INFORMATION HANDOUT

For Contract No. 11-407604
At 11-SD-5,8,52-Var

Identified by
Project ID 1100020422

11-407604
11-SD-5,8,52-Var
Project ID 1100020422

MATERIALS INFORMATION

Geotechnical Design Report

- Geotechnical Design Report, dated February 12, 2015

Site Investigation Report

- Lead Investigation Report, dated September 2014

Limited Asbestos Survey Report

- Asbestos Report, dated August 21, 2013

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

M e m o r a n d u m

Flex Your Power!
Be energy efficient!

To: Richard Estrada
Traffic Project Development
District 11 MS 230

Date: February 12, 2015

File: 11-SD-5, 8, & 52
EA: 11-40760
EFIS: 1100020422

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design–South 2, Branch D

Subject: Geotechnical Design Report for Proposed Concrete Barriers at Various Locations on Interstate 5, Interstate 8, and State Route 52.

Introduction

Pursuant to your request dated January 29, 2015, the Office of Geotechnical Design-South 2 (OGDS2) is providing this Geotechnical Design Report to be used for project design and construction. Layout plans received January 29, 2015 depict construction of concrete barriers at five locations along Interstate 5 (I-5), Interstate 8 (I-8), and State Route 52 (SR-52) at various locations. Layout plans are presented in Appendix I.

No cross sections were provided by District 11 Design staff showing the exact position of the concrete barriers. However, in a spread sheet prepared by the District 11 Design staff, the positions of the concrete barriers relative to the existing slopes have been described. The spread sheet is included in the Appendix I.

Exploration

No drilling or soil sampling was performed for this report. All soil information gathered for this report was obtained from geologic maps and field observations.

Geotechnical Conditions

The following subsections describe the geotechnical conditions at the proposed barrier locations of geotechnical significance.

Location 2

The proposed concrete barrier is located close to the top of the existing slope at the left shoulder of the eastbound State Route 75 (Palm Avenue) to northbound I-5 connector at “I-5, PM 4.7”. The off ramp has been constructed on fill. The slope is inclined as steep as 2.5:1. The height of the slope is approximately 15 feet. The slope is well vegetated and performing well. The site is underlain by engineered fill predominantly comprised of fine to medium grained sand derived from materials excavated from nearby cuts in the Bay Point Formation.

Location 7

The proposed concrete barrier is located at the right shoulder of northbound I-5 at the Damon Street Undercrossing (PM 23.7) at the toe of an existing cut slope which borders the northbound freeway shoulder. The slope is inclined as steep as 2.5:1. The height of the slope is approximately 7 feet. The slope is well vegetated and performing well. The subsurface materials in the area are predominantly comprised of fine and medium grained sandstone of the Bay Point Formation.

Location 17

The proposed concrete barrier is located at the toe of the existing slope at left shoulder of westbound I-8 off ramp at the Morena Boulevard Undercrossing (PM R0.6). The slope is inclined as steep as 3:1. The height of the slope is approximately 8 feet. The slope is well vegetated and performing well. The site is underlain by engineered fill, which is underlain by alluvium.

Location 19

The proposed concrete barrier is located at the right shoulder of eastbound I-8 (PM 1.1) at the toe of an existing cut slope which borders the eastbound freeway shoulder. The slope is inclined as steep as 2:1. The height of the slope is approximately 20 feet. The slope is well vegetated and performing well. The site is underlain by medium grained sandstone of the Mission Valley Formation.

Location 26

The proposed concrete barrier is located at the toe of the existing fill slope at the left shoulder of eastbound SR-52 off ramp at the San Clemente Creek Bridge (PM 2.3). The slope is inclined as steep as 3:1. The height of the slope is approximately 8 feet. The slope is well vegetated and performing well. The site is underlain by engineered fill, which is underlain by alluvium.

Recommendations and Conclusions

Recommendations for the concrete barriers are presented in Table 1. The following paragraph presents a guideline for selecting concrete barrier type relative to the amount of shoulder backing and steepness of the slopes:

The proposed concrete barriers may be designed and constructed utilizing Caltrans Standard Plan Type 60, and Type 60 Modified. A Type 60 barrier is appropriate where 3 feet or more of level shoulder backing exists between the barrier and a descending slope inclined no steeper than 2:1. A Type 60 Modified barrier is appropriate at locations where 3 feet of level shoulder backing exists adjacent to slopes inclined more steeply than 2:1. Also a Type 60 Modified barrier is appropriate at locations where concrete barrier is located at the toe of the slope and retains soil.

A Type 60 modified concrete barrier is similar to a Caltrans Standard Plan Concrete Barrier Type 60 Section B (sheet A76B), except that the embedment depth should be a minimum of 24 inches to provide sufficient lateral resistance to forces that will act on the barrier. Two illustrative sketches of a Type 60 modified concrete barrier are provided in Figure 1.

Other Considerations

1. The on-site soils may generally be excavated with conventional equipment.

2. Concentrated surface water should not be allowed to pond behind the concrete barriers. Surface water should be contained by appropriate drainage improvements.

Our Office will be available for further assistance as needed. Should you have any questions, please call Ali Lari at (858) 467-6922.

Ali Lari, P.E.
Transportation Engineer (Civil)
Office of Geotechnical Design - South 2

REGISTERED PROFESSIONAL ENGINEER
ALI LARI
No. C65846
Exp. 12-31-~~05~~ 15
CIVIL
STATE OF CALIFORNIA

Attachments:

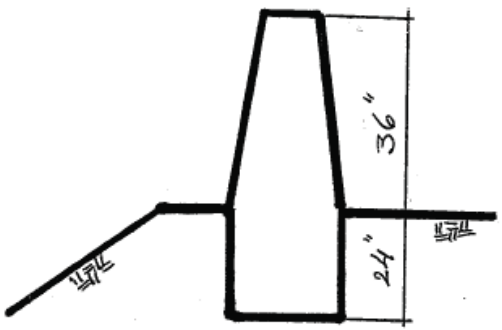
Figure 1: Type 60 Modified Concrete Barrier
Table 1: Recommended Concrete Barrier Types
Appendix I: Documents provided by District 11 Design

CC List:

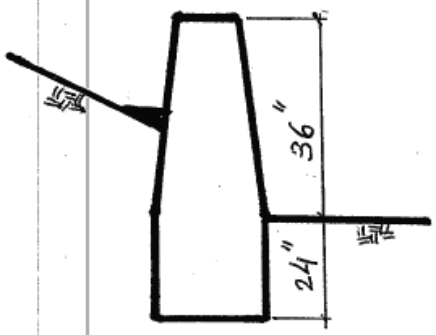
Art Padilla	District Materials Engineer
Abbas Abghari	Office Chief, OGDS2
Shawn Wei	Branch Chief, OGDS2-Branch D
Brian Hinman – RICHARD RUSNAK FOR B. HINMAN	Lead Worker, OGDS2-Branch D
Barzan Aran	Project Engineer
http://10.160.173.158/	Geotechnical Services Archives
District Construction RE Pending File	RE_Pending_File@dot.ca.gov

Modified Concrete Barrier

Type 60



Barrier At Slope Top Hinge



Barrier At Slope Toe Hinge

Figure 1

Table 1

Concrete Barriers Types

Location	Route	PM	Direction	Side	Begin Station	End Station	Barrier Type	Length (feet)
2	I-5	4.7	EB (SR-75)	Left	272+34	274+21	Type 60	187
7	I-5	23.7	NB (I-5)	Right	1282+95	1283+96	Modified Type 60	100
17	I-8	R0.6	WB (I-8)	Left	100+10	100+40	Type 60	30
19	I-8	1.1	EB I-8)	Right	191+03	192+42	Modified Type 60	140
26	SR-52	2.5	EB (SR-52)	Left	147+89	149+88	Type 60	200

Appendix I

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5,8,52	Var		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BARZAN A. ARAN No. C75167 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

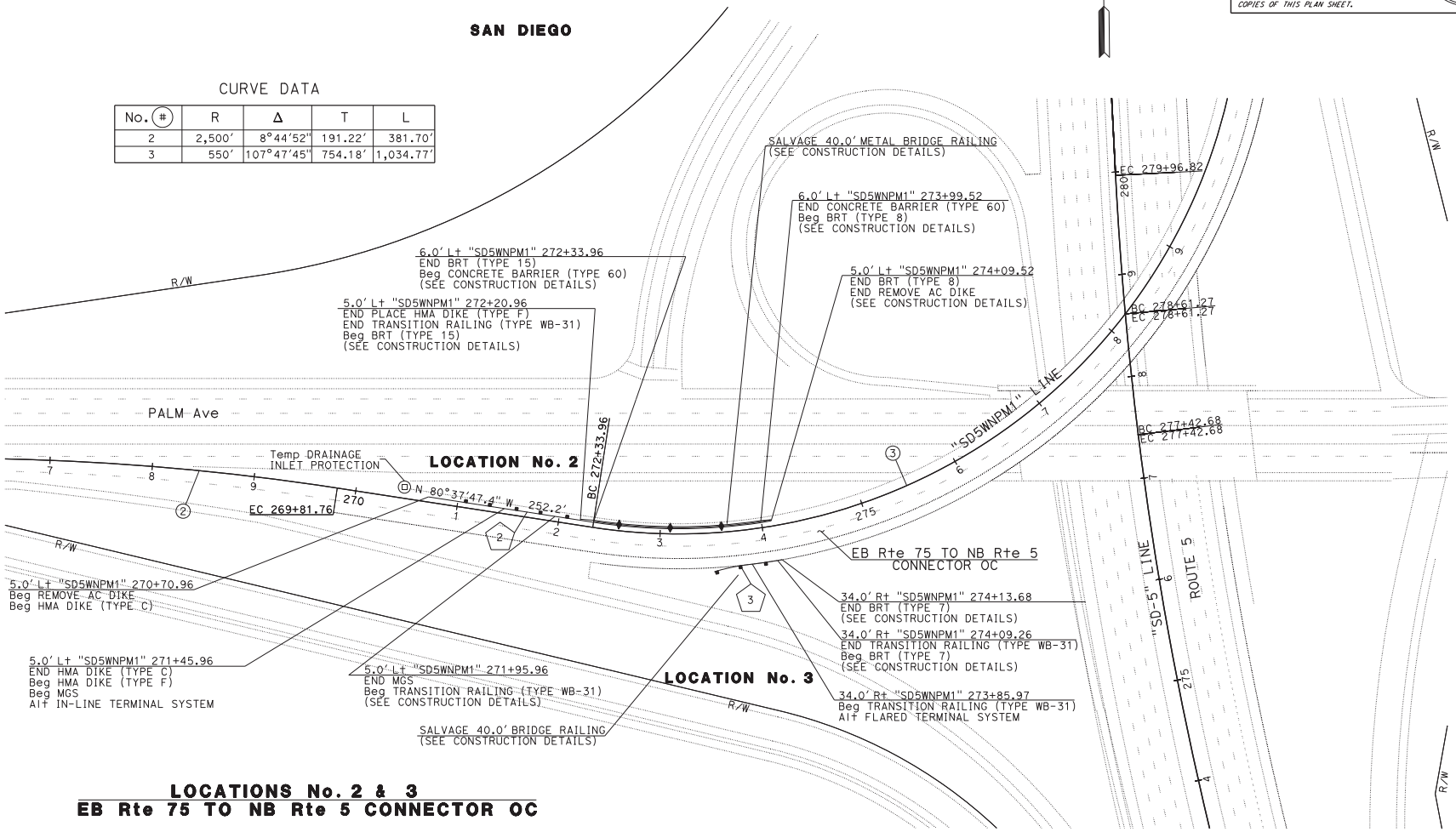
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

CURVE DATA

No. (#)	R	Δ	T	L
2	2,500′	8°44′52"	191.22′	381.70′
3	550′	107°47′45"	754.18′	1,034.77′



LOCATIONS No. 2 & 3
EB Rte 75 TO NB Rte 5 CONNECTOR OC

SCALE: 1" = 50′

LAYOUT L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: BARZAN ARAN
CHECKED BY: DONI DE CASTRO
REVISED BY / DATE REVISED

LAST REVISION 10-13-14 DATE PLOTTED => 29-JAN-2015 TIME PLOTTED => 09:08

BORDER LAST REVISED 7/1/2010 | USERNAME => s109745 DGN FILE => 1100020422ea002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 2771 | PROJECT NUMBER & PHASE 11000204221

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5,8,52	Var		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BARZAN A. ARAN No. C75167 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

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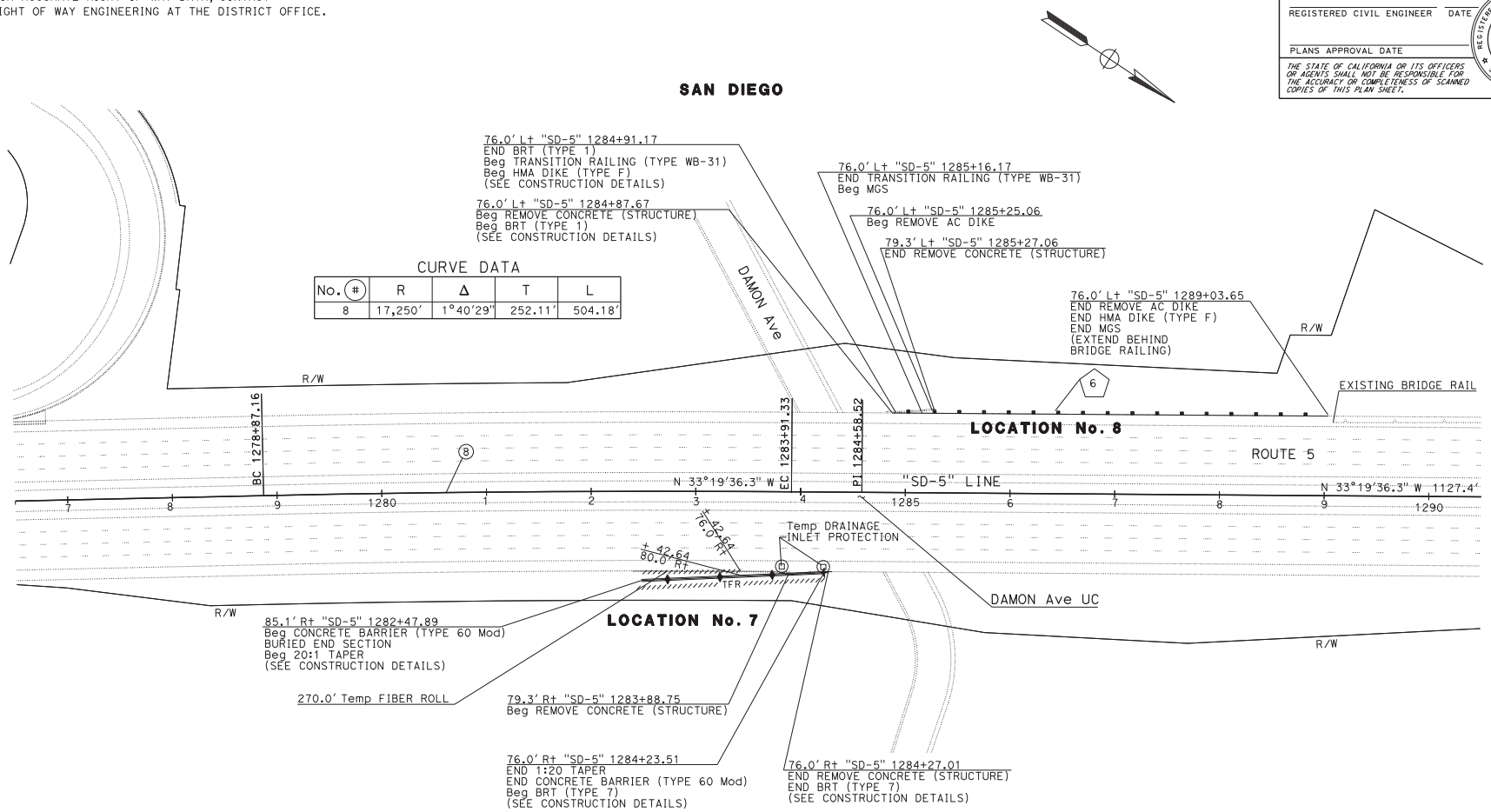

CURVE DATA

No. (#)	R	Δ	T	L
8	17,250'	1°40'29"	252.11'	504.18'

LOCATIONS No. 7 & 8
DAMON Ave UC

SCALE: 1" = 50'

LAYOUT L-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: BARZAN ARAN
CHECKED BY: DONI DE CASTRO
REVISED BY
DATE REVISED

LAST REVISION 10-13-14
DATE PLOTTED => 29-JAN-2015
TIME PLOTTED => 09:08

BORDER LAST REVISED 7/1/2010
USERNAME => s109745
DGN FILE => 1100020422ea006.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 2771
PROJECT NUMBER & PHASE 11000204221

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5,8,52	Var		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BARZAN A. ARAN No. C75167 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

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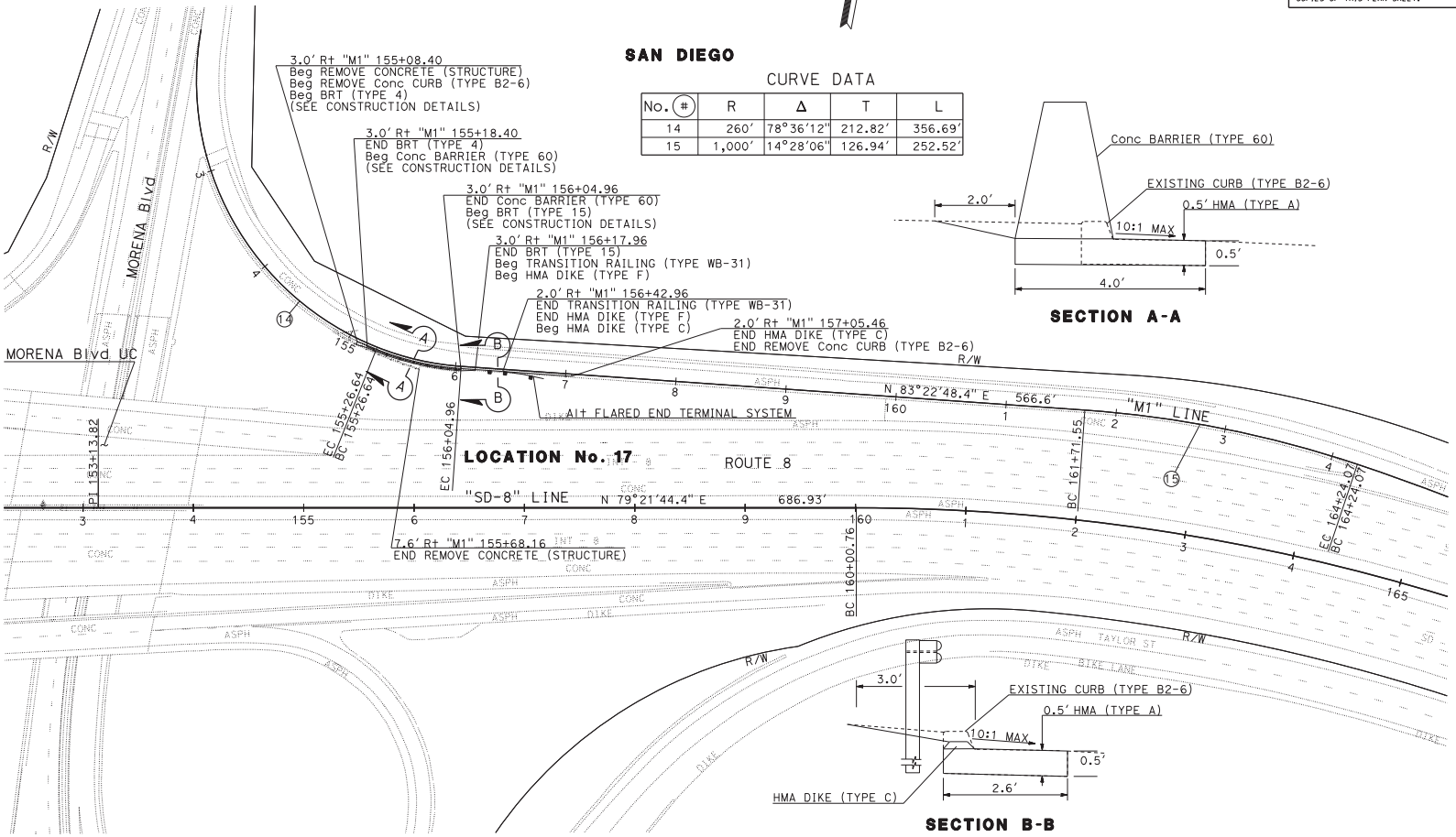

CURVE DATA

No. (#)	R	Δ	T	L
14	260'	78°36'12"	212.82'	356.69'
15	1,000'	14°28'06"	126.94'	252.52'

LOCATION No. 17
SAN DIEGO RIVER Br (MORENA Blvd)

SCALE: 1" = 50'

LAYOUT L-14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
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CHECKED BY: DONI DE CASTRO
REVISED BY
DATE REVISED

LAST REVISION 10-13-14
DATE PLOTTED => 29-JAN-2015
TIME PLOTTED => 09:08

BORDER LAST REVISED 7/1/2010
USERNAME => s109745
DGN FILE => 1100020422ea014.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 2771
PROJECT NUMBER & PHASE 11000204221

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5,8,52	Var		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BARZAN A. ARAN No. C75167 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

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NOTE:

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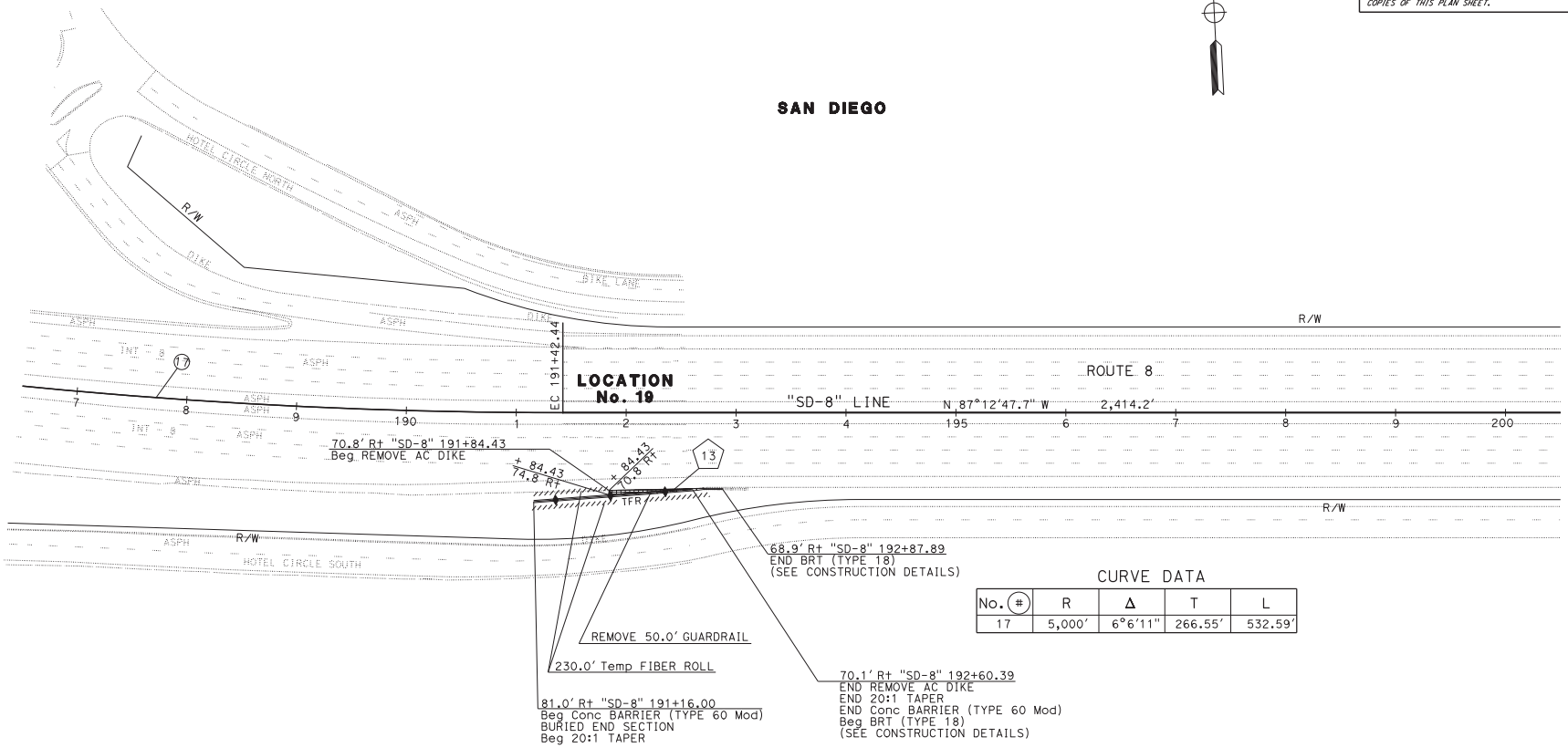

