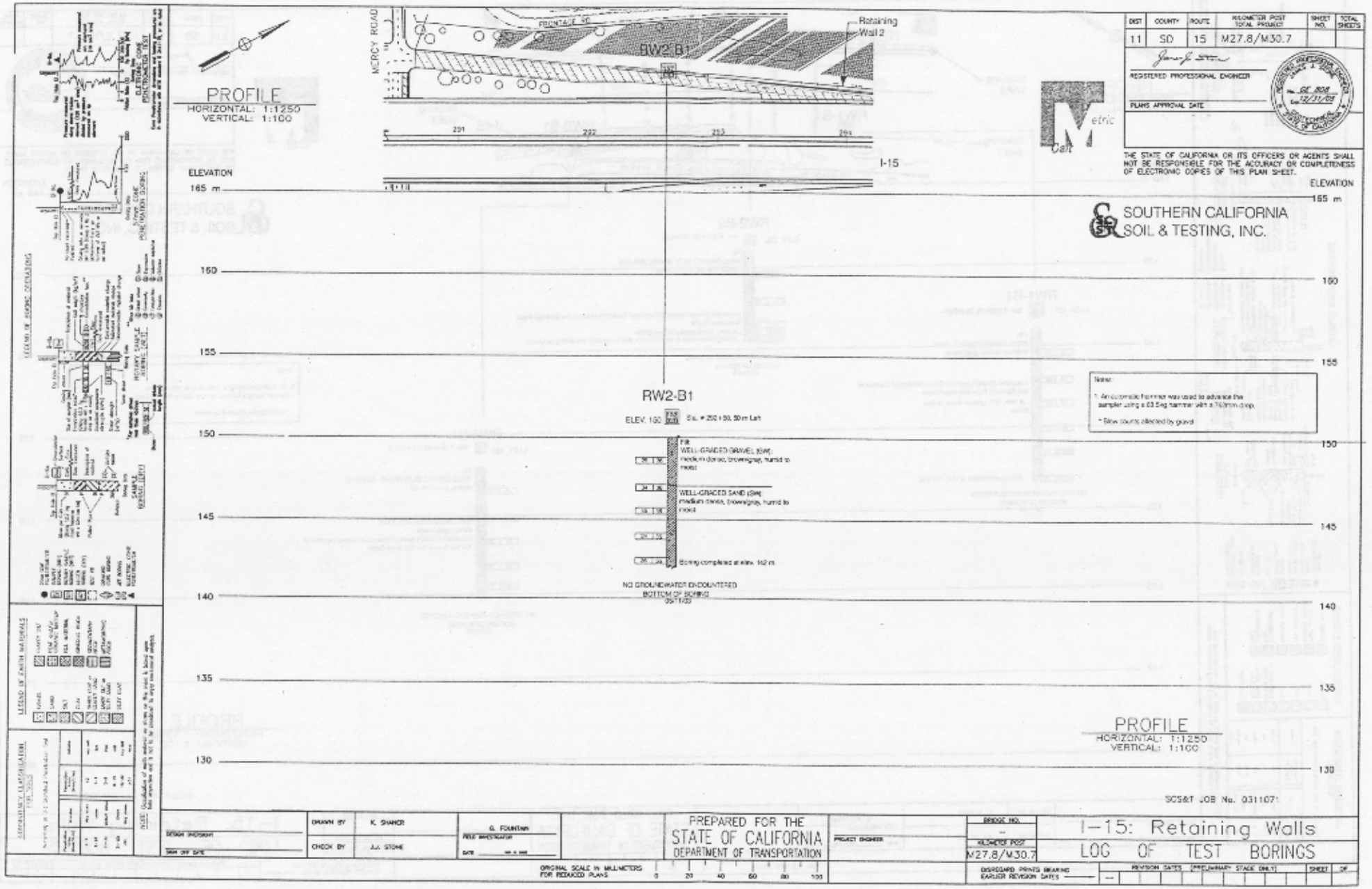
ATTACHMENTS



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	15	M27.8/M30.7		

REGISTERED PROFESSIONAL ENGINEER

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

DESIGN INCHARGE	DRAWN BY	K. SHAHOR
