952.61	.00	1.33	.00	171.64	80.00

1 05MAR00 22:00:44

PAGE 8

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 70.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE  
 CAUTION SECNO= 150.000 PROFILE= 1 CRITICAL DEPTH ASSUMED  
 CAUTION SECNO= 150.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY  
 CAUTION SECNO= 150.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL  
 CAUTION SECNO= 250.000 PROFILE= 1 CRITICAL DEPTH ASSUMED  
 CAUTION SECNO= 250.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY  
 CAUTION SECNO= 250.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL  
 CAUTION SECNO= 330.000 PROFILE= 1 CRITICAL DEPTH ASSUMED  
 CAUTION SECNO= 330.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY  
 CAUTION SECNO= 330.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL



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GM ENGINEERING BUSINESS CENTER, 1445 GILMORE ST., SUITE 100, VAN NUYS, CA 91411  
tel. (818) 908-1824 fax (818) 908-3514 em@emengineering.com

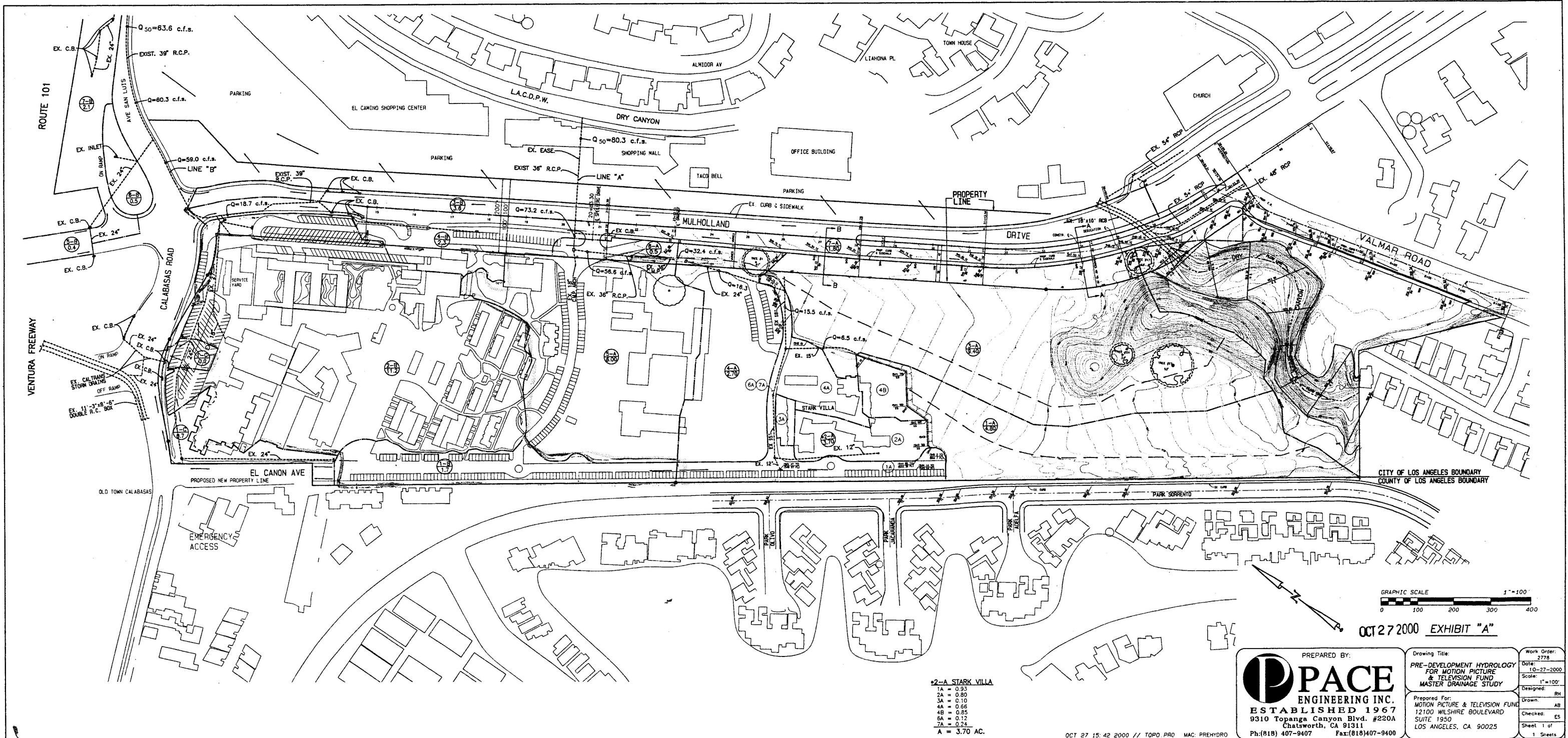


PREPARED EXCLUSIVELY FOR:  
**MOTION PICTURE AND TELEVISION FUND**

SHEET TITLE  
**EXHIBIT 1**

DATE  
**3-6-2000**  
SHEET No.  
**1**  
JOB NO.  
**8340102**



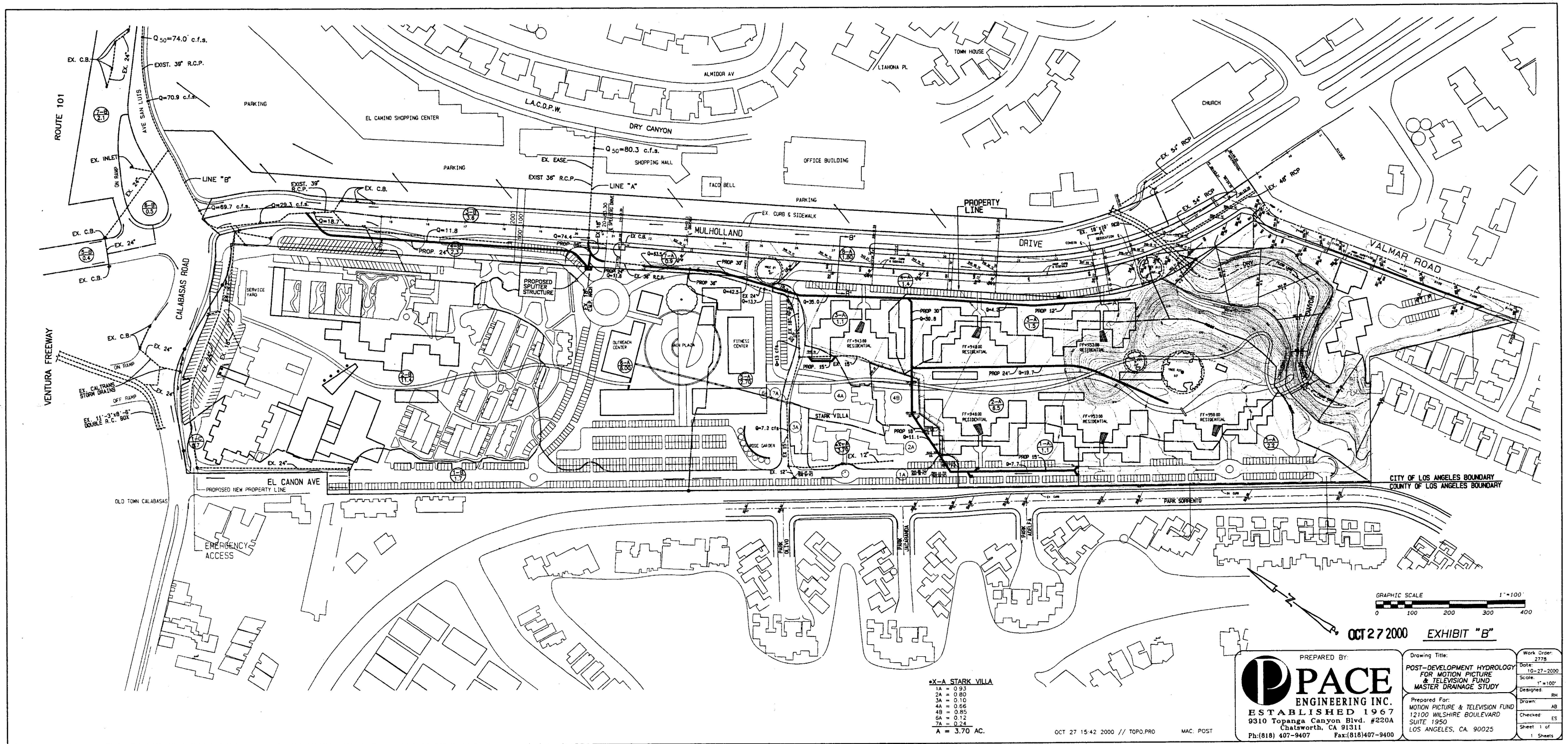


\*2-A STARK VILLA  
 1A = 0.93  
 2A = 0.80  
 3A = 0.10  
 4A = 0.66  
 4B = 0.85  
 6A = 0.12  
 7A = 0.24  
 A = 3.70 AC.