CURVE DATA

No. (#)	R	Δ	T	L
17	5,000'	6°6'11"	266.55'	532.59'

LOCATION No. 19
EAST OF PRESIDIO PARK OC

SCALE: 1" = 50'

LAYOUT L-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: BARZAN ARAN
CHECKED BY: DONI DE CASTRO
REVISED BY
DATE REVISED

LAST REVISION 10-13-14
DATE PLOTTED => 29-JAN-2015
TIME PLOTTED => 09:08

BORDER LAST REVISED 7/1/2010 | USERNAME => s109745 DGN FILE => 1100020422ea016.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 2771 | PROJECT NUMBER & PHASE 11000204221

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5,8,52	Var		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BARZAN A. ARAN No. C75167 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

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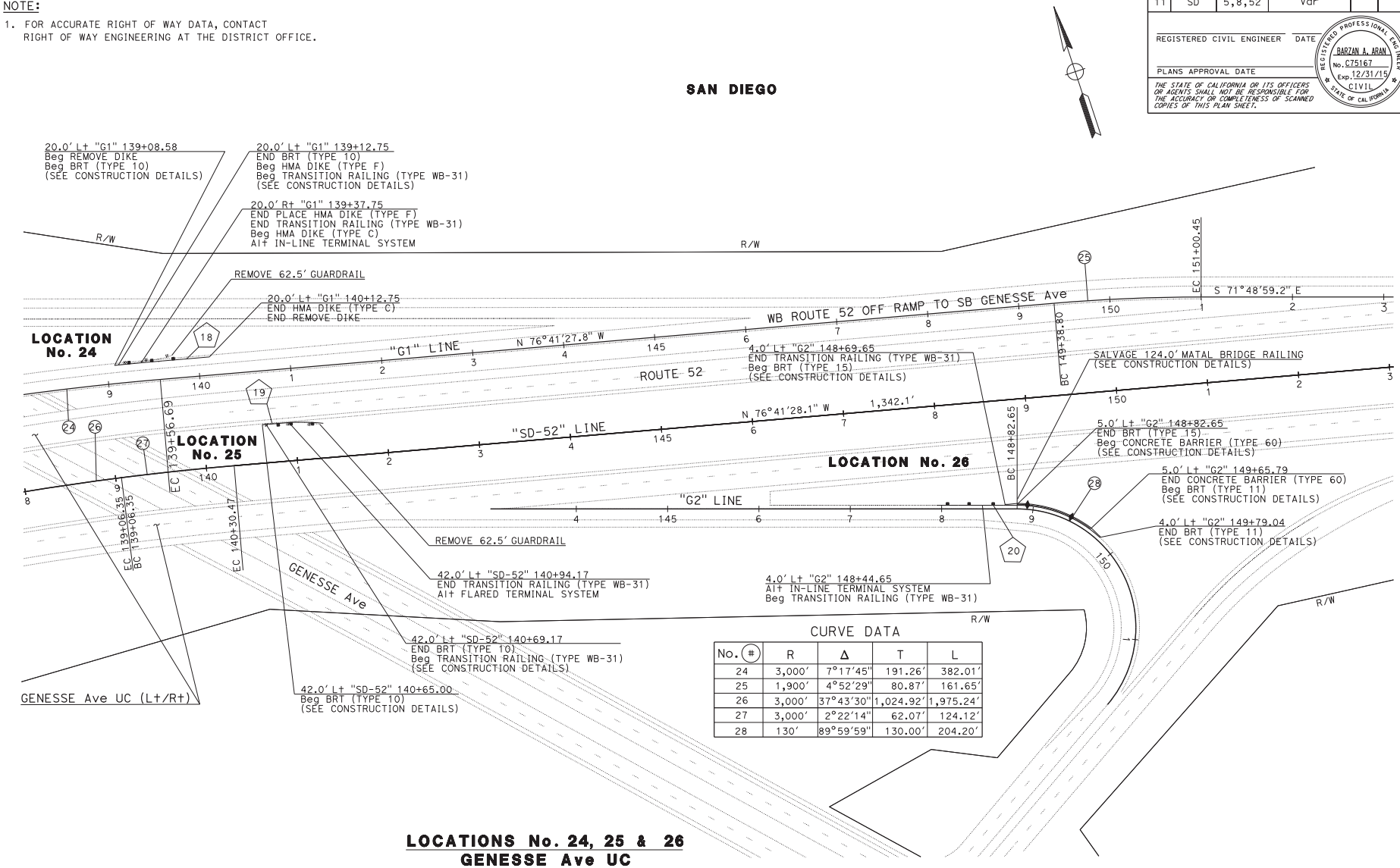
NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. (#)	R	Δ	T	L
24	3,000'	7°17'45"	191.26'	382.01'
25	1,900'	4°52'29"	80.87'	161.65'
26	3,000'	37°43'30"	1,024.92'	1,975.24'
27	3,000'	2°22'14"	62.07'	124.12'
28	130'	89°59'59"	130.00'	204.20'

LOCATIONS No. 24, 25 & 26
GENESSE Ave UC

SCALE: 1" = 50'

LAYOUT L-20

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: BARZAN ARAN
CHECKED BY: DONI DE CASTRO
REVISED BY
DATE REVISED

LAST REVISION 10-13-14
DATE PLOTTED => 29-JAN-2015
TIME PLOTTED => 09:08

BORDER LAST REVISED 7/1/2010 | USERNAME => s109745 DGN FILE => 1100020422ea020.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 2771 | PROJECT NUMBER & PHASE 11000204221

11-407601
LOCATIONS PER PDGR
1/22/2015

Location # per PGDR	Location # per Latest Plans (1/22/2015)	Rte	PM	Dir	Side	Beg STA	End STA	Location Description	Recommendations per PDGR	Proposed Concrete Barrier per Plans (1/29/2015)	Comments
~~2~~	ELIMINATED	I-5	3.2	SB	Lt	243+27	244+02	SB I-5 TO EB SR-905, NE CONNECTOR OC			
~~6~~	2	I-5	4.7	EB	Lt	272+34	274+21	EB SR-75 TO NB I-5 CONNECTOR OC	TYPE 60/TYPE 60 MOD	**TYPE 60**	Proposed Barrier located at TOP of slope with existing hinge at approximately 3-4 feet
~~14~~	7	I-5	23.7	NB	Rt	1282+95	1283+96	DAMON St UC	TYPE 60 MOD	**TYPE 60 MOD**	Proposed Barrier located at TOE of slope/ES with buried end section
~~28~~	17	I-8	R0.6	WB	Lt	100+10	100+40	SAN DIEGO RIVER Br (MORENA Blvd)	TYPE 60 MOD	**TYPE 60**	**Design revised:** Proposed Barrier located at TOE of slope/ES with NO buried end section
~~30~~	19	I-8	1.1	EB	Rt	191+03	192+42	EAST OF PRESIDIO OC	TYPE 60 MOD	**TYPE 60 MOD**	Proposed Barrier located at TOE of slope/ES with buried end section
~~38~~	26	SR-52	2.5	EB	Lt	147+89	149+88	SAN CLEMENT CREEK Br	TYPE 60 MOD	**TYPE 60**	**Design revised:** Proposed Barrier located at TOE of slope/ES with NO buried end section

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LEGEND

PLATE BOUNDARY

N

0 0.5 1 Miles

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO: 20152475.001A 02-1000
DRAWN BY: E D GOFF
CHECKED BY: K MCDONNELL
DATE: SEPTEMBER 2014

GeomorphIS

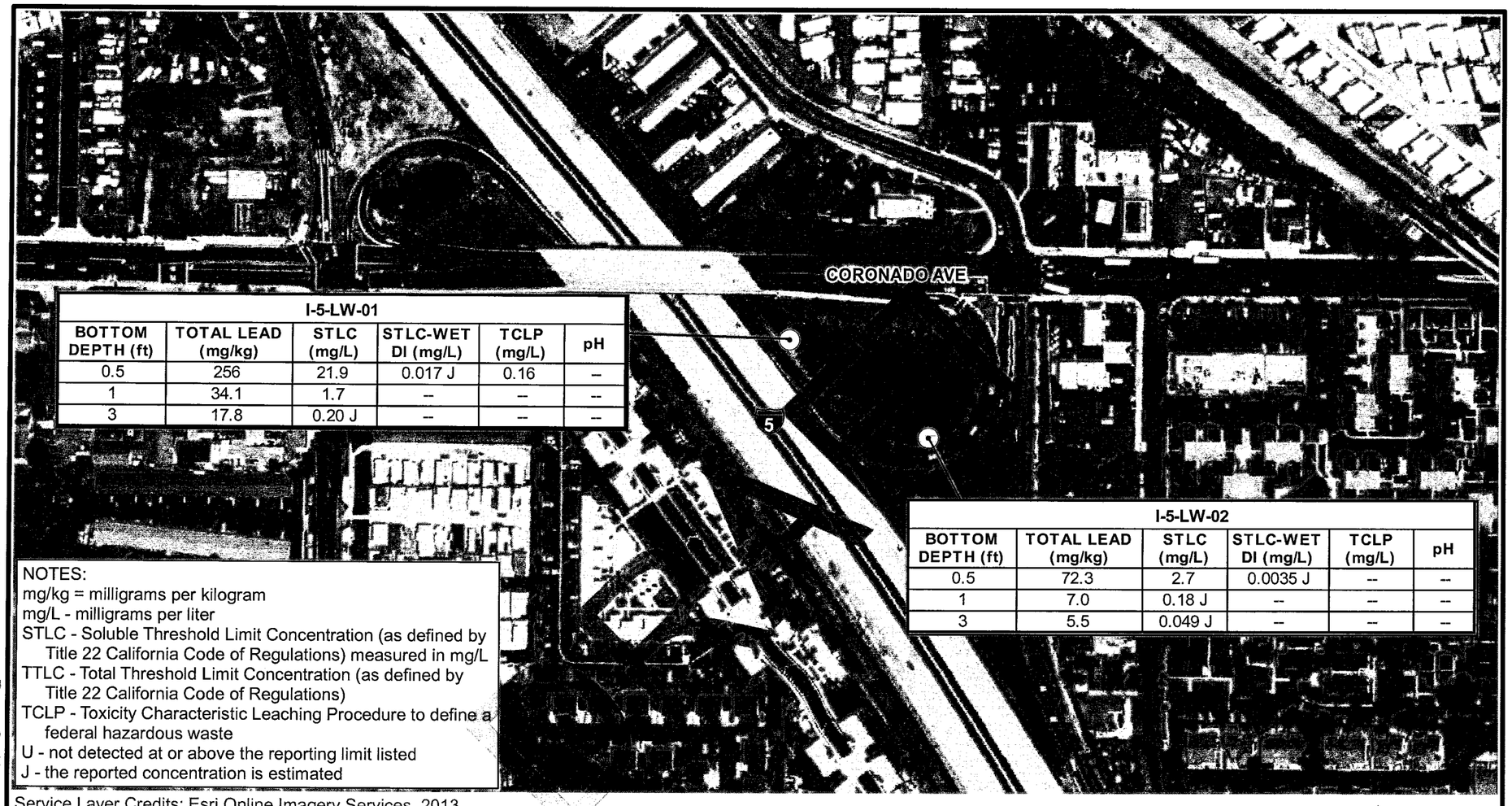
SITE LOCATION MAP

ADL Study for Ramp Meter Project
Caltrans EA 11-14000045
Task Order 21
I-5, San Diego and Chula Vista, California

PLATE

1

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_LocationPlates.mxd



I-5-LW-01					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	256	21.9	0.017 J	0.16	--
1	34.1	1.7	--	--	--
3	17.8	0.20 J	--	--	--

I-5-LW-02					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	72.3	2.7	0.0035 J	--	--
1	7.0	0.18 J	--	--	--
3	5.5	0.049 J	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
TCLP - Toxicity Characteristic Leaching Procedure to define a federal hazardous waste
U - not detected at or above the reporting limit listed
J - the reported concentration is estimated

Service Layer Credits: Esri Online Imagery Services, 2013

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LEGEND

⊙ SAMPLE LOCATION

N

0 150 300 Feet

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_FinalResults2a.mxd

KLEINFELDER
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PROJECT NO: 20152475.001A 02-3000
DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: JANUARY 2015

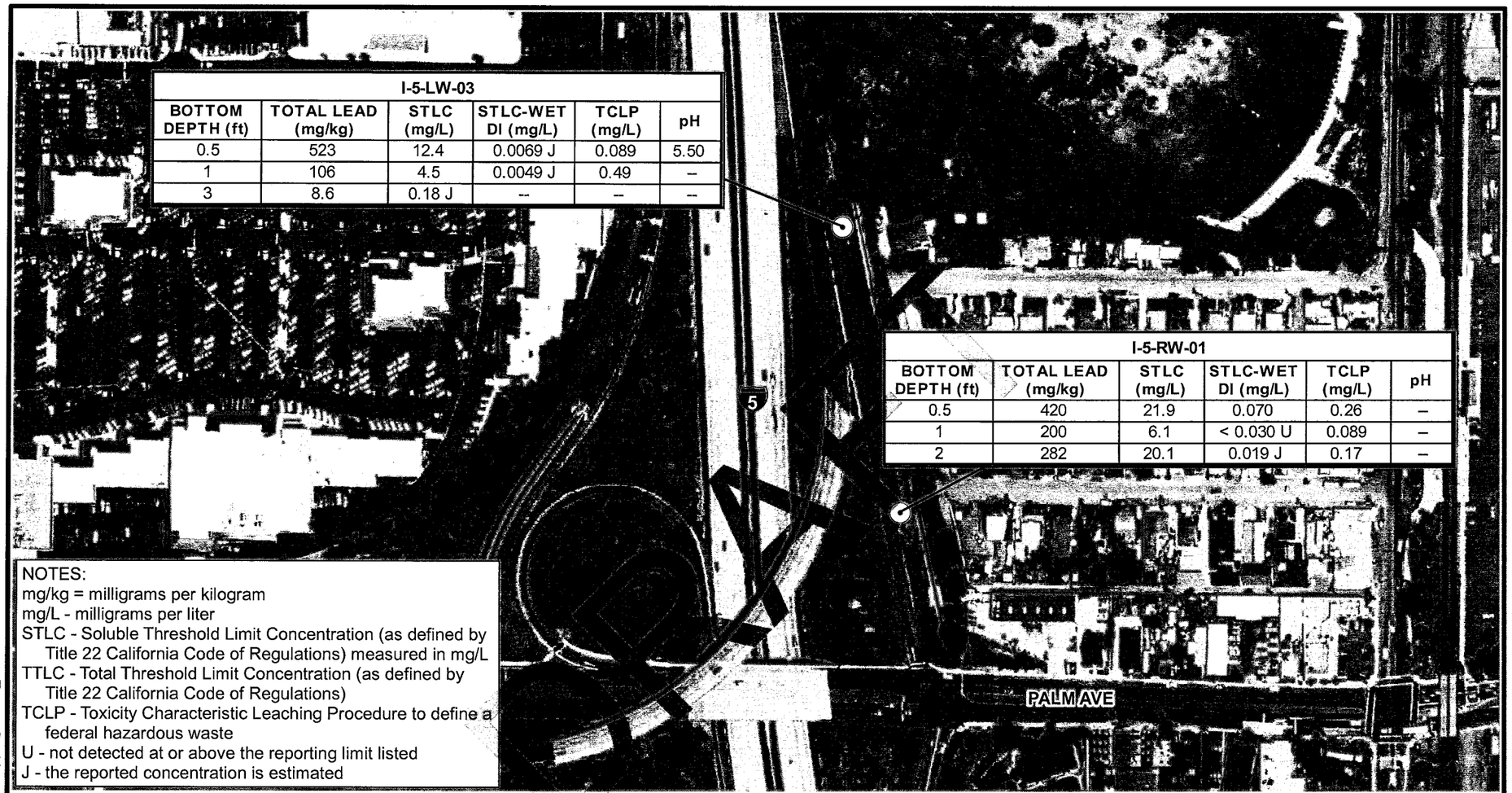
GeomorphIS

SAMPLE LOCATION MAP

ADL Survey for I-5 Ramp Meter Project
Caltrans EA 11-244000
Task Order 21
San Diego and Chula Vista, California

PLATE

2a



I-5-LW-03					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	523	12.4	0.0069 J	0.089	5.50
1	106	4.5	0.0049 J	0.49	--
3	8.6	0.18 J	--	--	--

I-5-RW-01					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	420	21.9	0.070	0.26	--
1	200	6.1	< 0.030 U	0.089	--
2	282	20.1	0.019 J	0.17	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
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Service Layer Credits: Esri Online Imagery Services, 2013

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LEGEND

⊙ SAMPLE LOCATION

N

0 150 300 Feet

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO: 20152475.001A 02-3000
DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: JANUARY 2015

GeomorphIS

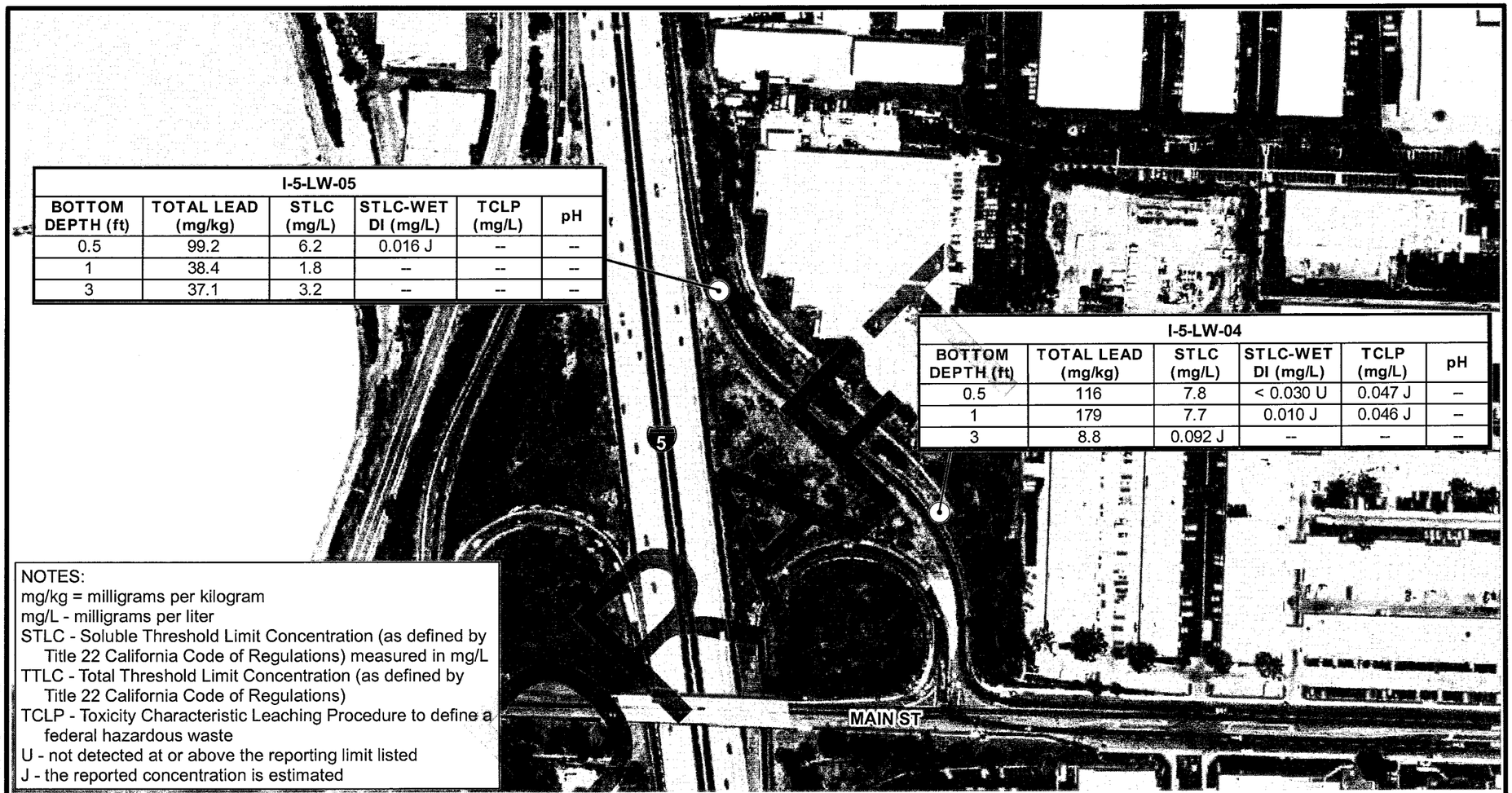
SAMPLE LOCATION MAP

ADL Survey for I-5 Ramp Meter Project
Caltrans EA 11-244000
Task Order 21
San Diego and Chula Vista, California

PLATE

2b

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_Final\Results2b.mxd



I-5-LW-05					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	99.2	6.2	0.016 J	--	--
1	38.4	1.8	--	--	--
3	37.1	3.2	--	--	--

I-5-LW-04					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	116	7.8	< 0.030 U	0.047 J	--
1	179	7.7	0.010 J	0.046 J	--
3	8.8	0.092 J	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
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Service Layer Credits: Esri Online Imagery Services, 2013

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LEGEND

⊙ SAMPLE LOCATION

N

0 150 300 Feet

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO: 20152475.001A 02-3000
DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: JANUARY 2015