	CHECK BY	J.J. STONE

G. FOUNTAIN
FIELD INVESTIGATOR
DATE

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

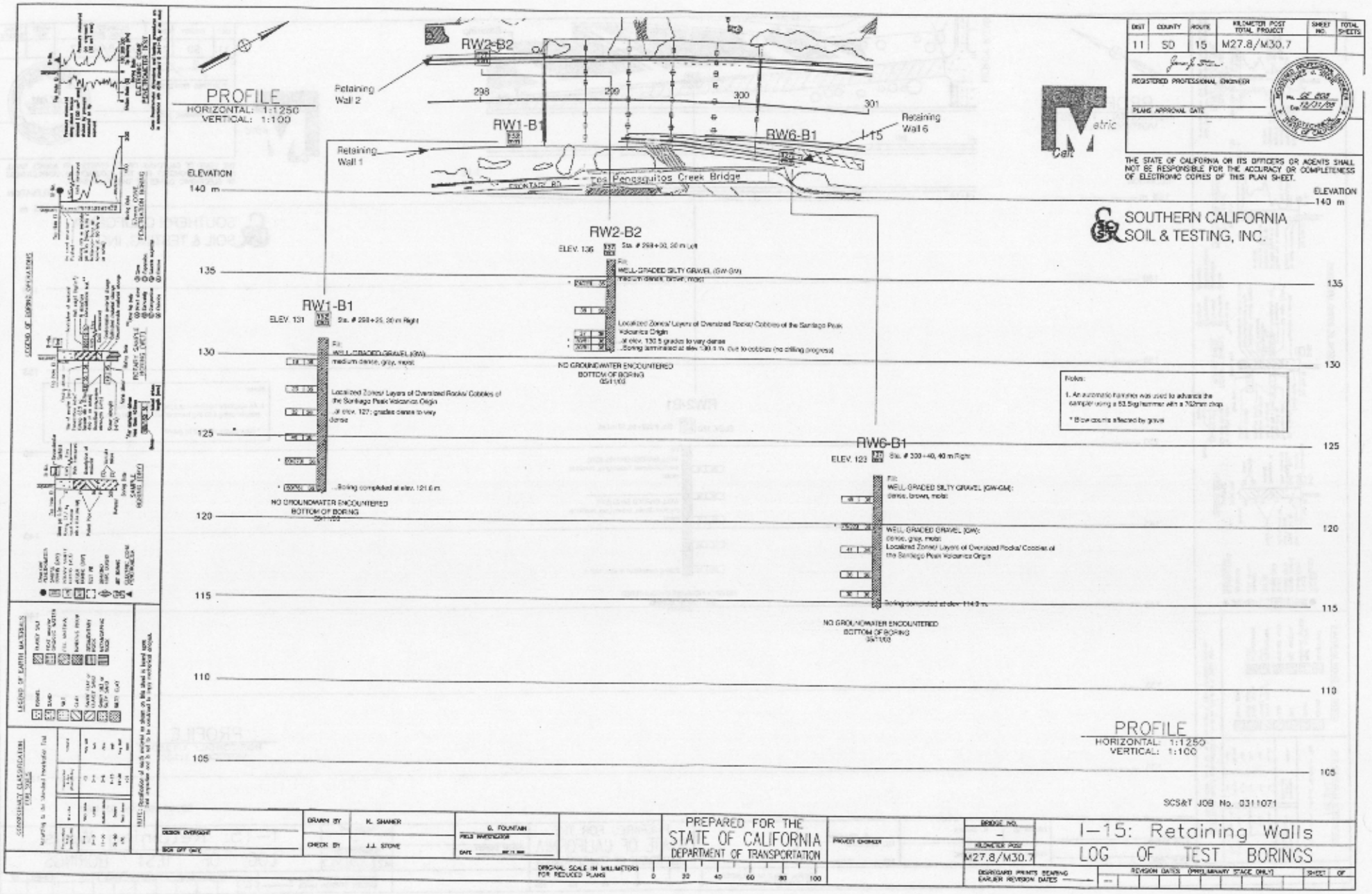
ORIGINAL SCALE IN MILLIMETERS
FOR REDUCED PLANS 0 20 40 60 80 100