GRAPHIC SCALE 1" = 100'  
 0 100 200 300 400  
 OCT 27 2000 EXHIBIT "A"

<b>PACE</b> ENGINEERING INC. ESTABLISHED 1967 9310 Topanga Canyon Blvd. #220A Chatsworth, CA 91311 Ph: (818) 407-9407 Fax: (818) 407-9400	PREPARED BY: PRE-DEVELOPMENT HYDROLOGY FOR MOTION PICTURE & TELEVISION FUND MASTER DRAINAGE STUDY	Drawing Title: PRE-DEVELOPMENT HYDROLOGY FOR MOTION PICTURE & TELEVISION FUND MASTER DRAINAGE STUDY	Work Order: 2778 Date: 10-27-2000 Scale: 1"=100' Designed: RH
	Prepared For: MOTION PICTURE & TELEVISION FUND 12100 WILSHIRE BOULEVARD SUITE 1950 LOS ANGELES, CA 90025	Drawn: AB Checked: ES Sheet 1 of 1 Sheets	

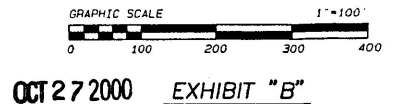
OCT 27 15:42 2000 // TOPO PRO MAC PREHYDRO



**\*X-A STARK VILLA**

1A	= 0.93
2A	= 0.80
3A	= 0.10
4A	= 0.66
4B	= 0.85
6A	= 0.12
7A	= 0.24
<b>A</b>	<b>= 3.70 AC.</b>

OCT 27 15:42 2000 // TOPO.PRO MAC. POST



OCT 27 2000 EXHIBIT "B"

PREPARED BY:

**PACE ENGINEERING INC.**  
 ESTABLISHED 1967  
 9310 Topanga Canyon Blvd. #220A  
 Chatsworth, CA 91311  
 Ph:(818) 407-9407 Fax:(818)407-9400

Drawing Title:	POST-DEVELOPMENT HYDROLOGY FOR MOTION PICTURE & TELEVISION FUND MASTER DRAINAGE STUDY	Work Order:	2778
Prepared For:	MOTION PICTURE & TELEVISION FUND 12100 WILSHIRE BOULEVARD SUITE 1950 LOS ANGELES, CA. 90025	Date:	10-27-2000
Scale:	1"=100'	Scale:	1"=100'
Designed:	BH	Drawn:	AB
Checked:	ES	Sheet 1 of 1	1 Sheets