GeomorphIS

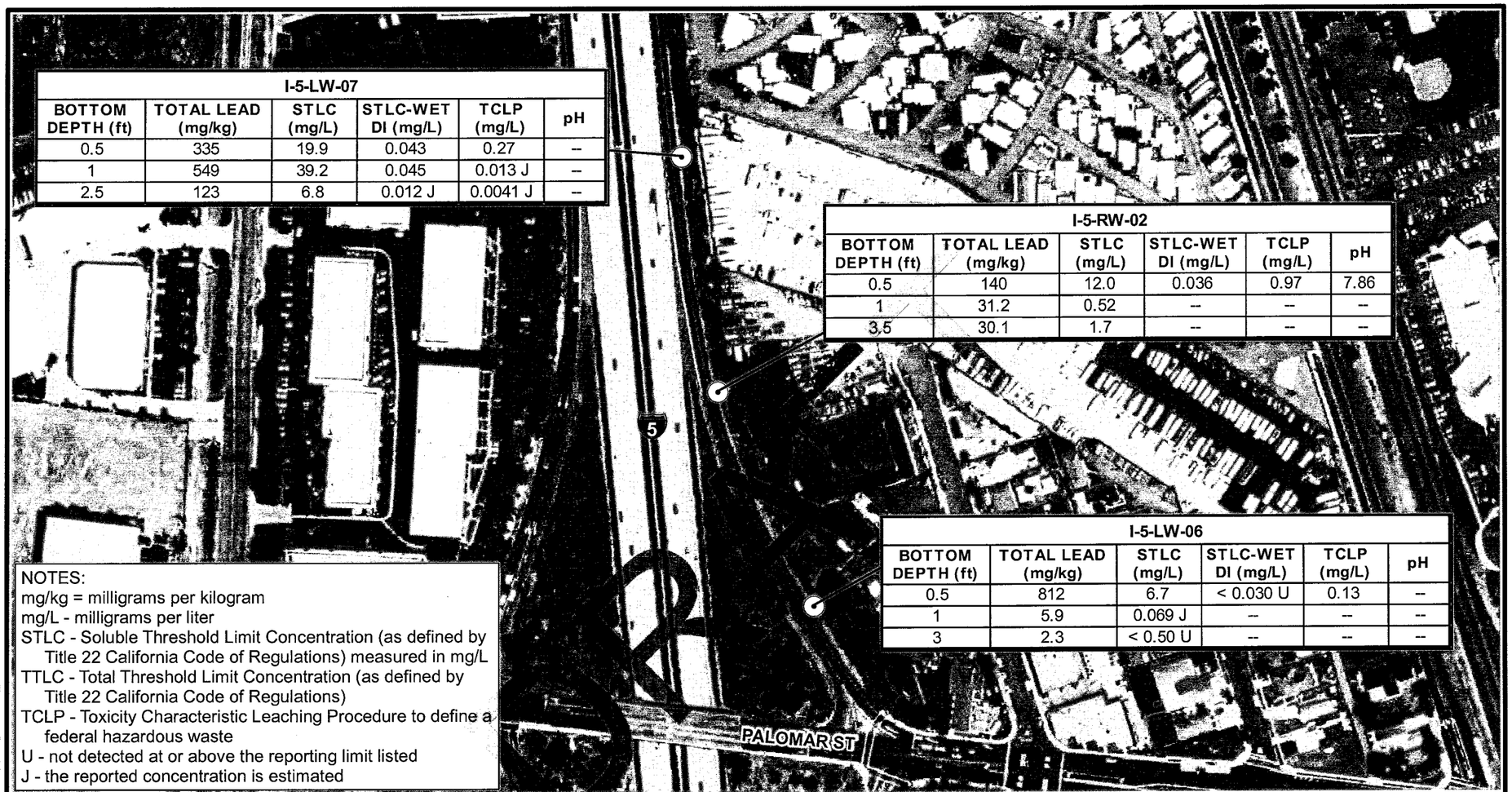
SAMPLE LOCATION MAP

ADL Survey for I-5 Ramp Meter Project
Caltrans EA 11-244000
Task Order 21
San Diego and Chula Vista, California

PLATE

2c

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_FinalResults2c.mxd



I-5-LW-07

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	335	19.9	0.043	0.27	--
1	549	39.2	0.045	0.013 J	--
2.5	123	6.8	0.012 J	0.0041 J	--

I-5-RW-02

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	140	12.0	0.036	0.97	7.86
1	31.2	0.52	--	--	--
3.5	30.1	1.7	--	--	--

I-5-LW-06

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	812	6.7	< 0.030 U	0.13	--
1	5.9	0.069 J	--	--	--
3	2.3	< 0.50 U	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
TCLP - Toxicity Characteristic Leaching Procedure to define a federal hazardous waste
U - not detected at or above the reporting limit listed
J - the reported concentration is estimated

Service Layer Credits: Esri Online Imagery Services, 2013

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LEGEND

⊙ SAMPLE LOCATION

N

0 150 300 Feet

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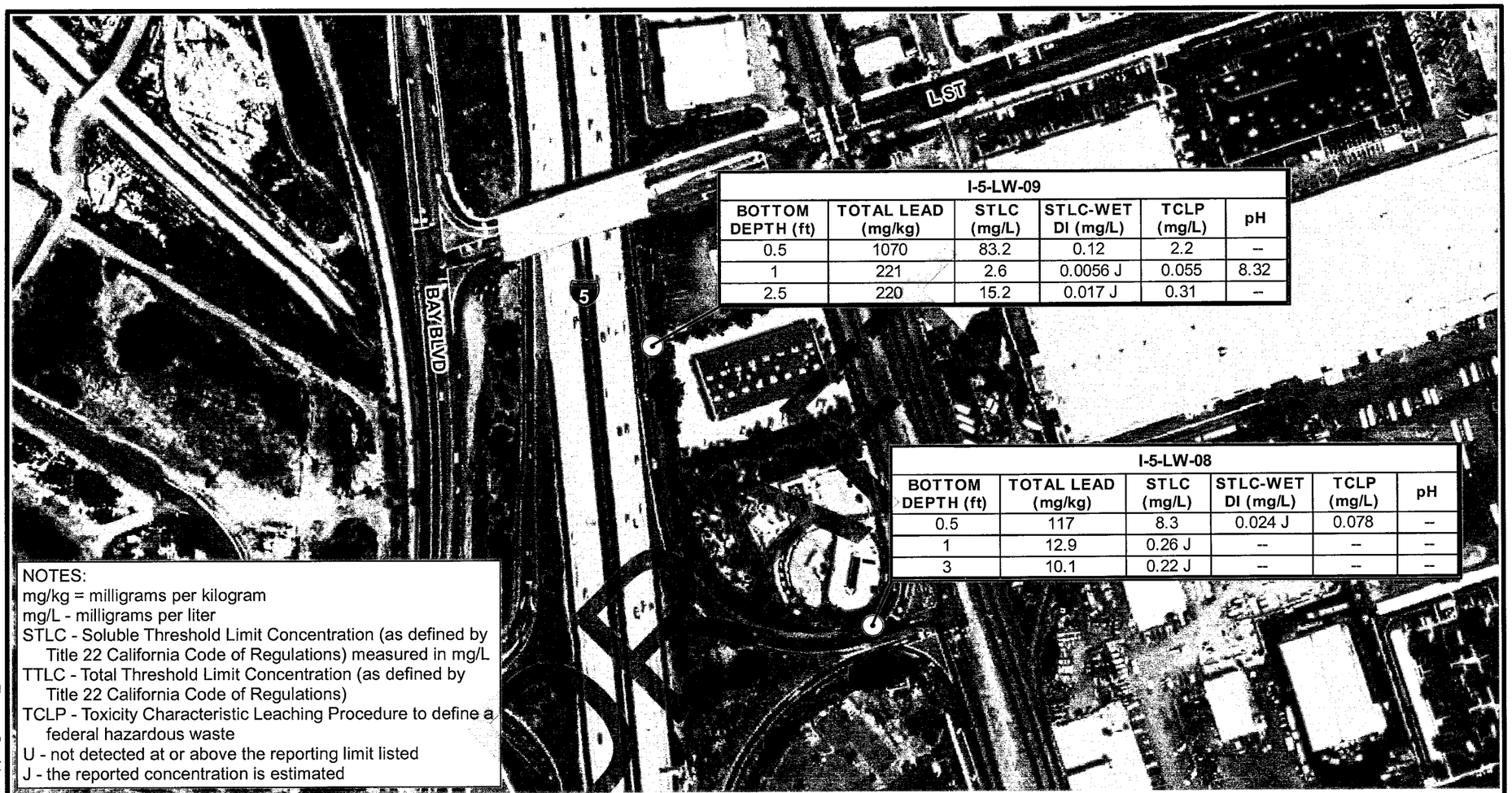
ADL Survey for I-5 Ramp Meter Project
Caltrans EA 11-244000
Task Order 21
San Diego and Chula Vista, California

PLATE
2d

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_FinalResults2d.mxd



I-5-LW-09					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	1070	83.2	0.12	2.2	--
1	221	2.6	0.0056 J	0.055	8.32
2.5	220	15.2	0.017 J	0.31	--

I-5-LW-08					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	117	8.3	0.024 J	0.078	--
1	12.9	0.26 J	--	--	--
3	10.1	0.22 J	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
TCLP - Toxicity Characteristic Leaching Procedure to define a federal hazardous waste
U - not detected at or above the reporting limit listed
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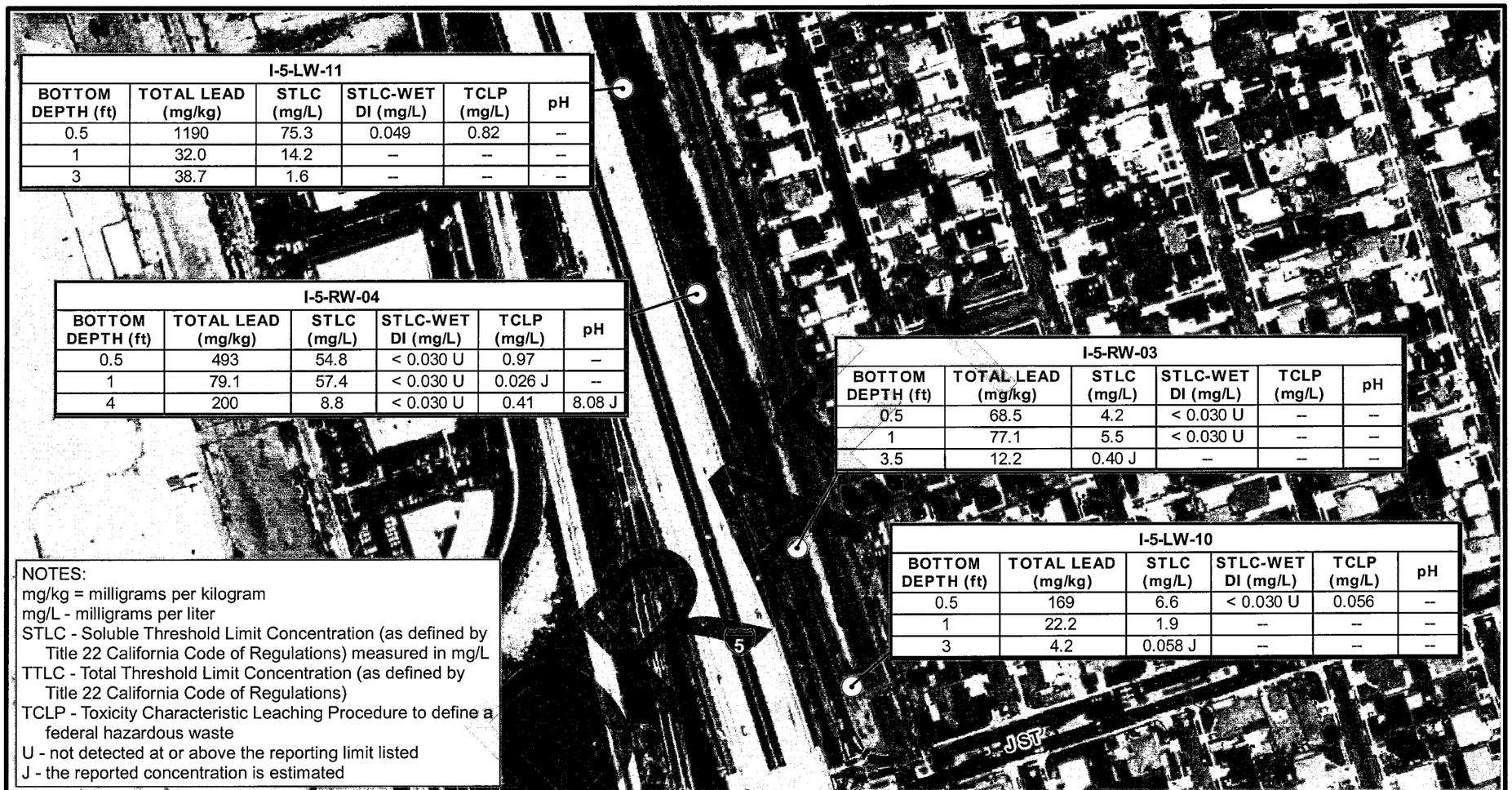
San Diego and Chula Vista, California

PLATE

2e

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_FinalResults2e.mxd



I-5-LW-11

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	1190	75.3	0.049	0.82	--
1	32.0	14.2	--	--	--
3	38.7	1.6	--	--	--

I-5-RW-04

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	493	54.8	< 0.030 U	0.97	--
1	79.1	57.4	< 0.030 U	0.026 J	--
4	200	8.8	< 0.030 U	0.41	8.08 J

I-5-RW-03

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	68.5	4.2	< 0.030 U	--	--
1	77.1	5.5	< 0.030 U	--	--
3.5	12.2	0.40 J	--	--	--

I-5-LW-10

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	169	6.6	< 0.030 U	0.056	--
1	22.2	1.9	--	--	--
3	4.2	0.058 J	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
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N

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ADL Survey for I-5 Ramp Meter Project
Caltrans EA 11-244000
Task Order 21
San Diego and Chula Vista, California

PLATE
2f

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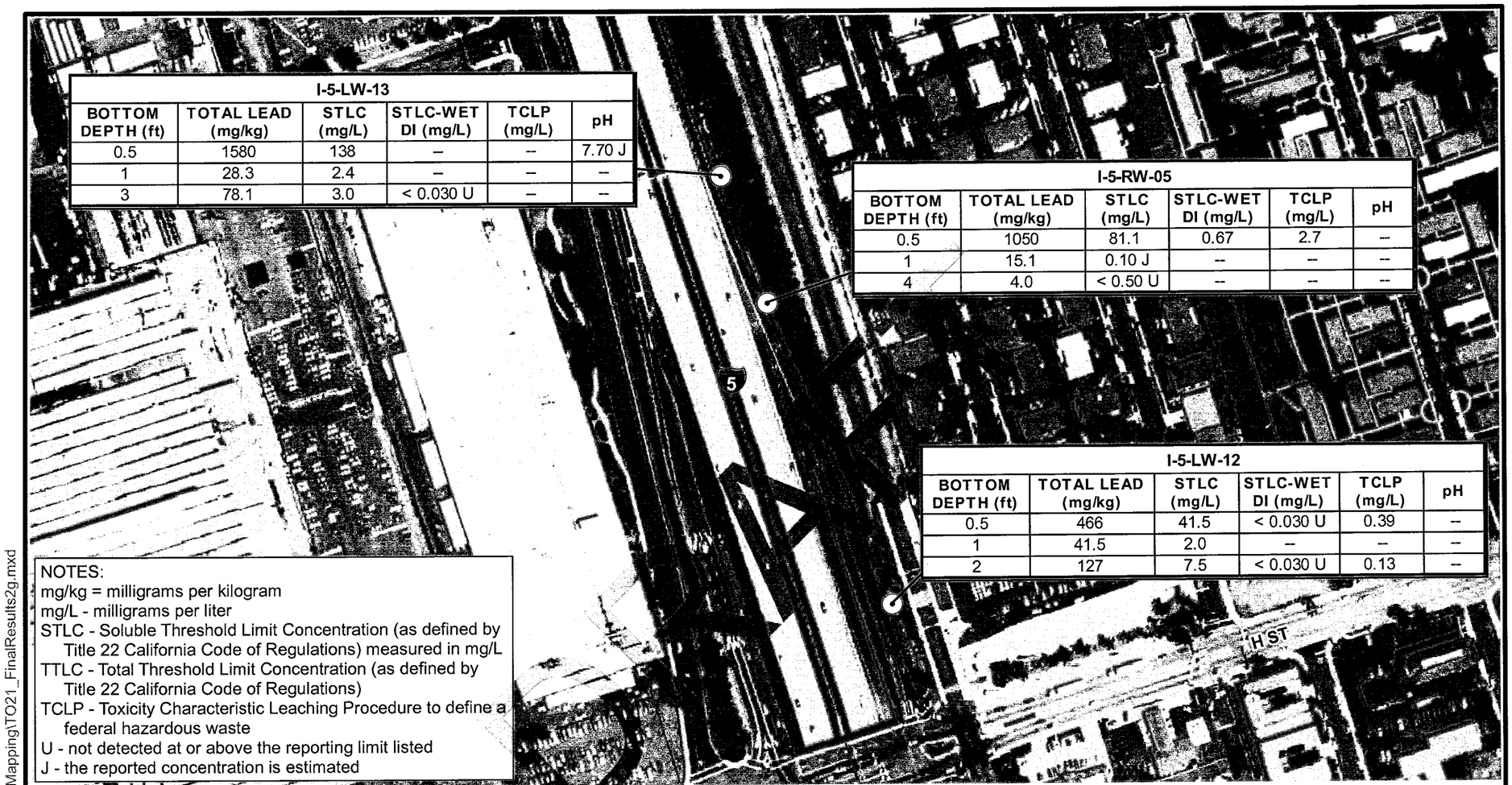

I-5-LW-13

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	1580	138	--	--	7.70 J
1	28.3	2.4	--	--	--
3	78.1	3.0	< 0.030 U	--	--

I-5-RW-05

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	1050	81.1	0.67	2.7	--
1	15.1	0.10 J	--	--	--
4	4.0	< 0.50 U	--	--	--

I-5-LW-12

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	466	41.5	< 0.030 U	0.39	--
1	41.5	2.0	--	--	--
2	127	7.5	< 0.030 U	0.13	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
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PLATE

2g

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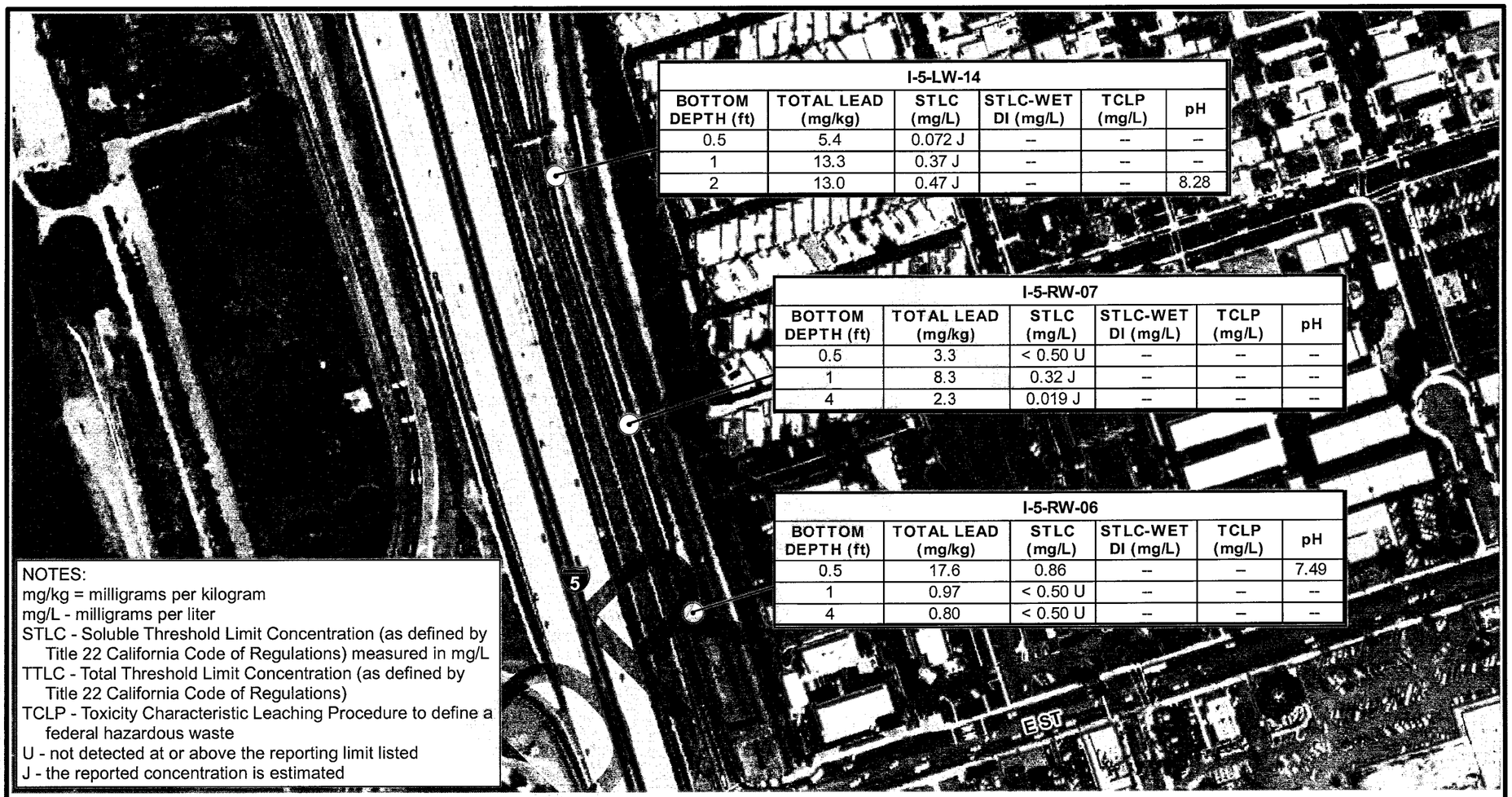

I-5-LW-14					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	5.4	0.072 J	--	--	--
1	13.3	0.37 J	--	--	--
2	13.0	0.47 J	--	--	8.28

I-5-RW-07					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	3.3	< 0.50 U	--	--	--
1	8.3	0.32 J	--	--	--
4	2.3	0.019 J	--	--	--

I-5-RW-06					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	STLC-WET DI (mg/L)	TCLP (mg/L)	pH
0.5	17.6	0.86	--	--	7.49
1	0.97	< 0.50 U	--	--	--
4	0.80	< 0.50 U	--	--	--

NOTES:
mg/kg = milligrams per kilogram
mg/L - milligrams per liter
STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
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Caltrans EA 11-244000
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San Diego and Chula Vista, California