DISREGARD PRINTS BEARING EARLIER REVISION DATES

BRIDGE NO.
-
KILOMETER POST
M27.8/M30.7

I-15: Retaining Walls
LOG OF TEST BORINGS

REVISION DATES (PRELIMINARY STAGE ONLY) | SHEET | OF


PROFILE
HORIZONTAL: 1:1250
VERTICAL: 1:100
RW2-B2
Retaining Wall 2
RW1-B1
Retaining Wall 1
RW6-B1
Retaining Wall 6
298
299
300
301
115
Tres Pendejitos Creek Bridge
FOUNTAIN RD
ELEVATION
140 m
135
130
125
120
115
110
105
RW1-B1
ELEV. 131
Sta. # 298+25, 30 m Right
Fill:
WELL-GRADED GRAVEL (GW)
medium dense, gray, moist;
Localized Zones/ Layers of Oversized Rocks/ Cobbles of the Santiago Peak Volcanics Origin
..at elev. 127: grades dense to very dense
..Boring completed at elev. 121.6 m
NO GROUNDWATER ENCOUNTERED
BOTTOM OF BORING
05/11/03
RW2-B2
ELEV. 136
Sta. # 299+00, 30 m Left
Fill:
WELL-GRADED SILTY GRAVEL (GW-GM)
medium dense, brown, moist;
Localized Zones/ Layers of Oversized Rocks/ Cobbles of the Santiago Peak Volcanics Origin
..at elev. 130.5 grades to very dense
..Boring terminated at elev. 130.1 m. Due to cobbles (no drilling progress)
NO GROUNDWATER ENCOUNTERED
BOTTOM OF BORING
05/11/03
RW6-B1
ELEV. 123
Sta. # 300+40, 40 m Right
Fill:
WELL-GRADED SILTY GRAVEL (GW-GM):
dense, brown, moist;
WELL-GRADED GRAVEL (GW):
dense, gray, moist;
Localized Zones/ Layers of Oversized Rocks/ Cobbles of the Santiago Peak Volcanics Origin
..Boring completed at elev. 114.3 m
NO GROUNDWATER ENCOUNTERED
BOTTOM OF BORING
05/11/03
Notes:
1. An automatic hammer was used to advance the sampler using a 63.5kg hammer with a 762mm drop.
* Blow counts affected by gravel
PROFILE
HORIZONTAL: 1:1250
VERTICAL: 1:100
SOUTHERN CALIFORNIA SOIL & TESTING, INC.
SCS&T JOB No. 0311071
LOG OF TEST BORINGS
I-15: Retaining Walls
PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DRAWN BY K. SHAHER
CHECK BY J.J. STONE
G. FOUNTAIN
FIELD INVESTIGATOR
DESIGN OVERSIGHT
BOR OFF DATE
PROJECT ENGINEER
BRIDGE NO. -
KILOMETER POST M27.8/M30.7
DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY)
SHEET OF
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS 0 20 40 60 80 100
DIST 11
COUNTY SD
ROUTE 15
KILOMETER POST TOTAL PROJECT M27.8/M30.7
SHEET NO.
TOTAL SHEETS
REGISTERED PROFESSIONAL ENGINEER
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.
Metric
Cen
LEGEND OF BORING OPERATIONS
LEGEND OF EARTH MATERIALS
GEOTECHNICAL CLASSIFICATION (USCS)
NOTE: Distribution of each symbol on drawings of this sheet is based upon the engineering interpretation of the data available to the engineer and may be modified by him as he considers appropriate.

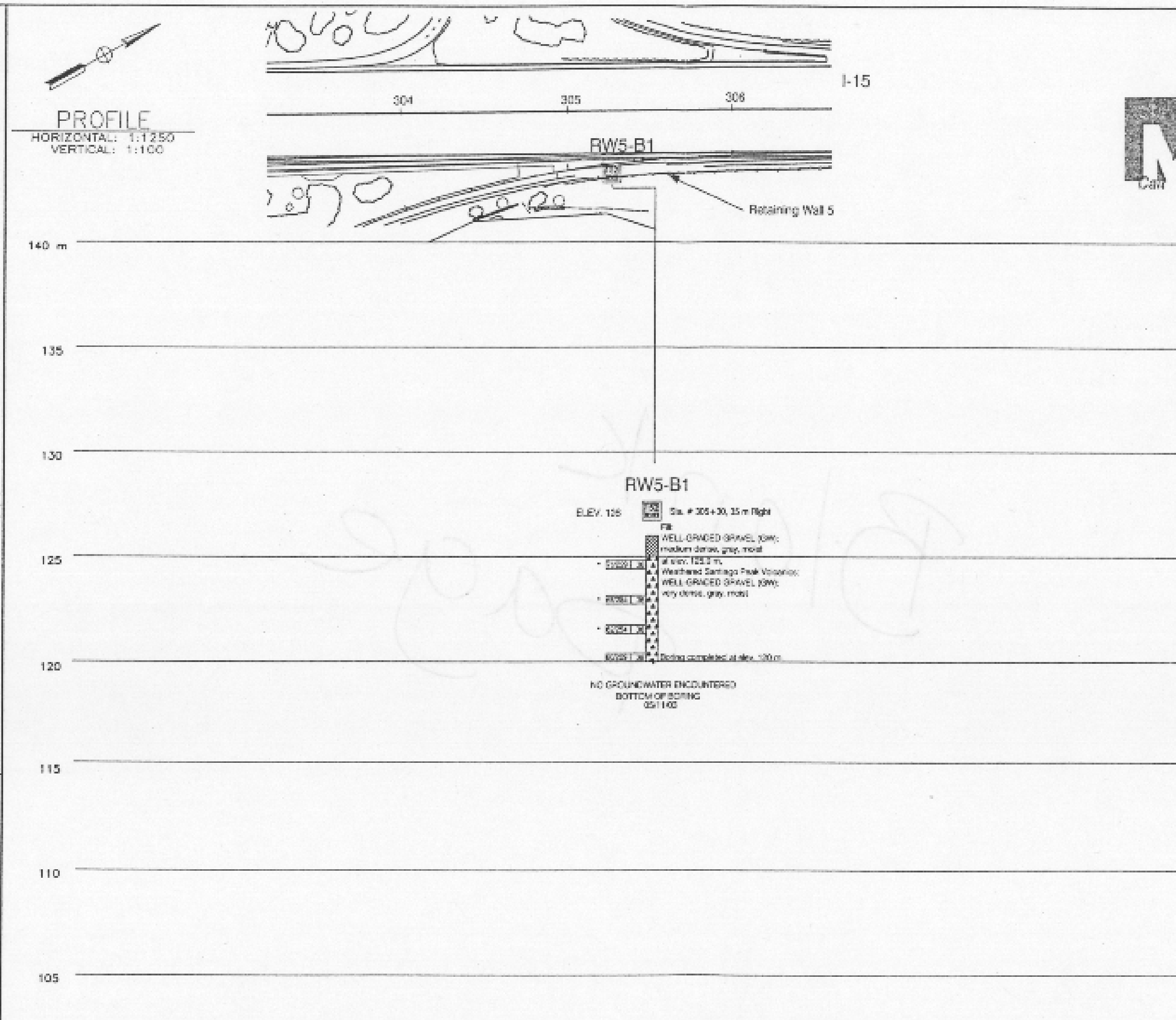
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	15	M27.8/M30.7		