PLATE

2h

File: C:\Projects\Kleinfelder\Caltrans\TO21\Mapping\TO21_FinalResults2h.mxd

Table 1
Soil Analytical Results

			Chemical Method Preparation Units	Lead SW6010B TTLC mg/kg	Lead SW6010B STLC-WET mg/L	Lead SW6010B STLC-WET_DI mg/L	Lead SW6010B TCLP mg/L	pH SW9045D METHOD pH units
Location Name	**Sample Name**	**Date**	**Depth**					
I-5-LW-01	I-5-LW-01-0.5	11/03/2014	0.5	256	**21.9**	0.017 J	0.16	--
I-5-LW-01	I-5-LW-01-1.0	11/03/2014	1	34.1	1.7	--	--	--
I-5-LW-01	I-5-LW-01-3.0	11/03/2014	3	17.8	0.20 J	--	--	--
I-5-LW-02	I-5-LW-02-0.5	11/03/2014	0.5	72.3	2.7	0.0035 J	--	--
I-5-LW-02	I-5-LW-02-1.0	11/03/2014	1	7.0	0.18 J	--	--	--
I-5-LW-02	I-5-LW-02-3.0	11/03/2014	3	5.5	0.049 J	--	--	--
I-5-LW-02	I-5-LW-02-100	11/03/2014	3	4.3	0.018 J	--	--	--
I-5-LW-03	I-5-LW-03-0.5	11/03/2014	0.5	523	**12.4**	0.0069 J	0.089	5.50
I-5-LW-03	I-5-LW-03-1.0	11/03/2014	1	106	4.5	0.0049 J	0.49	--
I-5-LW-03	I-5-LW-03-3.0	11/03/2014	3	8.6	0.18 J	--	--	--
I-5-LW-04	I-5-LW-04-0.5	11/04/2014	0.5	116	**7.8**	< 0.030 U	0.047 J	--
I-5-LW-04	I-5-LW-04-1.0	11/04/2014	1	179	**7.7**	0.010 J	0.046 J	--
I-5-LW-04	I-5-LW-04-3.0	11/04/2014	3	8.8	0.092 J	--	--	--
I-5-LW-05	I-5-LW-05-0.5	11/04/2014	0.5	99.2	**6.2**	0.016 J	--	--
I-5-LW-05	I-5-LW-05-1.0	11/04/2014	1	38.4	1.8	--	--	--
I-5-LW-05	I-5-LW-05-3.0	11/04/2014	3	37.1	3.2	--	--	--
I-5-LW-06	I-5-LW-06-0.5	11/04/2014	0.5	812	**6.7**	< 0.030 U	0.13	--
I-5-LW-06	I-5-LW-06-1.0	11/04/2014	1	5.9	0.069 J	--	--	--
I-5-LW-06	I-5-LW-06-3.0	11/04/2014	3	2.3	< 0.50 U	--	--	--
I-5-LW-07	I-5-LW-07-0.5	11/04/2014	0.5	335	**19.9**	0.043	0.27	--
I-5-LW-07	I-5-LW-07-1.0	11/04/2014	1	549	**39.2**	0.045	0.013 J	--
I-5-LW-07	I-5-LW-07-2.5	11/04/2014	2.5	123	**6.8**	0.012 J	0.0041 J	--
I-5-LW-08	I-5-LW-08-0.5	11/04/2014	0.5	117	**8.3**	0.024 J	0.078	--
I-5-LW-08	I-5-LW-08-1.0	11/04/2014	1	12.9	0.26 J	--	--	--
I-5-LW-08	I-5-LW-08-3.0	11/04/2014	3	10.1	0.22 J	--	--	--
I-5-LW-09	I-5-LW-09-0.5	11/04/2014	0.5	**1070**	**83.2**	0.12	2.2	--
I-5-LW-09	I-5-LW-09-1.0	11/04/2014	1	221	2.6	0.0056 J	0.055	8.32
I-5-LW-09	I-5-LW-09-2.5	11/04/2014	2.5	220	**15.2**	0.017 J	0.31	--
I-5-LW-10	I-5-LW-10-0.5	11/05/2014	0.5	169	**6.6**	< 0.030 U	0.056	--
I-5-LW-10	I-5-LW-10-100	11/05/2014	0.5	122	**6.5**	--	--	--
I-5-LW-10	I-5-LW-10-1.0	11/05/2014	1	22.2	1.9	--	--	--
I-5-LW-10	I-5-LW-10-3.0	11/05/2014	3	4.2	0.058 J	--	--	--
I-5-LW-11	I-5-LW-11-0.5	11/05/2014	0.5	**1190**	**75.3**	0.049	0.82	--
I-5-LW-11	I-5-LW-11-1.0	11/05/2014	1	32.0	**14.2**	--	--	--
I-5-LW-11	I-5-LW-11-3.0	11/05/2014	3	38.7	1.6	--	--	--
I-5-LW-12	I-5-LW-12-0.5	11/05/2014	0.5	466	**41.5**	< 0.030	0.39	--
I-5-LW-12	I-5-LW-12-1.0	11/05/2014	1	41.5	2.0	--	--	--
I-5-LW-12	I-5-LW-12-2.0	11/05/2014	2	127	**7.5**	< 0.030 U	0.13	--
I-5-LW-13	I-5-LW-13-0.5	11/05/2014	0.5	**1580**	**138**	--	--	7.70 J
I-5-LW-13	I-5-LW-13-1.0	11/05/2014	1	28.3	**2.4**	--	--	--
I-5-LW-13	I-5-LW-13-3.0	11/05/2014	3	78.1	3.0	< 0.030 U	--	--
I-5-LW-14	I-5-LW-14-0.5	11/06/2014	0.5	5.4	0.072 J	--	--	--
I-5-LW-14	I-5-LW-14-1.0	11/06/2014	1	13.3	0.37 J	--	--	--
I-5-LW-14	I-5-LW-14-2.0	11/06/2014	2	13.0	0.47 J	--	--	8.28
I-5-LW-14	I-5-LW-14-100	11/06/2014	2	12.7	0.45 J	--	--	--
I-5-RW-01	I-5-RW-01-0.5	11/03/2014	0.5	420	**21.9**	0.070	0.26	--
I-5-RW-01	I-5-RW-01-1.0	11/03/2014	1	200	**6.1**	< 0.030 U	0.089	--
I-5-RW-01	I-5-RW-01-2.0	11/03/2014	2	282	**20.1**	0.019 J	0.17	--
I-5-RW-02	I-5-RW-02-0.5	11/04/2014	0.5	140	**12.0**	0.036	0.97	7.86
I-5-RW-02	I-5-RW-02-1.0	11/04/2014	1	31.2	0.52	--	--	--
I-5-RW-02	I-5-RW-02-3.5	11/04/2014	3.5	30.1	1.7	--	--	--
I-5-RW-03	I-5-RW-03-0.5	11/05/2014	0.5	68.5	4.2	< 0.030 U	--	--
I-5-RW-03	I-5-RW-03-1.0	11/05/2014	1	77.1	**5.5**	< 0.030 U	--	--
I-5-RW-03	I-5-RW-03-3.5	11/05/2014	3.5	12.2	0.40 J	--	--	--
I-5-RW-04	I-5-RW-04-0.5	11/05/2014	0.5	493	**54.8**	< 0.030 U	0.97	--
I-5-RW-04	I-5-RW-04-1.0	11/05/2014	1	79.1	**57.4**	< 0.030 U	0.026 J	--
I-5-RW-04	I-5-RW-04-4.0	11/05/2014	4	200	**8.8**	< 0.030 U	0.41	8.08 J
I-5-RW-05	I-5-RW-05-0.5	11/05/2014	0.5	**1050**	**81.1**	0.67	2.7	--
I-5-RW-05	I-5-RW-05-1.0	11/05/2014	1	15.1	0.10 J	--	--	--
I-5-RW-05	I-5-RW-05-4.0	11/05/2014	4	4.0	< 0.50 U	--	--	--
I-5-RW-06	I-5-RW-06-0.5	11/06/2014	0.5	17.6	0.86	--	--	7.49
I-5-RW-06	I-5-RW-06-100	11/06/2014	0.5	14.2	0.78	--	--	--
I-5-RW-06	I-5-RW-06-1.0	11/06/2014	1	0.97	< 0.50 U	--	--	--
I-5-RW-06	I-5-RW-06-4.0	11/06/2014	4	0.80	< 0.50 U	--	--	--
I-5-RW-07	I-5-RW-07-0.5	11/06/2014	0.5	3.3	< 0.50 U	--	--	--
I-5-RW-07	I-5-RW-07-1.0	11/06/2014	1	8.3	0.32 J	--	--	--
I-5-RW-07	I-5-RW-07-4.0	11/06/2014	4	2.3	0.019 J	--	--	--

Notes:
J = Estimated value
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
pH = hydrogen ion potential
STLC = soluble threshold limit concentration
STLC-WET = STLC using citric acid extractant
STLC-WET-DI = STLC using deionized water as extractant
TCLP = toxicity characteristics leaching procedure
TTLC = total threshold limit concentration
U = concentration below laboratory reporting limit
BOLD indicates total lead concentrations exceeding 1,000 mg/kg and STLC concentrations exceeds 5.0 mg/L.

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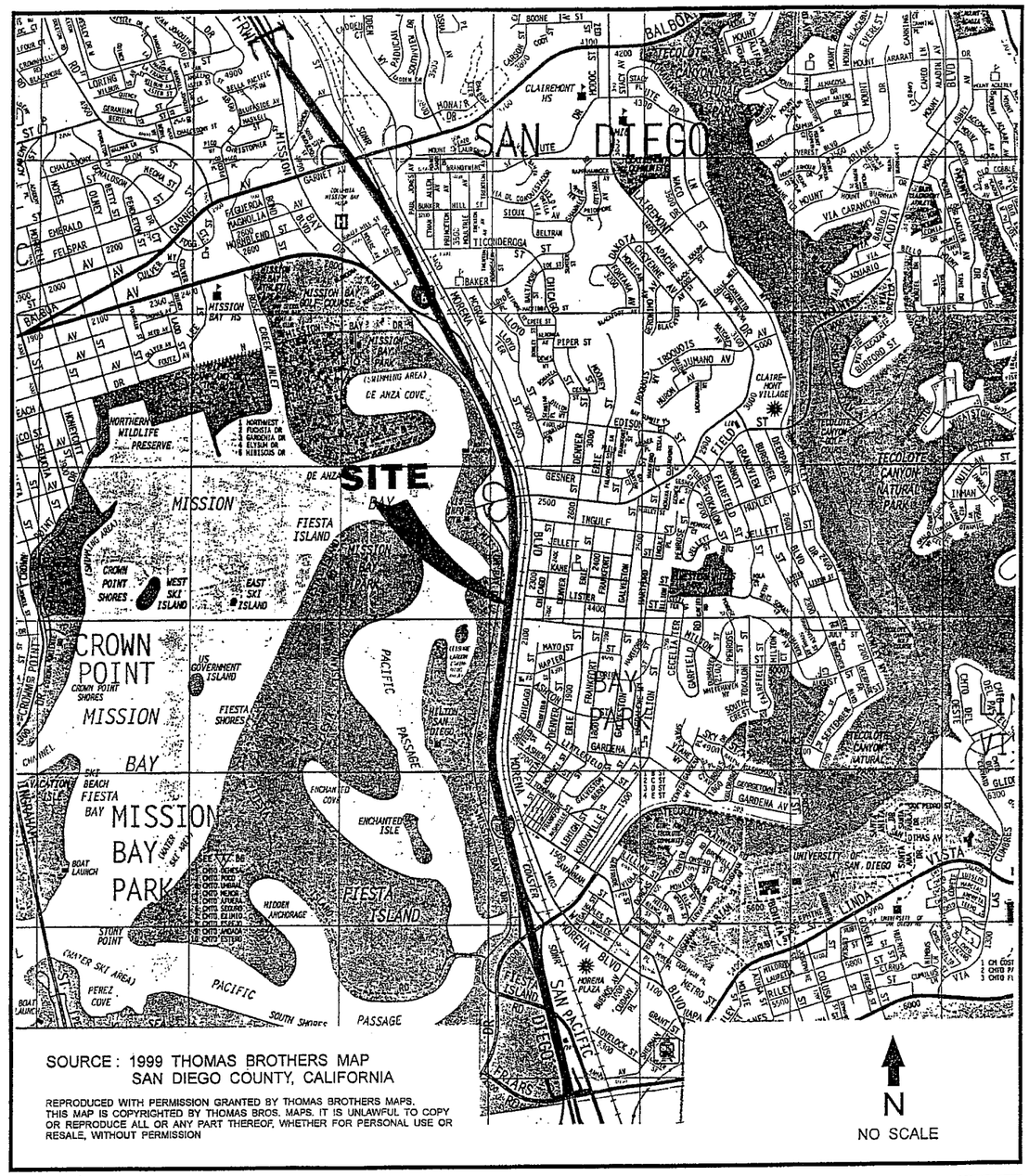

SOURCE: 1999 THOMAS BROTHERS MAP
SAN DIEGO COUNTY, CALIFORNIA

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VICINITY MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE
TO 0.2km NORTH OF THE
MISSION BAY DRIVE OVERCROSSING
SAN DIEGO, CALIFORNIA

DATE 4-4-99	PROJECT NO. 08900 - 06 - 18	FIG. 1

1VICMAP

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
11	SD	5	R32.5/R38.7		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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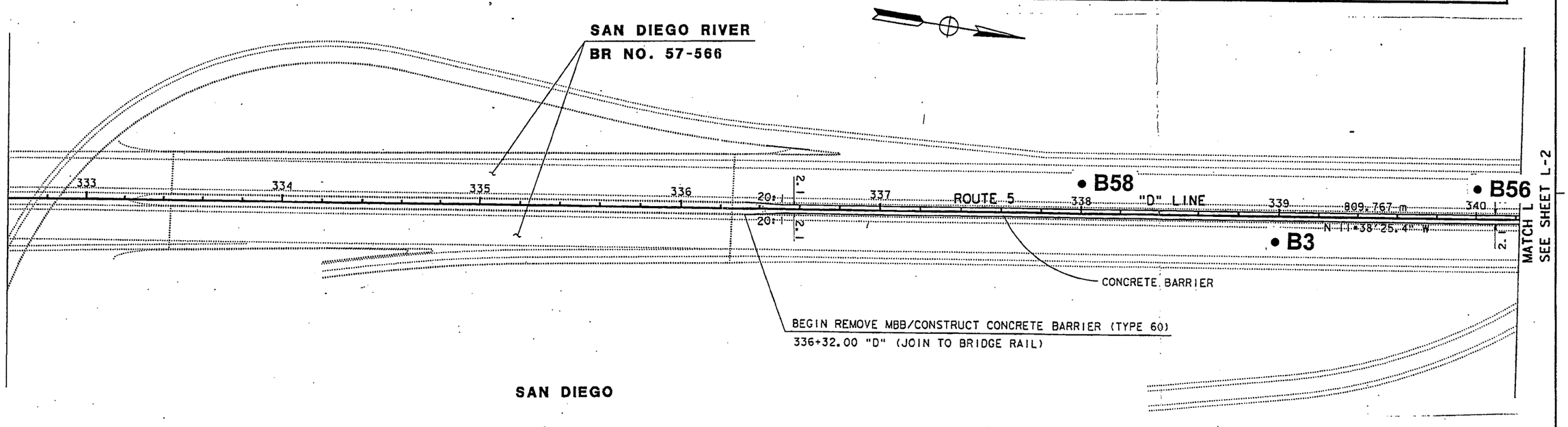
REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

Caltrans Metric

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B1-S	0.15	785	68	ND	—
B1-1	0.30	612	45	ND	—
B1-2	0.60	14	—	—	—
B3-S	0.15	197	23	ND	—
B3-1	0.30	237	20	ND	—
B3-2	0.60	72	—	—	—
B56-S	0.15	1500	—	3.9	8.2
B56-1	0.30	33	—	—	—
B56-2	0.60	176	12	ND	—
B58-S	0.15	741	37	—	—
B58-1	0.30	105	7.4	ND	9.3
B58-1.5	0.45	641	32	ND	—

RECOMMENDATIONS FOR RE-USE

It is recommended that if the soil excavated along the median of the roadway is to be re-used on-site, the upper 0.6 meters of soil be placed under pavement or 0.15 meters of clean-fill material, at least 1.5 meters above the maximum groundwater level in accordance with the Department of Toxic Substances Control (DTSC) variance issued to Caltrans. If the soil excavated is to be exported to another Caltrans right-of-way location, the soil should be re-used in the same manner as described above. Should the soil be disposed of, it should be handled as a hazardous material with respect to lead impacts as indicated by the Caltrans Lead Variance (Variance Suitability). It is recommended that Caltrans notify the contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil



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BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 2

SCALE: 1:1000

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY

CHECKED BY

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DATE REVISED

DATE

LAST REVISION

FOR REDUCED PLANS ORIGINAL 0 20 40 60 80

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET: TOTAL NO : SHEETS
11	SD	5	R32.5/R38.7	1

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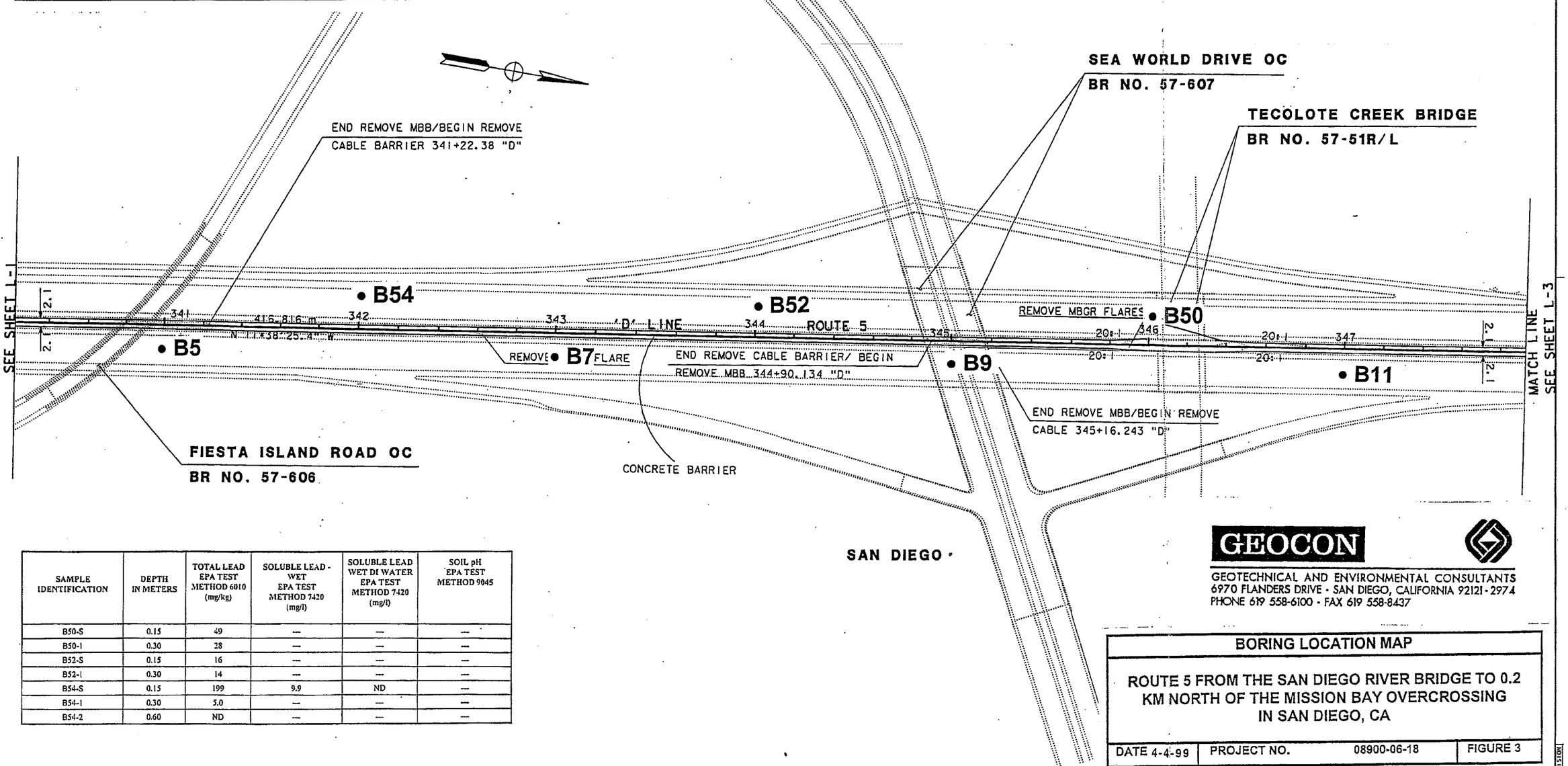
REGISTERED PROFESSIONAL ENGINEER — NO. — EXP. — CIVIL — STATE OF CALIFORNIA

Caltrans Metric

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B5-S	0.15	247	19	ND	8.4
B5-1	0.30	36	—	—	—
B7-S	0.15	150	7.8	ND	—
B7-1	0.30	15	—	—	—
B7-2	0.60	13	—	—	—
B9-S	0.15	1420	—	ND	—
B9-1	0.30	122	9.7	ND	—
B9-1.5	0.45	287	23	ND	—
B11-S	0.15	91	5.3	0.17	—
B11-1	0.30	10	—	—	—
B11-2	0.60	6.4	—	—	—

RECOMMENDATIONS FOR RE-USE

It is recommended that if the soil excavated along the median of the roadway is to be re-used on-site, the upper 0.6 meters of soil be placed under pavement or 0.15 meters of clean-fill material, at least 1.5 meters above the maximum groundwater level in accordance with the Department of Toxic Substances Control (DTSC) variance issued to Caltrans. If the soil excavated is to be exported to another Caltrans right-of-way location, the soil should be re-used in the same manner as described above. Should the soil be disposed of, it should be handled as a hazardous material with respect to lead impacts as indicated by the Caltrans Lead Variance (Variance Suitability). It is recommended that Caltrans notify the contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil



SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B50-S	0.15	49	—	—	—
B50-1	0.30	28	—	—	—
B52-S	0.15	16	—	—	—
B52-1	0.30	14	—	—	—
B54-S	0.15	199	9.9	ND	—
B54-1	0.30	5.0	—	—	—
B54-2	0.60	ND	—	—	—

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BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 3

SCALE: 1:1000

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

PROJECT ENG. _R

CALCULATED/DESIGNED BY — CHECKED BY

DATE — REVISED BY — DATE REVISED

LAST REVISION

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	5	R32.5/R38.7		

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Caltrans Metric

RECOMMENDATIONS FOR RE-USE

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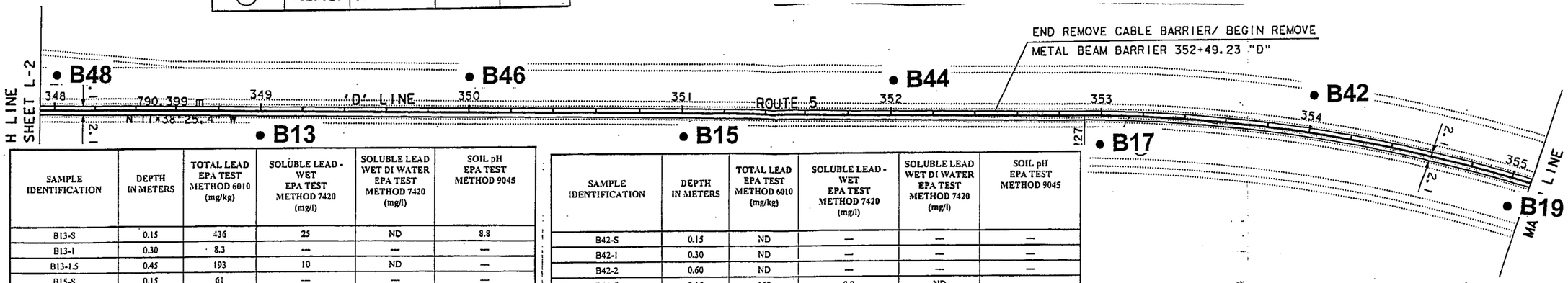
CURVE	R	Δ	T	L
1	762.027	20° 39' 37.6"	138.899	274.782



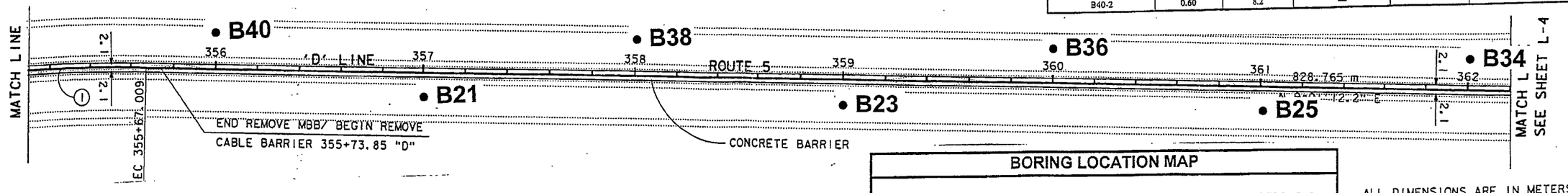
SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B13-S	0.15	436	25	ND	8.8
B13-1	0.30	8.3	—	—	—
B13-1.5	0.45	193	10	ND	—
B15-S	0.15	61	—	—	—
B15-1	0.30	36	—	—	8.8
B15-2	0.60	24	—	—	—
B17-S	0.15	163	2.1	—	—
B17-1	0.30	123	8.4	ND	—
B17-2	0.60	23	—	—	—
B19-S	0.60	1790	—	—	—
B19-1	0.15	154	4.8	—	—
B19-2	0.60	22	—	—	—

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B42-S	0.15	ND	—	—	—
B42-1	0.30	ND	—	—	—
B42-2	0.60	ND	—	—	—
B44-S	0.15	168	8.8	ND	—
B44-1	0.30	83	19	ND	—
B44-2	0.60	16	—	—	—
B46-S	0.15	6.8	—	—	—
B46-1	0.30	14	—	—	—
B46-2	0.60	32	—	—	9.7
B48-S	0.15	153	12	ND	—
B48-1	0.30	16	—	—	—
B48-2	0.60	141	3.7	—	—

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B21-S	0.15	176	0.60	—	—
B21-1	0.30	55	—	—	—
B21-2	0.60	6.1	—	—	—
B23-S	0.15	266	14	ND	—
B23-1	0.30	237	0.62	—	—
B23-2	0.60	6.2	—	—	—
B25-S	0.15	18	—	—	—
B25-1	0.30	18	—	—	—
B25-2	0.60	8.1	—	—	—

T	L
38.899	274.782

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B34-S	0.15	649	27	0.36	—
B34-1	0.30	24	—	—	—
B34-2	0.60	15	—	—	—
B36-S	0.15	881	55	0.18	—
B36-1	0.30	9.7	—	—	—
B36-2	0.60	13	—	—	—
B38-S	0.15	62	—	—	—
B38-1	0.30	ND	—	—	—
B38-2	0.60	9.6	—	—	—
B40-S	0.15	ND	—	—	8.6
B40-1	0.30	ND	—	—	—
B40-2	0.60	8.2	—	—	—



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SAN DIEGO

BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 4

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

LAYOUT ALTERNATIVE 1

SCALE: 1:1000

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/ DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

DATE

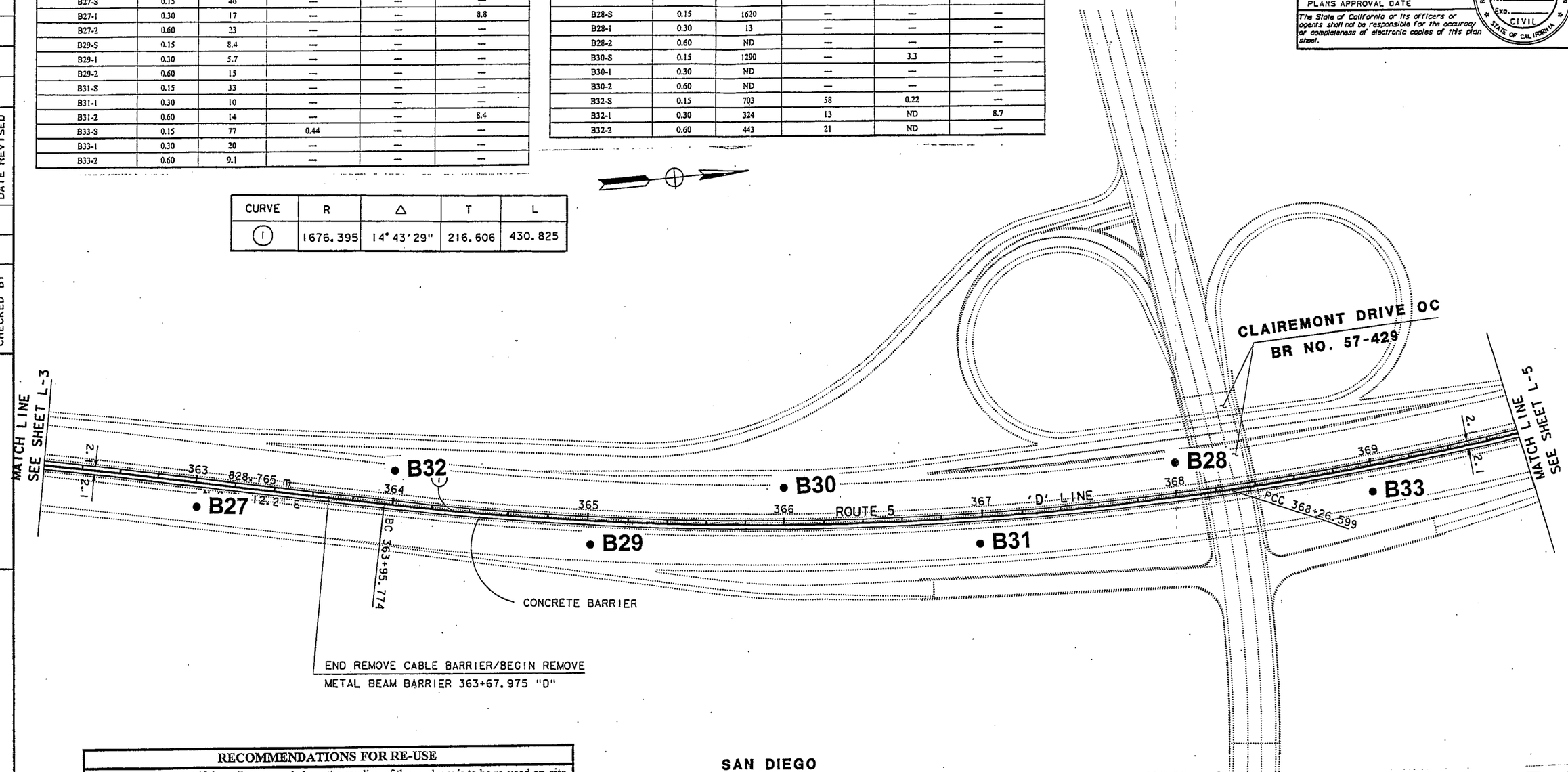
FOR REDUCED PLANS ORIGINAL 0 20 40 60 80

LAST REVISION

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B27-S	0.15	46	—	—	—
B27-1	0.30	17	—	—	8.8
B27-2	0.60	23	—	—	—
B29-S	0.15	8.4	—	—	—
B29-1	0.30	5.7	—	—	—
B29-2	0.60	15	—	—	—
B31-S	0.15	33	—	—	—
B31-1	0.30	10	—	—	—
B31-2	0.60	14	—	—	8.4
B33-S	0.15	77	0.44	—	—
B33-1	0.30	20	—	—	—
B33-2	0.60	9.1	—	—	—

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B28-S	0.15	1620	—	—	—
B28-1	0.30	13	—	—	—
B28-2	0.60	ND	—	—	—
B30-S	0.15	1290	—	3.3	—
B30-1	0.30	ND	—	—	—
B30-2	0.60	ND	—	—	—
B32-S	0.15	703	58	0.22	—
B32-1	0.30	324	13	ND	8.7
B32-2	0.60	443	21	ND	—

CURVE	R	Δ	T	L
1	1676.395	14° 43′ 29″	216.606	430.825



RECOMMENDATIONS FOR RE-USE

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BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 5

SCALE: 1:1000

L-4

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	5	R32.5/R38.7		

Caltrans Metric

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PLANS APPROVAL DATE

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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DATE REVISED

DATE

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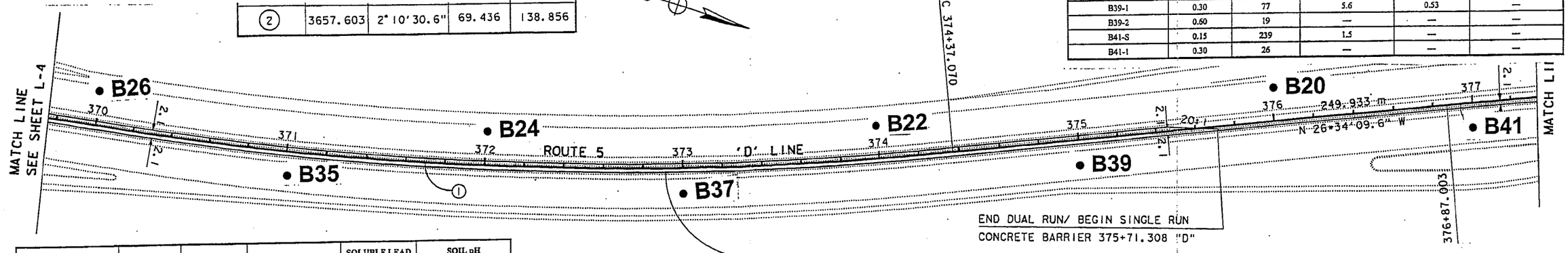
			T	L
			16.606	430.825
2	3657.603	2° 10' 30.6"	69.436	138.856

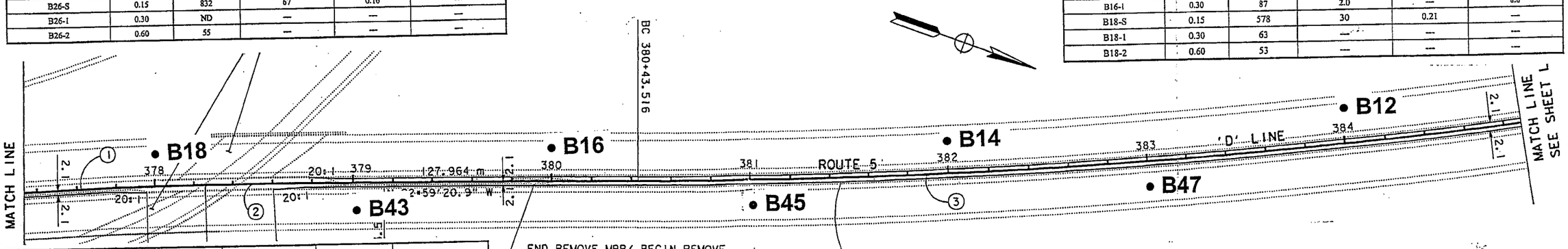
SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B35-S	0.15	13	—	—	—
B35-1	0.30	12	—	—	—
B35-2	0.60	1.5	—	—	—
B37-S	0.15	18	—	—	8.6
B37-1	0.30	34	—	—	—
B37-2	0.60	9.7	—	—	—
B39-S	0.15	1010	—	0.25	—
B39-1	0.30	77	5.6	0.53	—
B39-2	0.60	19	—	—	—
B41-S	0.15	239	1.5	—	—
B41-1	0.30	26	—	—	—



SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B20-S	0.15	1030	—	ND	—
B20-1	0.30	314	17	ND	—
B22-S	0.15	812	93	ND	—
B22-1	0.30	413	20	ND	—
B22-2	0.60	68	—	—	—
B24-S	0.15	1080	—	0.82	—
B24-1	0.30	114	4.2	—	—
B24-2	0.60	33	—	—	9.3
B26-S	0.15	832	67	0.16	—
B26-1	0.30	ND	—	—	—
B26-2	0.60	55	—	—	—

SAN DIEGO

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B12-S	0.15	560	55	ND	—
B12-1	0.30	65	—	—	—
B12-2	0.60	27	—	—	—
B14-S	0.15	390	13	ND	—
B14-1	0.30	36	—	—	—
B14-2	0.60	65	—	—	—
B16-S	0.15	1200	—	ND	—
B16-1	0.30	87	2.0	—	8.8
B18-S	0.15	578	30	0.21	—
B18-1	0.30	63	—	—	—
B18-2	0.60	53	—	—	—



SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B43-S	0.15	197	6.5	—	—
B43-1	0.30	60	3.1	—	—
B43-2	0.60	146	18	0.38	—
B45-S	0.15	17	—	—	—
B45-1	0.30	21	—	—	—
B45-2	0.60	17	—	—	9.3
B47-S	0.15	82	0.44	—	—
B47-1	0.30	13	—	—	—
B47-2	0.60	159	2.7	—	—

RRIER

SAN DIEGO

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BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 6

SCALE: 1:1000

L-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

FOR REDUCED PLANS ORIGINAL 0 20 40 60 80

LAST REVISION

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
11	SD	5	R32.5/R38.7		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. EXP. CIVIL STATE OF CALIFORNIA

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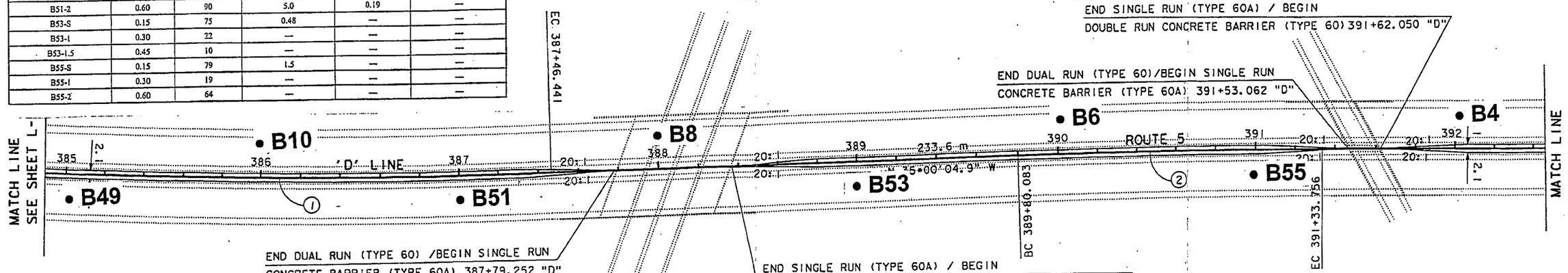
Caltrans Metric

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B49-S	0.15	55	—	—	—
B49-1	0.30	89	0.47	—	8.8
B49-2	0.60	51	—	—	—
B51-S	0.15	46	—	—	—
B51-1	0.30	46	—	—	—
B51-2	0.60	90	5.0	0.19	—
B53-S	0.15	75	0.48	—	—
B53-1	0.30	22	—	—	—
B53-1.5	0.45	10	—	—	—
B55-S	0.15	79	1.5	—	—
B55-1	0.30	19	—	—	—
B55-2	0.60	64	—	—	—

RECOMMENDATIONS FOR RE-USE

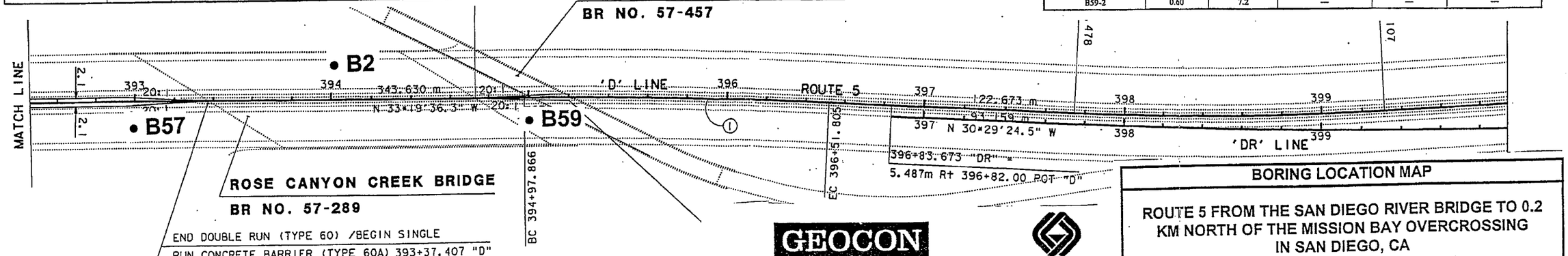
It is recommended that if the soil excavated along the median of the roadway is to be re-used on-site, the upper 0.6 meters of soil be placed under pavement or 0.15 meters of clean-fill material, at least 1.5 meters above the maximum groundwater level in accordance with the Department of Toxic Substances Control (DTSC) variance issued to Caltrans. If the soil excavated is to be exported to another Caltrans right-of-way location, the soil should be re-used in the same manner as described above. Should the soil be disposed of, it should be handled as a hazardous material with respect to lead impacts as indicated by the Caltrans Lead Variance (Variance Suitability). It is recommended that Caltrans notify the contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil



SAN DIEGO

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B2-S	0.15	ND	—	—	8.6
B2-1	0.30	ND	—	—	—
B2-2	0.60	24	—	—	—
B4-S	0.15	85	4.2	—	—
B4-1	0.30	36	—	—	—
B4-2	0.60	ND	—	—	—
B6-S	0.15	90	5.2	ND	—
B6-1	0.30	10	—	—	—
B6-2	0.60	8.6	—	—	—
B8-S	0.15	2690	—	—	—
B8-1	0.30	13	—	—	—
B8-2	0.60	12	—	—	8.5
B10-S	0.15	90	8.6	ND	—
B10-1	0.30	8.0	—	—	—
B10-2	0.60	6.7	—	—	—

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD WET DI WATER EPA TEST METHOD 7420 (mg/l)	SOIL pH EPA TEST METHOD 9045
B57-S	0.15	293	1.2	—	—
B57-1	0.30	496	1.9	—	—
B57-2	0.60	101	0.70	—	—
B59-S	0.15	379	0.98	—	8.2
B59-1	0.30	83	3.4	—	—
B59-2	0.60	7.2	—	—	—



GEOCON

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
6970 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 619 558-6100 - FAX 619 558-8437

BORING LOCATION MAP

ROUTE 5 FROM THE SAN DIEGO RIVER BRIDGE TO 0.2 KM NORTH OF THE MISSION BAY OVERCROSSING IN SAN DIEGO, CA

DATE 4-4-99	PROJECT NO. 08900-06-18	FIGURE 7

SCALE: 1:1000

L-6

REVISED BY | DATE REVISED | DATE | CALCULATED/DESIGNED BY | CHECKED BY | PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

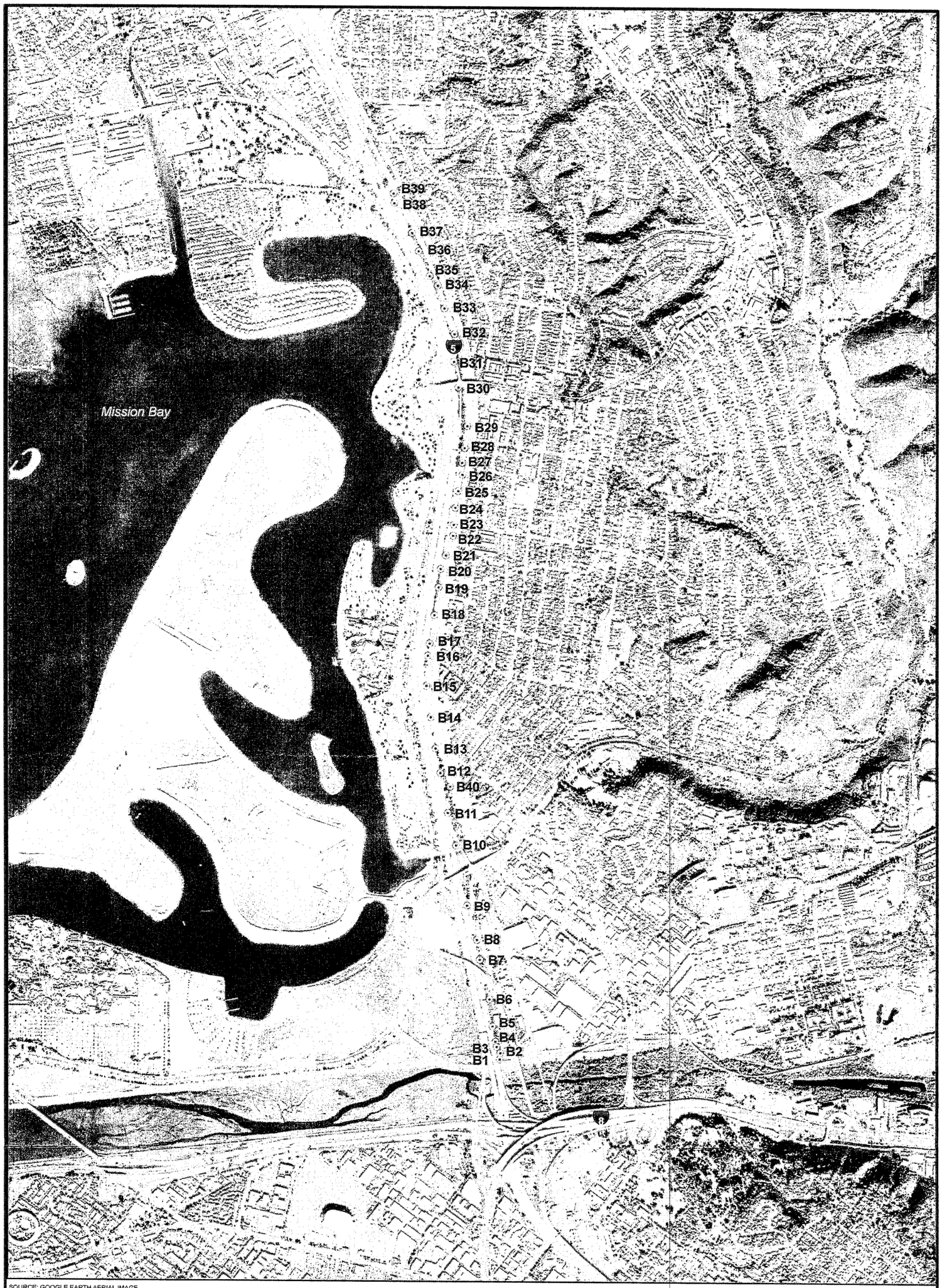
LAST REVISION

FOR REDUCED PLANS ORIGINAL 0 20 40 60 80

TABLE I

SUMMARY OF ANALYTICAL LABORATORY RESULTS

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD VIA WET DI WATER (mg/l)	SOIL pH EPA TEST METHOD 9045
B1-S	0.15	785	68	ND	---
B1-1	0.30	612	45	ND	---
B1-2	0.60	14	---	---	---
B2-S	0.15	ND	---	---	8.6
B2-1	0.30	ND	---	---	---
B2-2	0.60	24	---	---	---
B3-S	0.15	197	23	ND	---
B3-1	0.30	237	20	ND	---
B3-2	0.60	72	---	---	---
B4-S	0.15	85	4.2	---	---
B4-1	0.30	36	---	---	---
B4-2	0.60	ND	---	---	---
B5-S	0.15	247	19	ND	8.4
B5-1	0.30	36	---	---	---
B6-S	0.15	90	5.2	ND	---
B6-1	0.30	10	---	---	---
B6-2	0.60	8.6	---	---	---
B7-S	0.15	150	7.8	ND	---
B7-1	0.30	15	---	---	---
B7-2	0.60	13	---	---	---
B8-S	0.15	2690	---	---	---
B8-1	0.30	13	---	---	---
B8-2	0.60	12	---	---	8.5
B9-S	0.15	1420	---	ND	---
B9-1	0.30	122	9.7	ND	---
B9-1.5	0.45	287	23	ND	---
B10-S	0.15	90	8.6	ND	---
B10-1	0.30	8.0	---	---	---
B10-2	0.60	6.7	---	---	---
B11-S	0.15	91	5.3	0.17	---
B11-1	0.30	10	---	---	---