REGISTERED PROFESSIONAL ENGINEER

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

SOUTHERN CALIFORNIA SOIL & TESTING, INC.



Notes

1. An automatic hammer was used to advance the sampler using a 63.5kg hammer with a 760mm drop.

* Blow counts affected by gravel

PROFILE
HORIZONTAL: 1:1250
VERTICAL: 1:100

SCS&T JOB No. 0311071

DESIGN OVERSIGHT	DRAWN BY	K. SHANER
SIGN OFF DATE	CHECK BY	J.J. STONE
FIELD INVESTIGATOR	G. FOUNTAIN	

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO. —
KILOMETER POST M27.8/M30.7

I–15: Retaining Walls
LOG OF TEST BORINGS

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS 0 20 40 60 80 100

DISREGARD PRINTS BEARING EARLIER REVISION DATES —

REVISION DATES (PRELIMINARY STAGE ONLY) SHEET OF

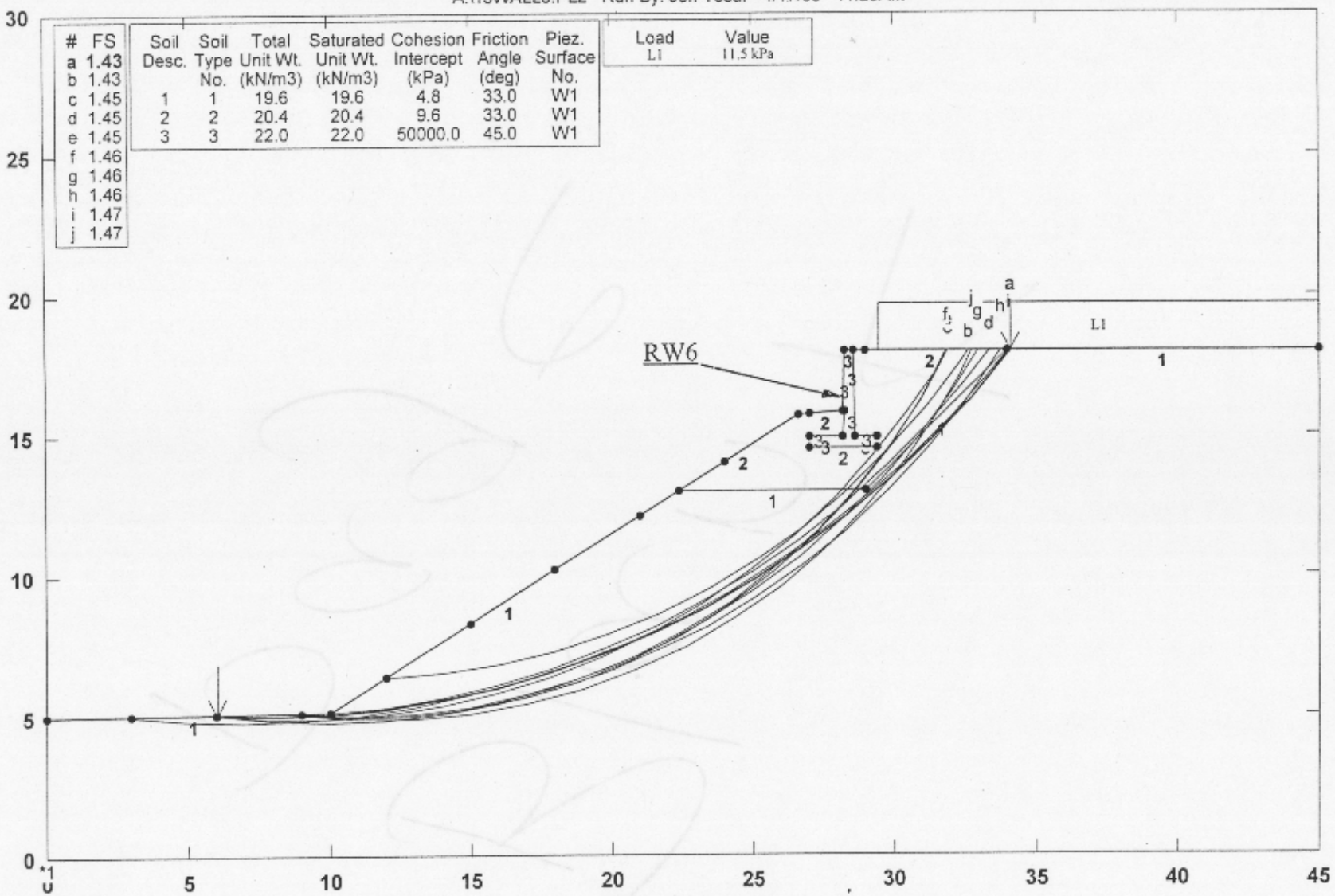
I-15, Retaining Walls, Wall RW6

A:\15WALL6.PL2 Run By: Jeff Tesar 4/17/03 11:25AM

#	FS
a	1.43
b	1.43
c	1.45
d	1.45
e	1.45
f	1.46
g	1.46
h	1.46
i	1.47
j	1.47

Soil Desc.	Soil Type No.	Total Unit Wt. (kN/m3)	Saturated Unit Wt. (kN/m3)	Cohesion Intercept (kPa)	Friction Angle (deg)	Piez. Surface No.
1	1	19.6	19.6	4.8	33.0	W1
2	2	20.4	20.4	9.6	33.0	W1
3	3	22.0	22.0	50000.0	45.0	W1

Load	Value
L1	11.5 kPa



GSTABL7 FSmin=1.43

Safety Factors Are Calculated By The Modified Bishop Method

STED

*** GSTABL7 ***

** GSTABL7 by Garry H. Gregory, P.E. **
** Version 1.0, January 1996; Version 1.16, May 2000 **
--Slope Stability Analysis--
Simplified Janbu, Modified Bishop
or Spencer's Method of Slices
(Based on STABL6-1986, by Purdue University)

Run Date: 4/17/03
Time of Run: 11:25AM
Run By: Jeff Tesar
Input Data Filename: A:15WALL6.SI
Output Filename: A:15WALL6.OUT
Unit System: SI
Plotted Output Filename: A:15WALL6.PLT
PROBLEM DESCRIPTION I-15, Retaining Walls,
Wall RW6

BOUNDARY COORDINATES
8 Top Boundaries
17 Total Boundaries

Boundary No.	X-Left (m)	Y-Left (m)	X-Right (m)	Y-Right (m)	Soil Type Below Bnd
1	0.00	5.00	10.00	5.10	1
2	10.00	5.10	22.40	13.00	1
3	22.40	13.00	26.60	15.70	2
4	26.60	15.70	28.20	15.80	2
5	28.20	15.80	28.21	18.00	3
6	28.21	18.00	28.60	18.00	3
7	28.60	18.00	34.00	18.00	2
8	34.00	18.00	45.00	18.00	1
9	27.00	14.50	27.01	14.90	3
10	27.01	14.90	28.19	14.90	3
11	28.19	14.90	28.21	15.80	3
12	28.60	18.00	28.65	14.90	3
13	28.65	14.90	29.40	14.90	3
14	29.40	14.90	29.41	14.50	3
15	27.00	14.50	29.41	14.50	2
16	22.40	13.00	29.00	13.00	1
17	29.00	13.00	34.00	18.00	1

ISOTROPIC SOIL PARAMETERS
3 Type(s) of Soil

Soil Type No.	Total Unit Wt. (kN/m3)	Saturated Unit Wt. (kN/m3)	Cohesion Intercept (kPa)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (kPa)	Piez. Surface No.
1	19.6	19.6	4.8	33.0	0.00	0.0	1
2	20.4	20.4	9.6	33.0	0.00	0.0	1
3	22.0	22.0	50000.0	45.0	0.00	0.0	1

BOUNDARY LOAD(S)
1 Load(s) Specified

Load No.	X-Left (m)	X-Right (m)	Intensity (kPa)	Deflection (deg)
1	29.50	45.00	11.5	0.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.
Searching Routine Will Be Limited To An Area Defined By 1 Boundaries
Of Which The First 1 Boundaries Will Deflect Surfaces Upward