SOURCE: GOOGLE EARTH AERIAL IMAGE

LEGEND

B40 Approximate location of hand auger borings (Ninyo & Moore 2006)

N

Feet: 0 700 1,400 2,800

Meters: 0 210 420 840

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		HAND AUGER LOCATIONS	FIGURE
PROJECT NO.	DATE	INTERSTATE 5 AERIALLY DEPOSITED LEAD SURVEY SAN DIEGO COUNTY, CALIFORNIA	2
105388019	4/07		

Table 1 - Summary of Z1 Soil Sample Results

Sample ID	Depth (meters)	Depth (feet)	Sample Date	Total Lead (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	Lead by XRF (mg/kg)	Lead by XRF with Protocol (mg/kg)	pH
B1-Z1-1.5	0.46	1.5	1/17/2007	**940**	**67**	**1.0**	ND	**856.0±55.0**	--	--
B2-Z1-0.8	0.24	0.8	1/17/2007	**2700**	**220**	**16**	3.1	**2998.0±102.0**	--	--
B3-Z1-1.8	0.55	1.8	1/17/2007	40	1.9	--	--	<50	--	--
B4-Z1-1.4	0.43	1.4	1/17/2007	**270**	**21**	**1.1**	ND	**319.0±40.0**	--	--
B5-Z1-1.4	0.43	1.4	1/17/2007	**160**	**5.1**	ND	ND	**115.0±31.0**	--	--
B6-Z1-1.0	0.30	1	1/17/2007	23	1.2	--	--	<50	--	--
B7-Z1-1.5	0.46	1.5	1/17/2007	**250**	**16**	ND	ND	**216.0±34.0**	--	--
B8-Z1-0.4	0.12	0.4	1/17/2007	**410**	**27**	**2.3**	ND	**612.0±49.0**	--	--
B9-Z1-0.6	0.18	0.6	1/16/2007	**71**	4.3	ND	--	**96±33.0**	**187.0±40.0**	--
B10-Z1-0.3	0.09	0.3	1/16/2007	**260**	**16**	ND	ND	**235.0±41.0**	--	6.2
B11-Z1-0.5	0.15	0.5	1/16/2007	**470**	**36**	**0.87**	ND	**348.0±42.0**	--	--
B12-Z1-0.5	0.15	0.5	1/16/2007	**120**	4.2	ND	ND	**70.0±31.0**	--	6.1
B13-Z1-0.9	0.27	0.9	1/16/2007	35	1.1	--	--	<50	--	--
B14-Z1-0.4	0.12	0.4	1/16/2007	**200**	**12**	ND	ND	**133.0±38.0**	--	7.2
B15-Z1-1.3	0.40	1.3	1/16/2007	13	0.27	--	--	<50	--	--
B16-Z1-1.5	0.46	1.5	1/16/2007	9.1	ND	--	--	<50	--	5.9
B17-Z1-1.2	0.37	1.2	1/16/2007	**130**	**6.3**	ND	ND	**77.3±34.0**	--	--
B18-Z1-0.5	0.15	0.5	1/16/2007	**64**	4.4	ND	--	**82±31**	--	--
B19-Z1-0.2	0.06	0.2	1/16/2007	**110**	**5.8**	ND	ND	**104±32.0**	--	--
B20-Z1-1.1	0.34	1.1	1/16/2007	48	1.8	--	--	<50	--	--
B21-Z1-0.9	0.27	0.9	1/16/2007	36	1.8	--	--	**58.4±29.0**	--	--
B22-Z1-1.4	0.43	1.4	1/17/2007	**54**	2.7	ND	--	**69.5±30.0**	--	--
B23-Z1-1.1	0.34	1.1	1/17/2007	**90**	3.0	ND	--	**54.2±30.0**	--	7.1
B24-Z1-1.9	0.58	1.9	1/17/2007	**52**	2.7	ND	--	48.6±30.0	--	--
B25-Z1-1.1	0.34	1.1	1/17/2007	34	1.4	--	--	<50	--	--
B26-Z1-1.6	0.49	1.6	1/17/2007	28	1.4	--	--	<50	**58.6±34.0**	6.7
B27-Z1-1.2	0.37	1.2	1/17/2007	18	1.0	--	--	<50	--	--
B28-Z1-0.4	0.12	0.4	1/17/2007	**420**	**29**	**1.9**	ND	**413.0±43.0**	--	--
B29-Z1-0.5	0.15	0.5	1/18/2007	**95**	3.1	ND	--	**66.0±27.0**	--	--
B30-Z1-1.5	0.46	1.5	1/18/2007	24	1.1	--	--	36.4±31.0	--	--
B31-Z1-0.8	0.24	0.8	1/18/2007	**190**	**9.7**	**0.57**	ND	**174.0±35.0**	--	--
B32-Z1-0.4	0.12	0.4	1/18/2007	**75**	3.7	ND	--	**68.1±31.0**	**55.8±33.0**	--
B33-Z1-0.2	0.06	0.2	1/18/2007	**490**	**35**	0.47	ND	**430.0±45.0**	--	--
B34-Z1-1.7	0.52	1.7	1/18/2007	21	0.61	--	--	<50	**108±32.0**	6.5
B35-Z1-2.0	0.61	2	1/18/2007	9.6	0.42	--	--	<50	--	--
B36-Z1-2.5	0.76	2.5	1/18/2007	12	0.37	--	--	<50	--	--
B37-Z1-0.5	0.15	0.5	1/18/2007	**160**	**10**	ND	ND	**121.0±31.0**	--	--
B38-Z1-0.7	0.21	0.7	1/18/2007	**140**	**7.9**	0.39	ND	**139.0±33.0**	--	7.0
B39-Z1-0.6	0.18	0.6	1/18/2007	29	1.2	--	--	<50	--	--
B40-Z1-0.5	0.15	0.5	1/18/2007	**99**	**8.3**	0.28	--	**177.0±32.0**	--	--

Notes:
Bold indicates the sample result exceeded a screening and/or hazardous waste cirterion.
<50 = Not detected at the specified detection limit of the XRF
mg/kg = Milligrams per kilogram
mg/ℓ = Milligrams per liter
ND = Not detected above the laboratory reporting limit.
-- = not analyzed
WET = waste extraction test
TCLP = toxicity characteristic leaching procedure
XRF = X-ray fluoresence

Ninyo & Moore

Table 2 - Summary of Z3 Soil Sample Results

Sample ID	Sample Date	Total Lead (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	Lead by XRF(mg/kg)	Lead by XRF with Protocol (mg/kg)	pH
Z3-A	2/27/2007	**230**	**13**	ND	ND	**182 ±22**	--	--
Z3-B	2/27/2007	**190**	**14**	ND	ND	**167 ±31**	--	--
Z3-C	2/27/2007	**170**	**13**	ND	ND	**191 ±27**	--	--
Z3-D	2/27/2007	**160**	**10**	ND	ND	**199 ±26**	--	6.2
Z3-E	2/27/2007	**170**	**14**	ND	ND	**169 ±34**	--	--
Z3-F	2/27/2007	**140**	**14**	ND	ND	**159 ±25**	--	--
Z3-G	2/27/2007	**170**	**13**	ND	ND	**180 ±25**	--	--
Z3-H	2/27/2007	**170**	**12**	ND	ND	**181 ±26**	--	6.7
Z3-I	2/27/2007	**190**	**11**	ND	ND	**181 ±26**	--	--
Z3-J	2/27/2007	**140**	**11**	ND	ND	**182 ±25**	**280 ±30**	--

Notes:
mg/kg = Milligrams per kilogram
mg/ℓ = Milligrams per liter
-- = Not analyzed
XRF - X-Ray Flourescence

INDEX OF SHEETS

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	5	R81.9/R85.0	1	

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR HIGHWAY PLANTING ON

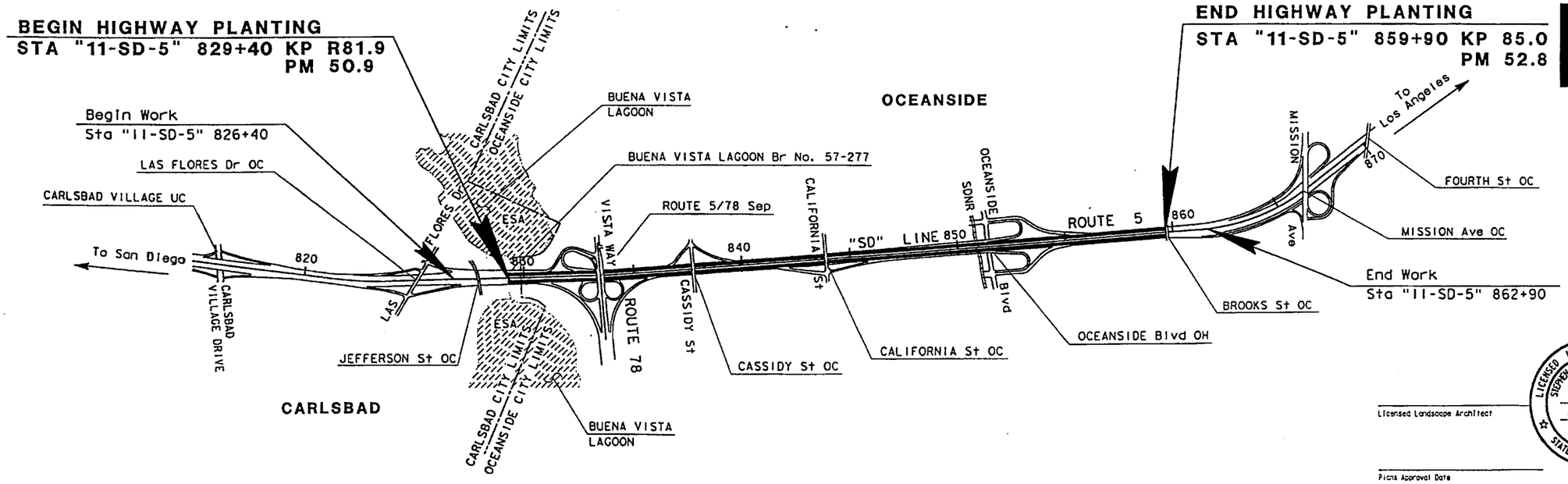
STATE HIGHWAY

IN SAN DIEGO COUNTY IN CARLSBAD AND OCEANSIDE ON ROUTE 5 FROM BUENA VISTA LAGOON BRIDGE TO BROOKS STREET OVERCROSSING

To be supplemented by Standard Plans dated July, 1999

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

Cal-Trans now has a web site! To get to the web site, go to: http://tresc.dot.ca.gov



The Contractor shall possess the Class (or classes) of license as specified in the "Notice to Contractors" on page 1 of the Special Provisions.

NO SCALE

Licensed Landscape Architect

Plans Approval Date

LICENSED LANDSCAPE ARCHITECT STEPHEN P. WARREN NO. 3442 STATE OF CALIFORNIA Signature 10-31-02 Renewal Date Date

PROJECT LANDSCAPE ARCHITECT: STEPHEN WARREN
PROJECT MANAGER: ISMAEL SALAZAR

LAST REVISION 02-5-00
DATE PLOTTED => 20 FEB 2001
TIME PLOTTED => 08:58:22

Contract No. 11-239604

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

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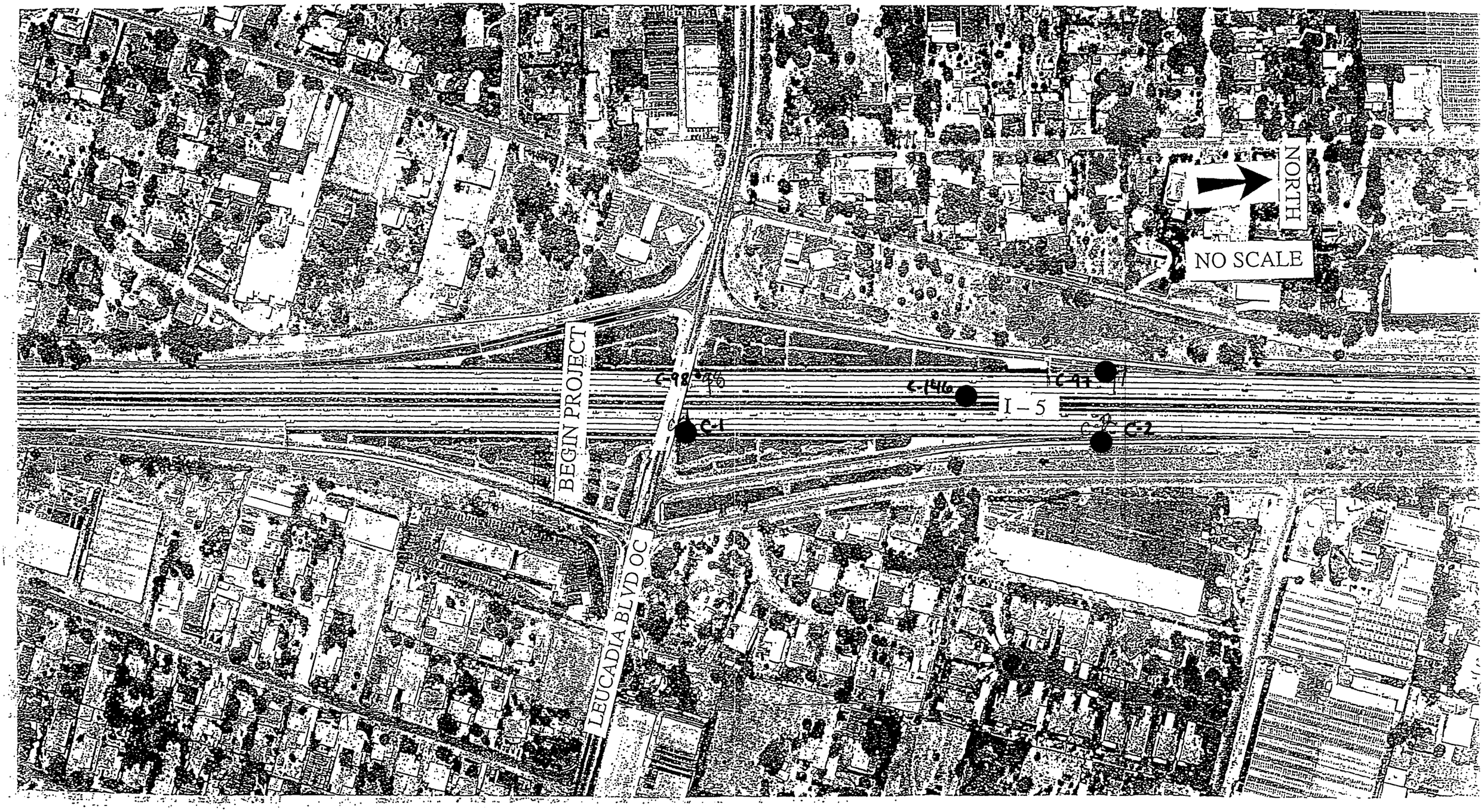
EA 239601