Boundary No.	X-Left (m)	Y-Left (m)	X-Right (m)	Y-Right (m)
1	0.00	0.00	0.00	0.00

A Critical Failure Surface Searching Method, Using A Random
Technique For Generating Circular Surfaces, Has Been Specified.
400 Trial Surfaces Have Been Generated.
40 Surfaces Initiate From Each Of 10 Points Equally Spaced
Along The Ground Surface Between X = 0.00(m)
and X = 27.00(m)
Each Surface Terminates Between X = 29.00(m)
and X = 45.00(m)
Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = 0.00(m)
2.00(m) Line Segments Define Each Trial Failure Surface.
Restrictions Have Been Imposed Upon The Angle Of Initiation.
The Angle Has Been Restricted Between The Angles Of -15.0
And 25.0 deg.
Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Bishop Method * *
Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	6.00	5.06
2	8.00	5.00
3	10.00	5.07
4	11.99	5.26
5	13.97	5.56
6	15.92	5.99
7	17.84	6.54
8	19.73	7.20
9	21.58	7.97
10	23.37	8.86
11	25.11	9.85
12	26.78	10.95
13	28.38	12.14
14	29.91	13.43
15	31.35	14.81
16	32.71	16.28
17	33.98	17.83
18	34.10	18.00

Circle Center At X = 7.9 ; Y = 37.9 and Radius, 32.9
*** 1.433 ***
Individual data on the 32 slices

Slice No.	Width (m)	Weight (kN)	Water Force Top (kN)	Water Force Bot (kN)	Tie Force Norm (kN)	Tie Force Tan (kN)	Earthquake Force Hor (kN)	Earthquake Force Ver (kN)	Surcharge Load (kN)
1	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2.0	22.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2.0	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2.0	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1.9	121.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	1.9	141.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1.8	155.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.8	73.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	1.0	89.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	1.7	166.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	1.5	145.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.2	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.2	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	1.2	100.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.2	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.2	26.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.4	39.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.4	42.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.1	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.4	39.3	0.0	0.0	0.0	0.0	0.0	0.0	4.7
28	1.4	113.7	0.0	0.0	0.0	0.0	0.0	0.0	16.6
29	1.4	67.4	0.0	0.0	0.0	0.0	0.0	0.0	15.6
30	1.3	24.1	0.0	0.0	0.0	0.0	0.0	0.0	14.6

31	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
32	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.2

Failure Surface Specified By 14 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	12.00	6.37
2	14.00	6.52
3	15.97	6.82
4	17.92	7.28
5	19.83	7.88
6	21.68	8.63
7	23.47	9.52
8	25.18	10.55
9	26.81	11.71
10	28.35	13.00
11	29.78	14.39
12	31.10	15.90
13	32.29	17.50
14	32.61	18.00

Circle Center At X = 11.1 ; Y = 32.0 and Radius, 25.6
*** 1.435 ***

Failure Surface Specified By 15 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	9.00	5.09
2	11.00	4.99
3	13.00	5.06
4	14.98	5.31
5	16.94	5.72
6	18.85	6.31
7	20.71	7.06
8	22.49	7.96
9	24.19	9.02
10	25.79	10.22
11	27.28	11.55
12	28.65	13.01
13	29.88	14.58
14	30.98	16.25
15	31.92	18.00

Circle Center At X = 11.2 ; Y = 28.1 and Radius, 23.1
*** 1.450 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	6.00	5.06
2	8.00	5.01
3	10.00	5.10
4	11.99	5.30
5	13.96	5.63
6	15.91	6.08
7	17.82	6.66
8	19.70	7.35
9	21.53	8.17
10	23.30	9.09
11	25.01	10.12
12	26.66	11.26
13	28.23	12.50
14	29.71	13.84
15	31.11	15.27
16	32.42	16.78
17	33.35	18.00

Circle Center At X = 7.7 ; Y = 36.8 and Radius, 31.8
*** 1.451 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	6.00	5.06

2	7.99	4.90
3	9.99	4.90
4	11.99	5.04
5	13.97	5.34
6	15.92	5.79
7	17.83	6.38
8	19.69	7.11
9	21.49	7.98
10	23.22	8.98
11	24.87	10.12
12	26.43	11.37
13	27.88	12.74
14	29.24	14.21
15	30.47	15.78
16	31.59	17.44
17	31.90	18.00

Circle Center At X = 9.1 ; Y = 31.4 and Radius, 26.5

*** 1.452 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	9.00	5.09
2	11.00	4.96
3	13.00	5.01
4	14.98	5.23
5	16.94	5.64
6	18.86	6.21
7	20.71	6.95
8	22.50	7.86
9	24.19	8.92
10	25.79	10.12
11	27.27	11.47
12	28.63	12.94
13	29.85	14.52
14	30.92	16.21
15	31.84	17.99
16	31.84	18.00

Circle Center At X = 11.5 ; Y = 27.4 and Radius, 22.4

*** 1.458 ***

Failure Surface Specified By 17 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	6.00	5.06
2	7.99	4.84
3	9.99	4.77
4	11.99	4.85
5	13.97	5.07
6	15.94	5.45
7	17.87	5.97
8	19.75	6.64
9	21.58	7.44
10	23.35	8.38
11	25.04	9.45
12	26.64	10.65
13	28.15	11.96
14	29.56	13.38
15	30.86	14.90
16	32.04	16.52
17	32.96	18.00