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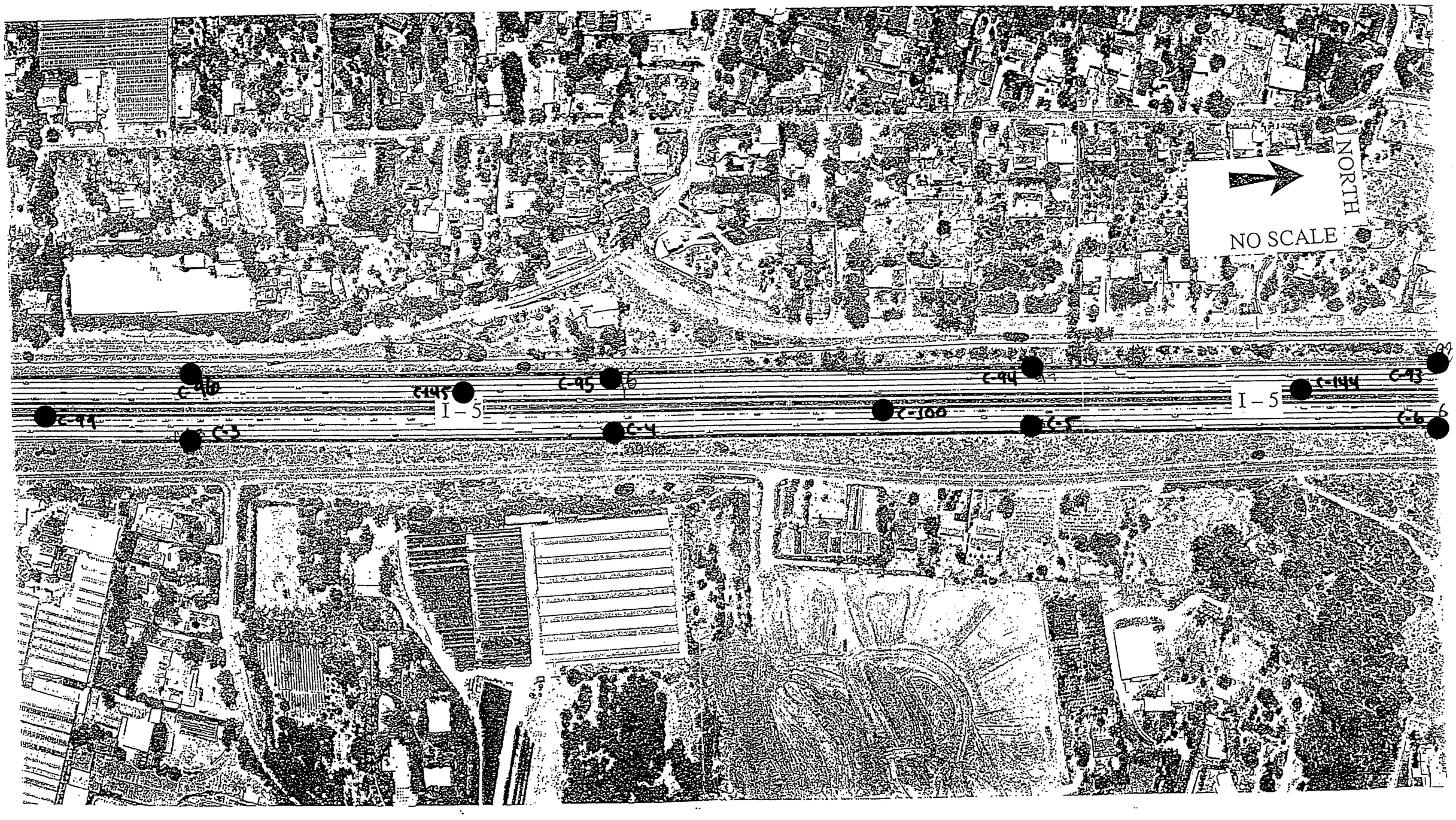
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C-94
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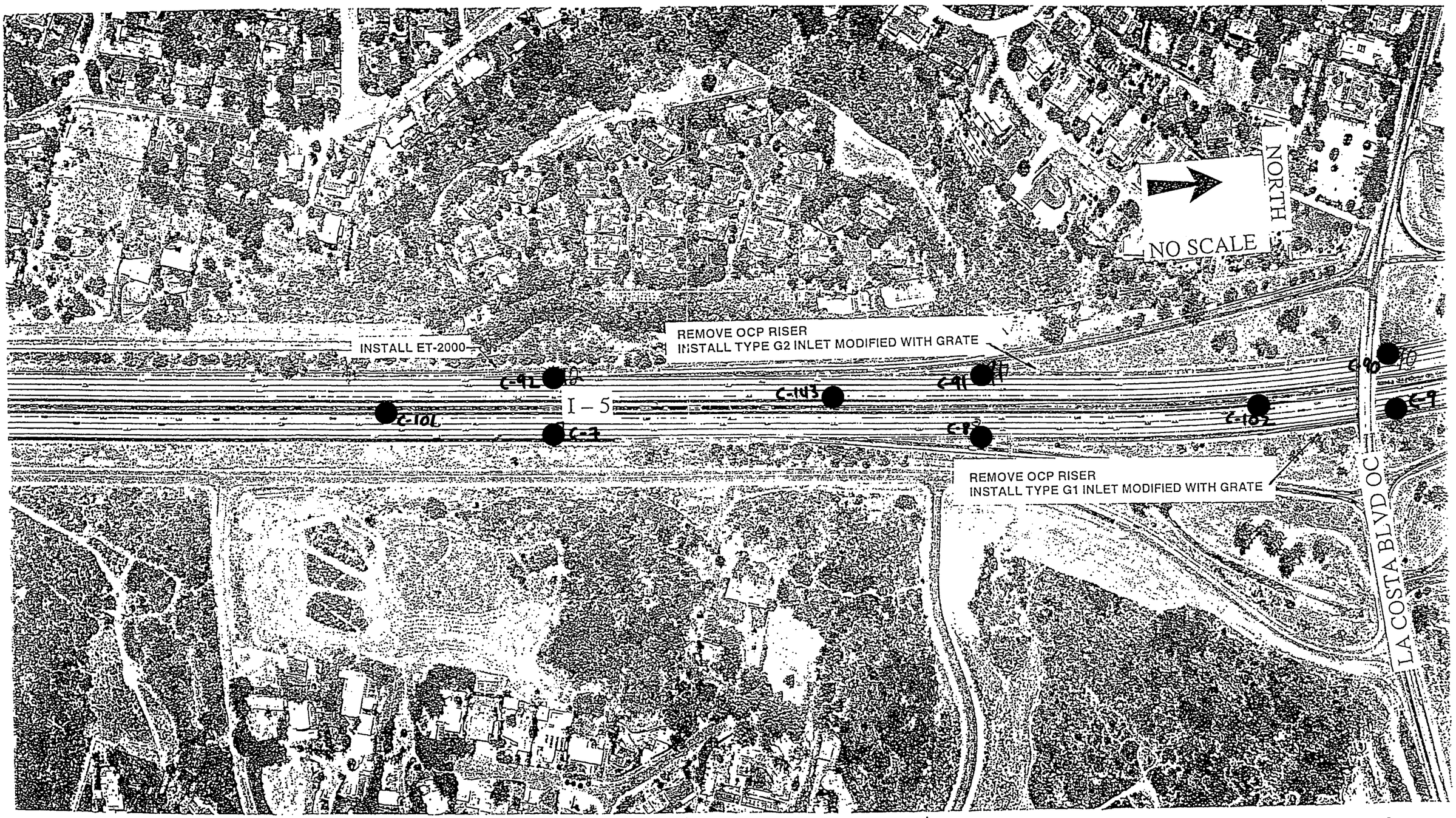
C-4
C-100
C-5
C-6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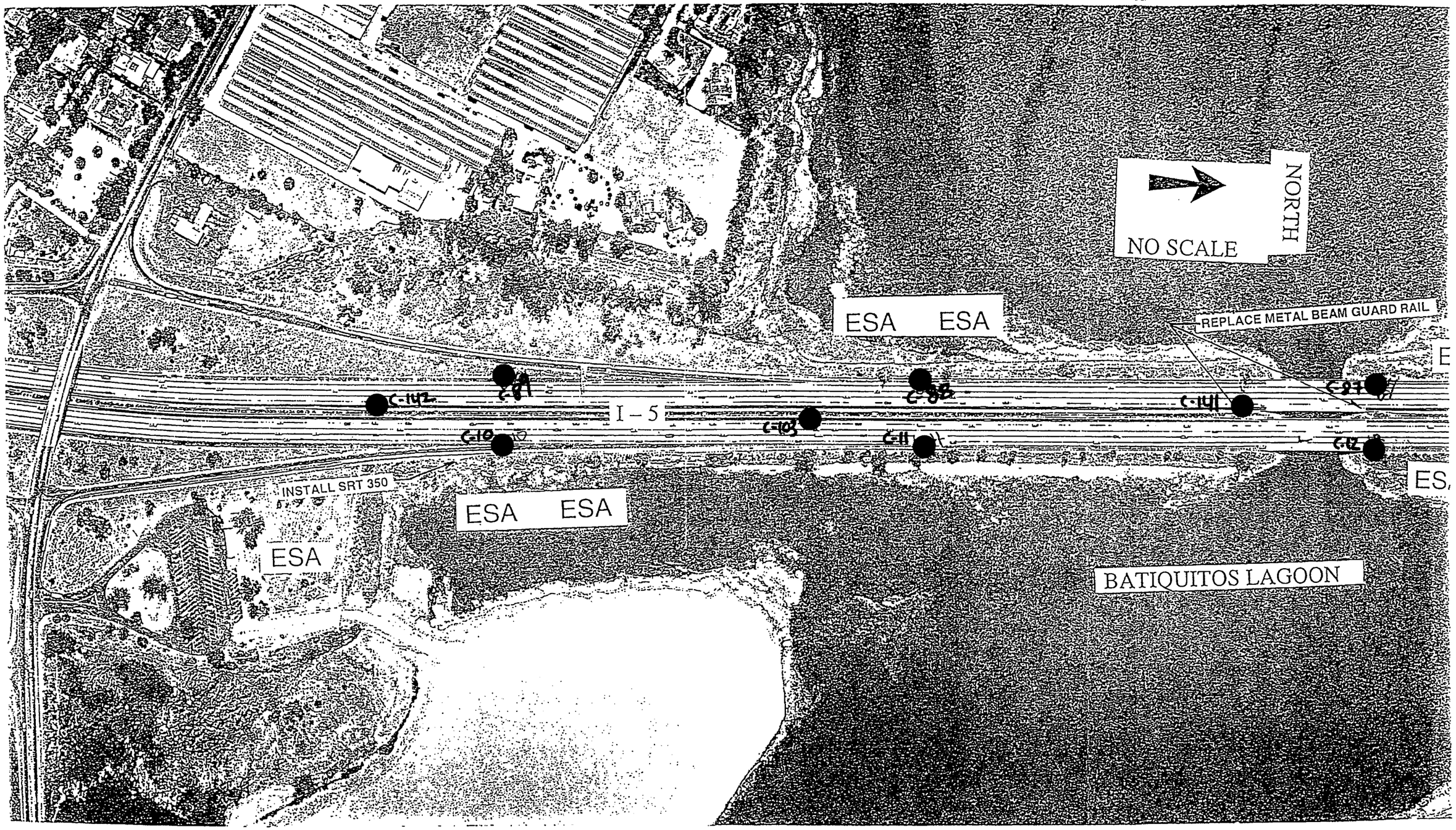
INSTALL ET-2000
REMOVE OCP RISER
INSTALL TYPE G2 INLET MODIFIED WITH GRATE
C-92
C-143
C-91
C-90
C-101
C-7
C-102
C-9
REMOVE OCP RISER
INSTALL TYPE G1 INLET MODIFIED WITH GRATE
LA COSTA BLVD OC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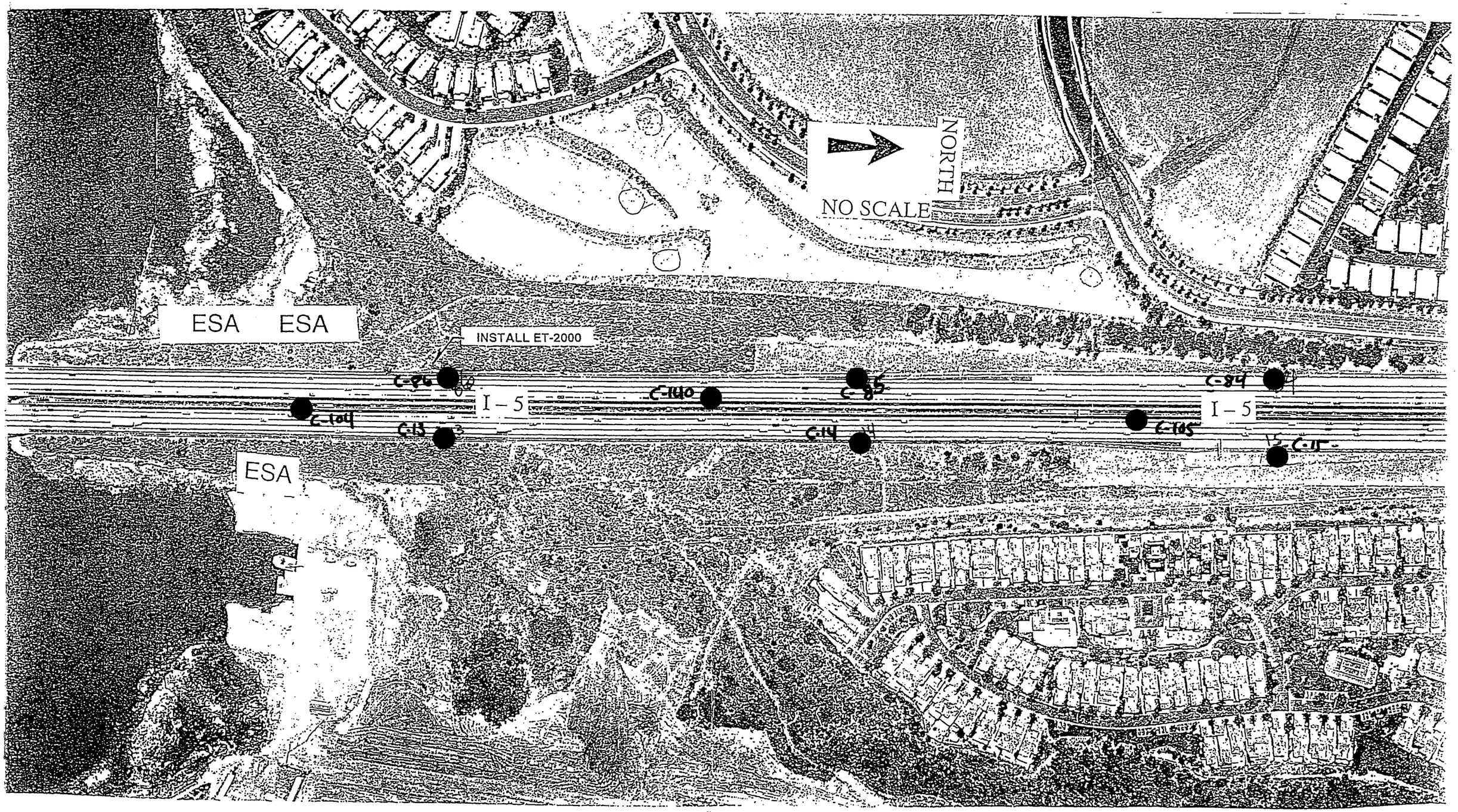
C-11
C-12
INSTALL SRT 350
ESA ESA
ESA
BATIQUITOS LAGOON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ESA
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C-140
C-85
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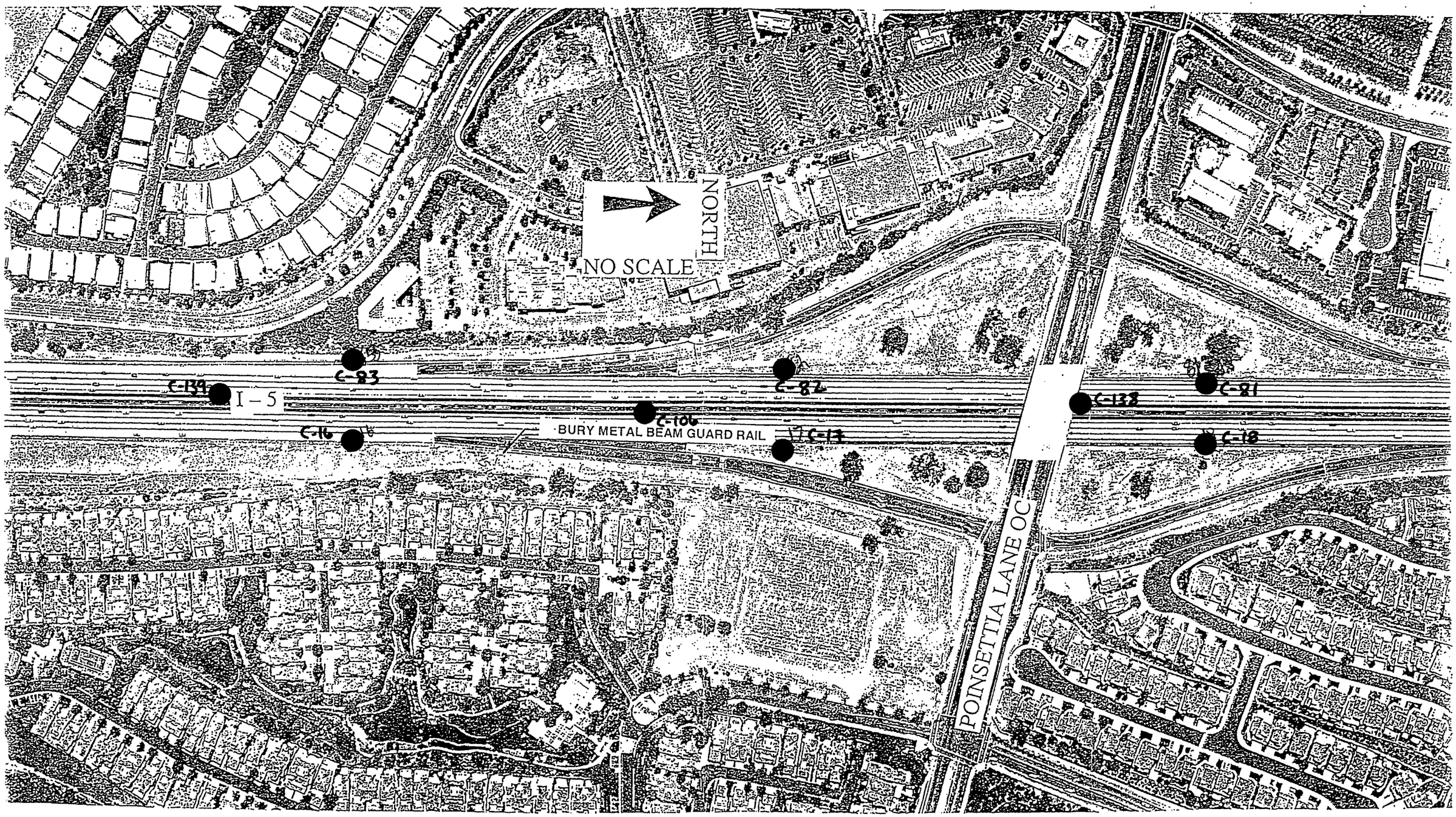
C-84
C-15
ESA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NO SCALE
C-83
C-139
I - 5
C-82
C-138
C-81
C-106
BURY METAL BEAM GUARD RAIL
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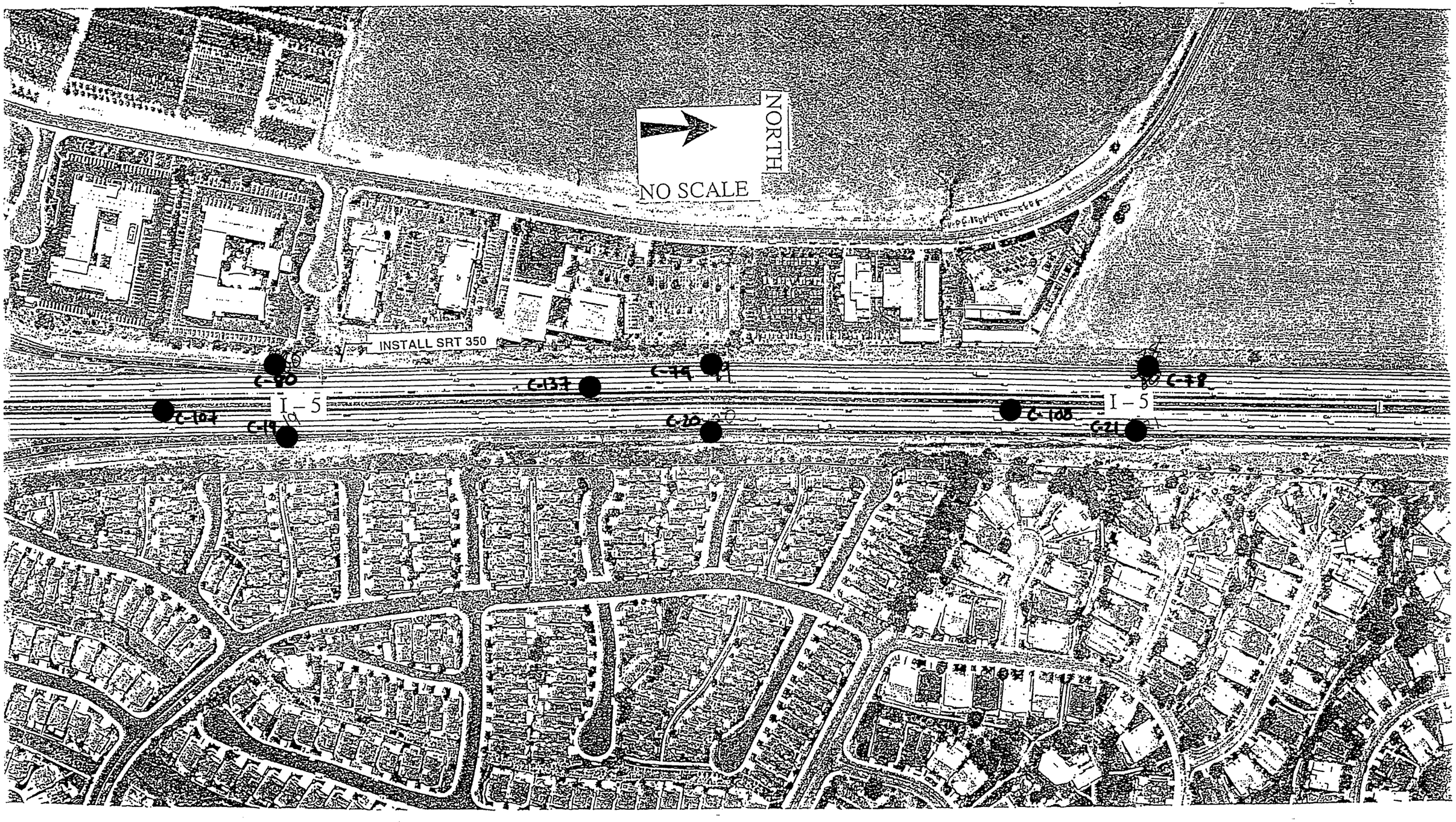
C-17
C-18
POINSETTIA LANE OC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NO SCALE