Circle Center At X = 9.9 ; Y = 31.4 and Radius, 26.7

*** 1.461 ***

Failure Surface Specified By 18 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	6.00	5.06
2	7.99	4.84
3	9.99	4.76

4	11.99	4.83
5	13.97	5.04
6	15.94	5.40
7	17.88	5.89
8	19.78	6.52
9	21.63	7.29
10	23.41	8.18
11	25.13	9.21
12	26.77	10.35
13	28.33	11.61
14	29.79	12.97
15	31.15	14.44
16	32.40	16.00
17	33.53	17.65
18	33.74	18.00

Circle Center At X = 10.0 ; Y = 32.6 and Radius, 27.8

*** 1.461 ***

Failure Surface Specified By 19 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	3.00	5.03
2	4.99	4.85
3	6.99	4.79
4	8.99	4.85
5	10.98	5.02
6	12.96	5.31
7	14.92	5.71
8	16.85	6.23
9	18.75	6.86
10	20.61	7.60
11	22.42	8.45
12	24.18	9.40
13	25.88	10.45
14	27.52	11.60
15	29.08	12.84
16	30.57	14.18
17	31.98	15.60
18	33.31	17.09
19	34.02	18.00

Circle Center At X = 7.0 ; Y = 39.0 and Radius, 34.2

*** 1.468 ***

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (m)	Y-Surf (m)
1	9.00	5.09
2	10.99	4.90
3	12.99	4.89
4	14.98	5.05
5	16.96	5.39
6	18.89	5.90
7	20.77	6.58
8	22.59	7.42
9	24.32	8.42
10	25.96	9.56
11	27.49	10.85
12	28.91	12.26
13	30.19	13.79
14	31.34	15.43
15	32.33	17.17
16	32.72	18.00

Circle Center At X = 12.1 ; Y = 27.6 and Radius, 22.7

*** 1.469 ***

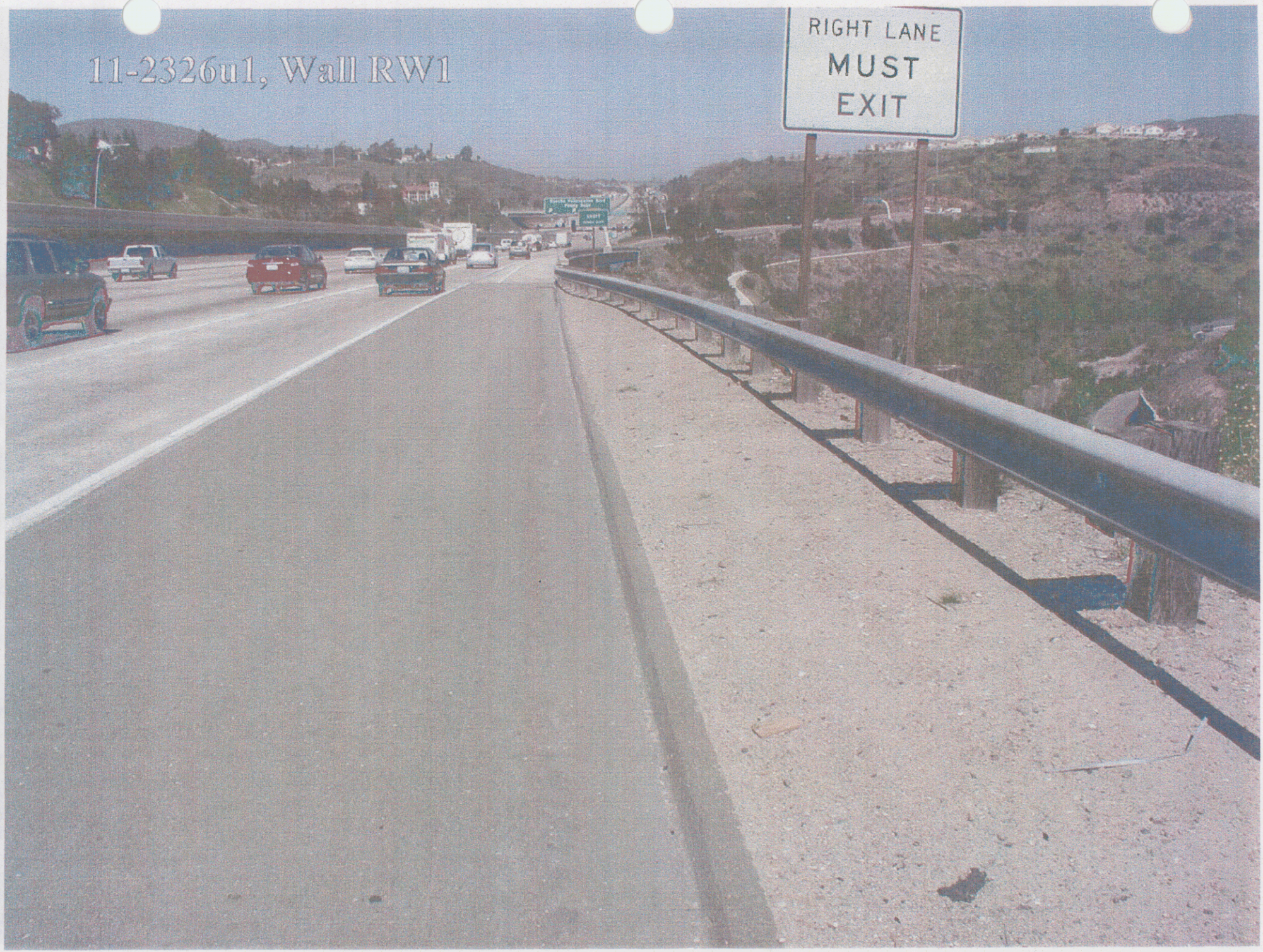


Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

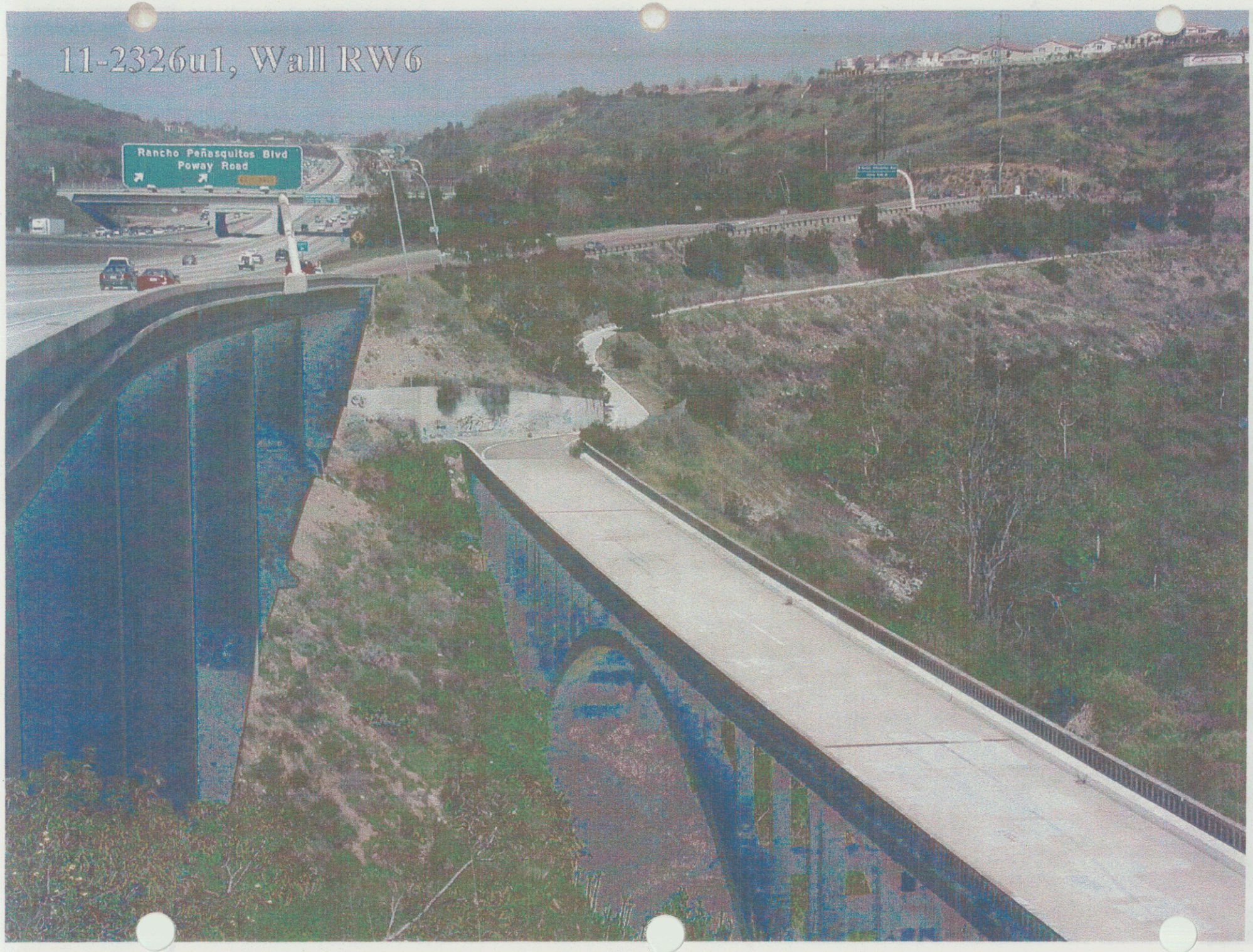


Photo 8