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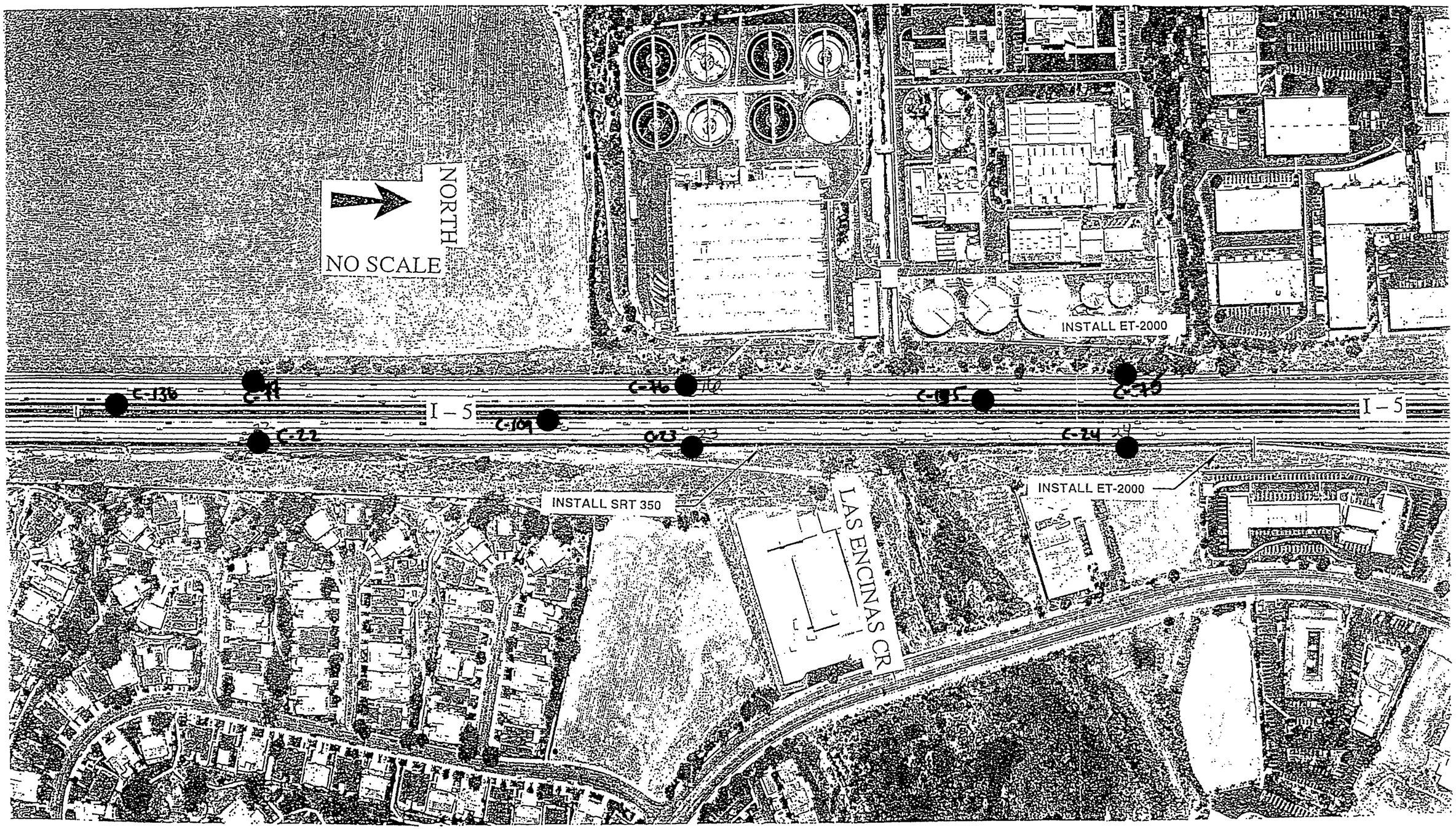
C-19
C-78
I – 5
C-107
C-19
C-20
C-108
C-21
I – 5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NO SCALE
INSTALL ET-2000
C-136
C-11
C-76
C-135
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I – 5
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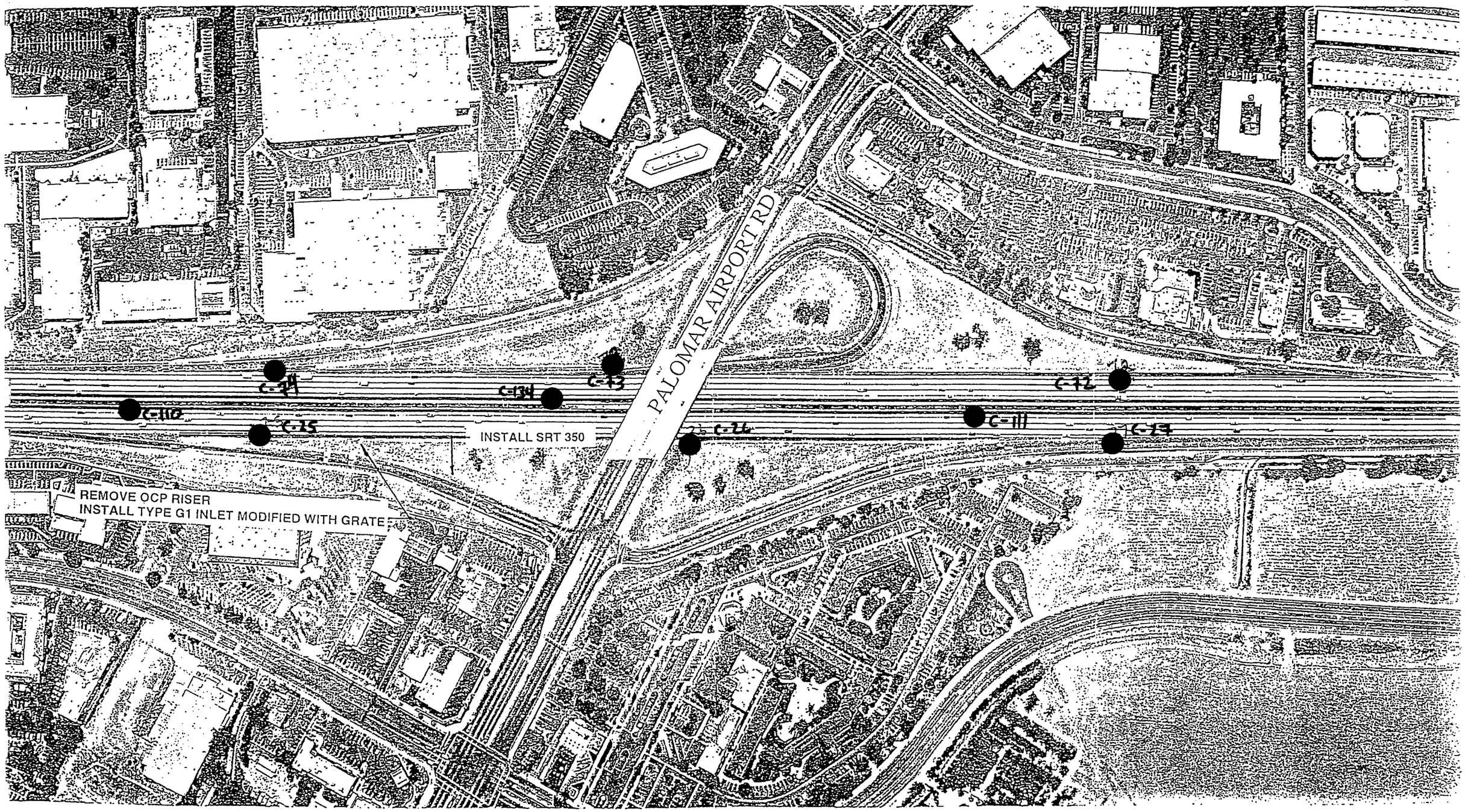
C-109
C-22
C-23
C-24
INSTALL SRT 350
LAS ENCINAS CR
INSTALL ET-2000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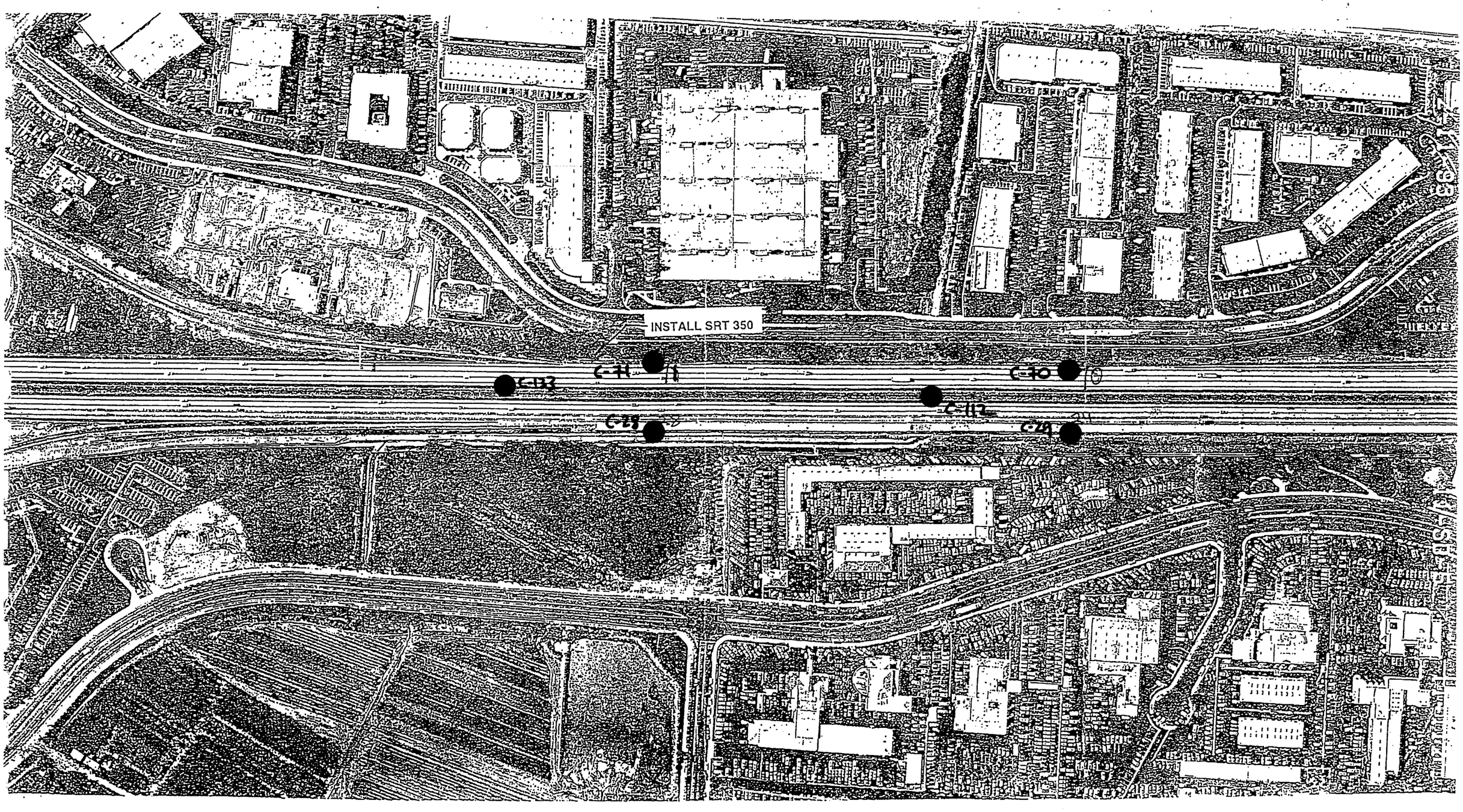
C-25
C-11
C-111
C-14
INSTALL SRT 350
REMOVE OCP RISER
INSTALL TYPE G1 INLET MODIFIED WITH GRATE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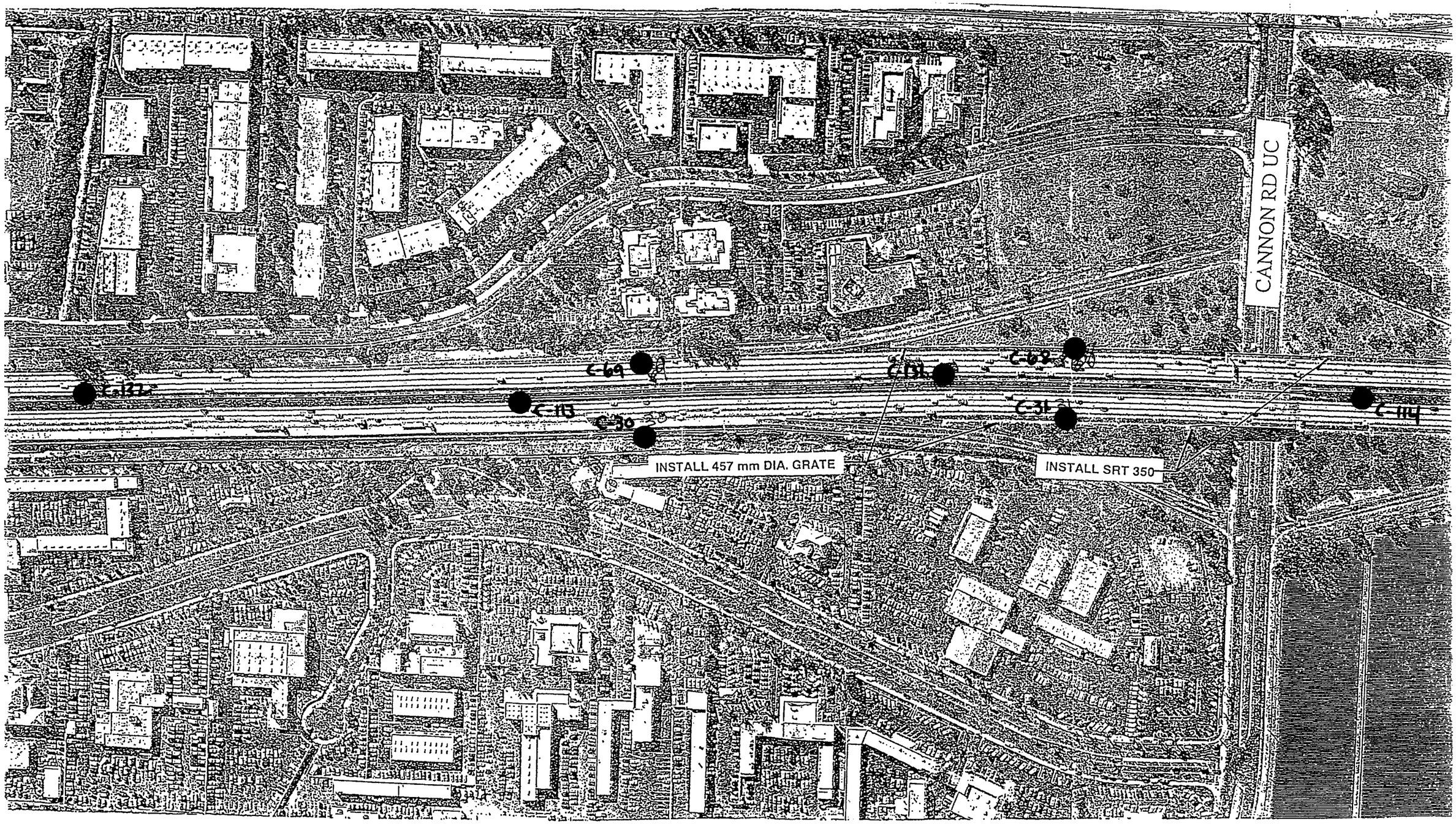
C-28
C-69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C-113
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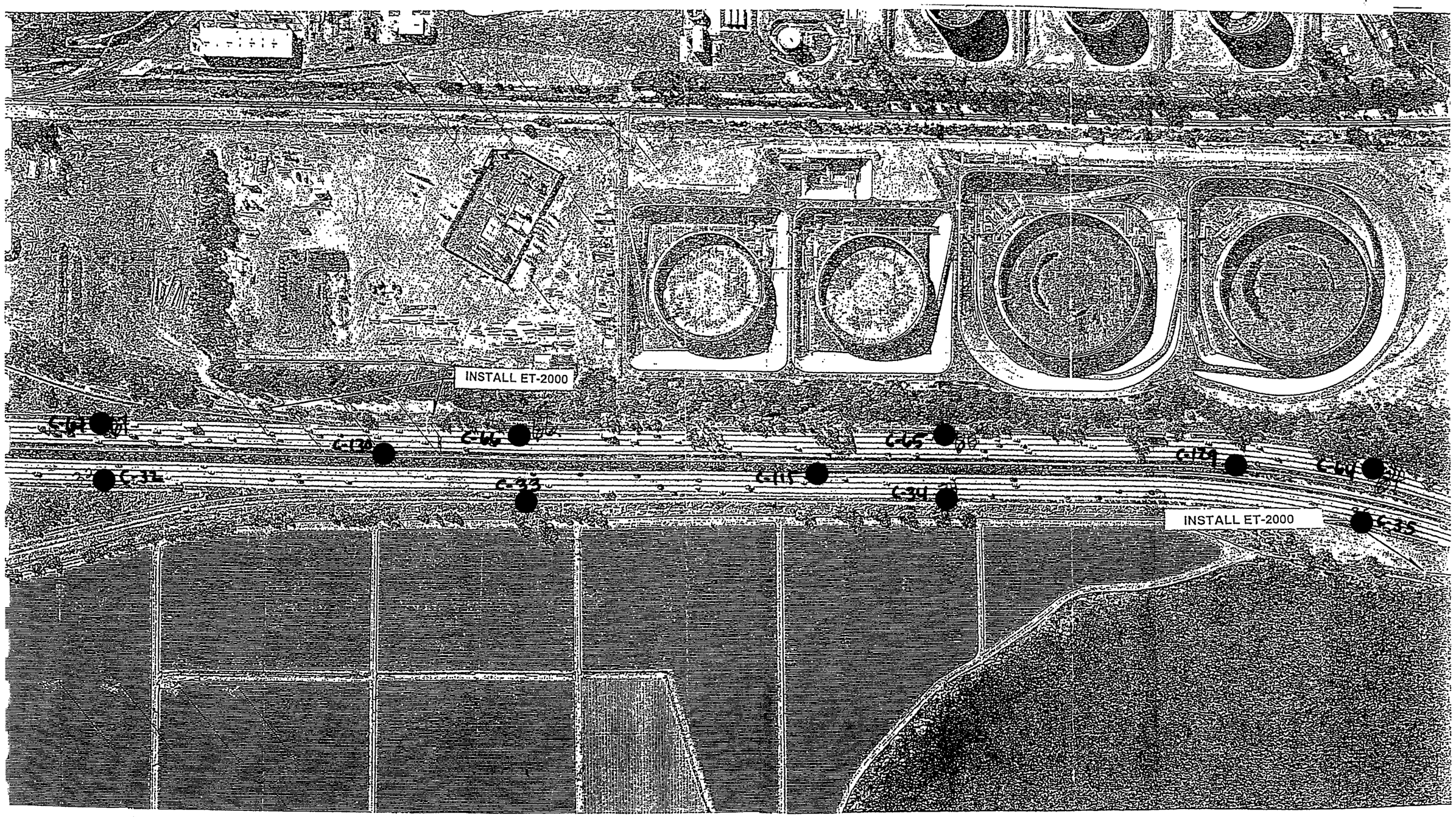
C-62
C-31
C-114
INSTALL 457 mm DIA. GRATE
INSTALL SRT 350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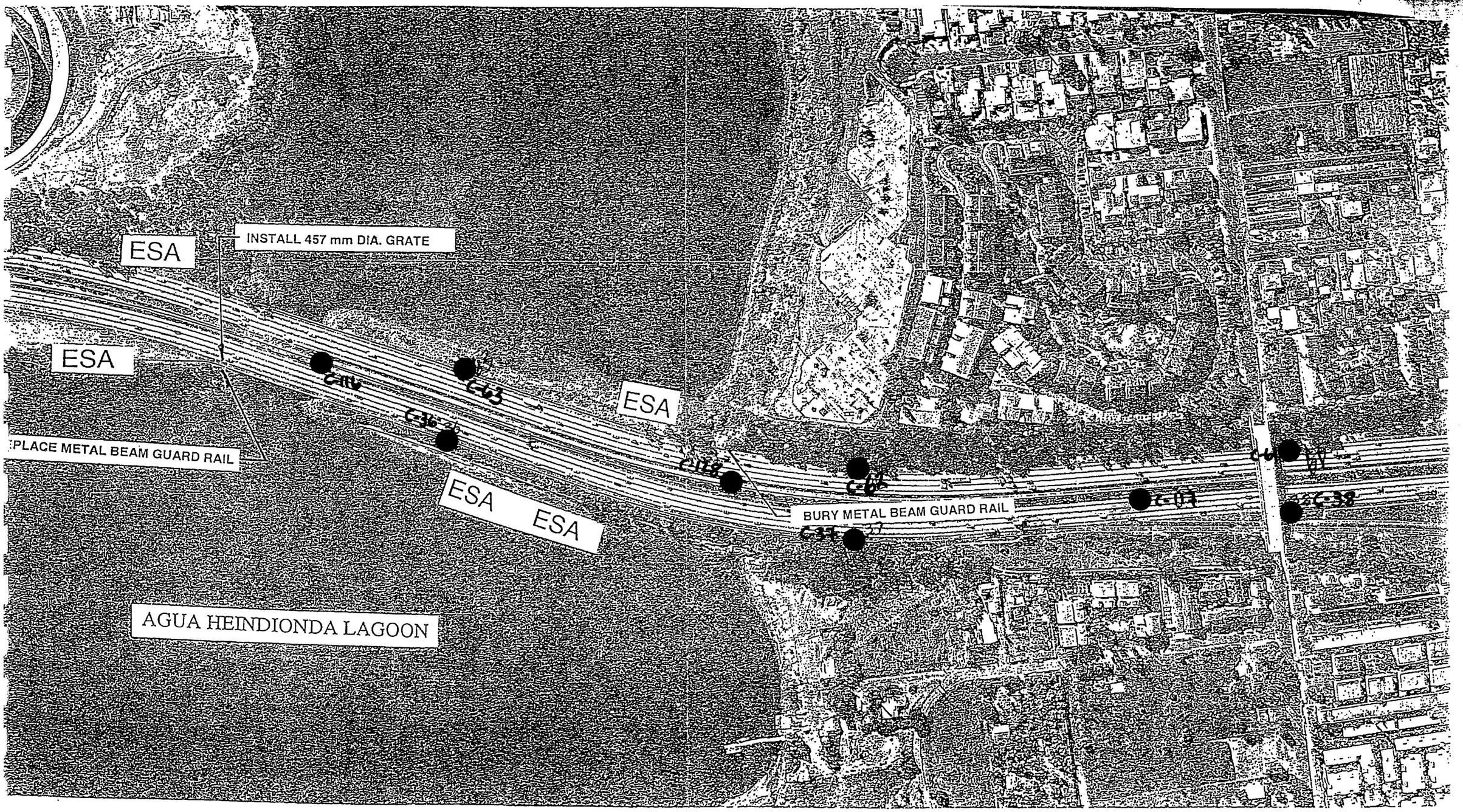
C-35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INSTALL 457 mm DIA. GRATE
ESA
C-36
C-63
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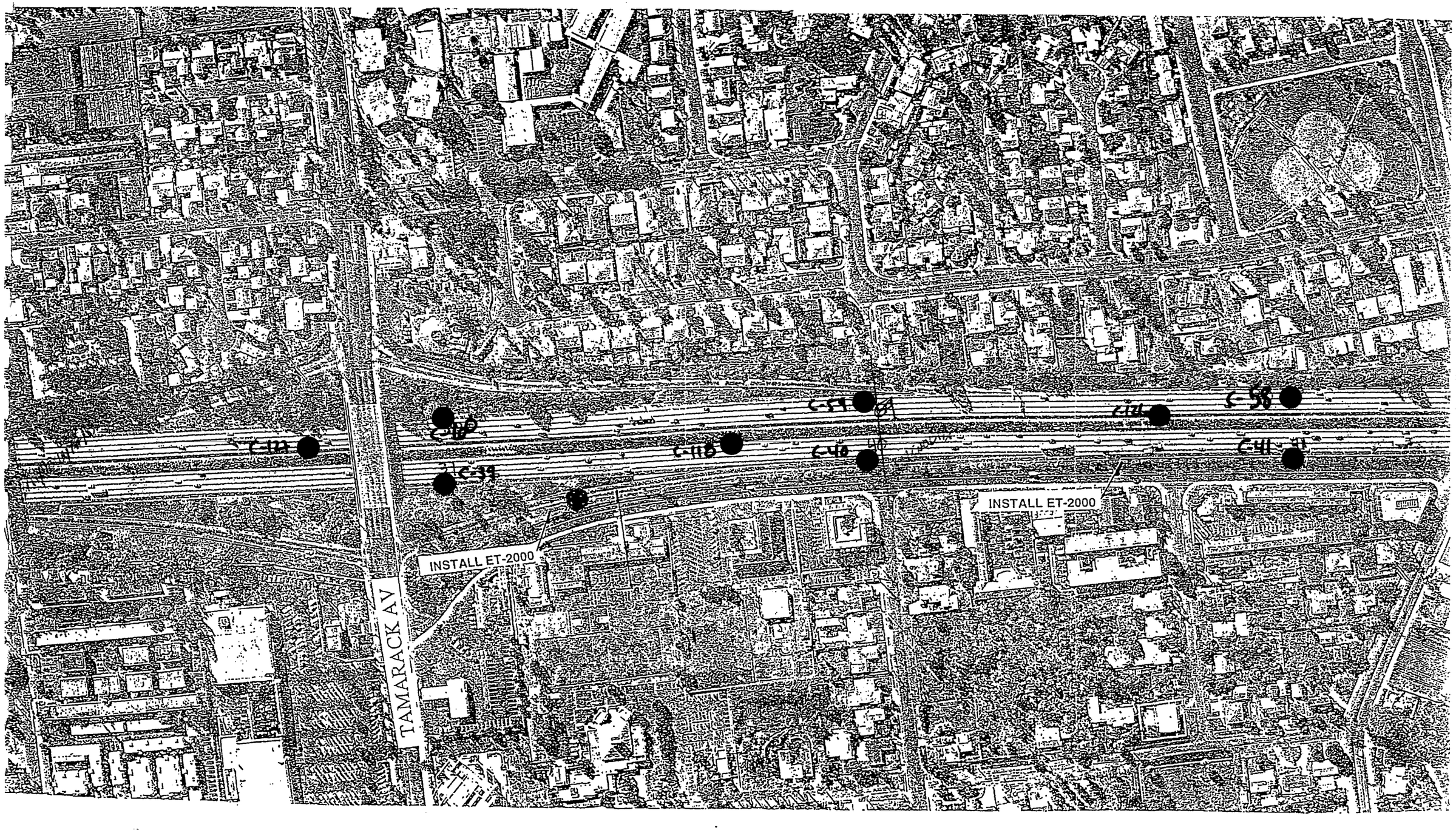
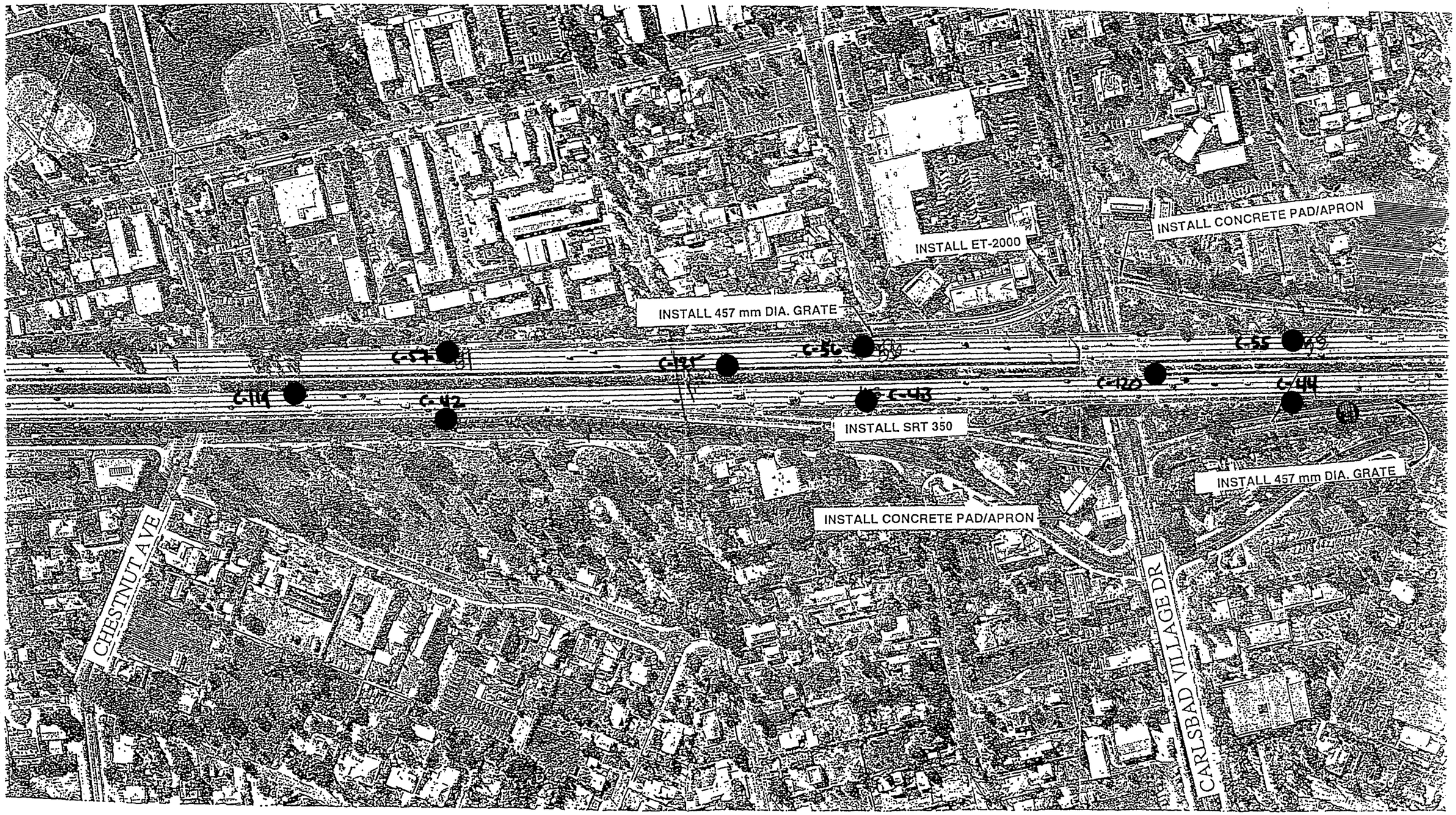
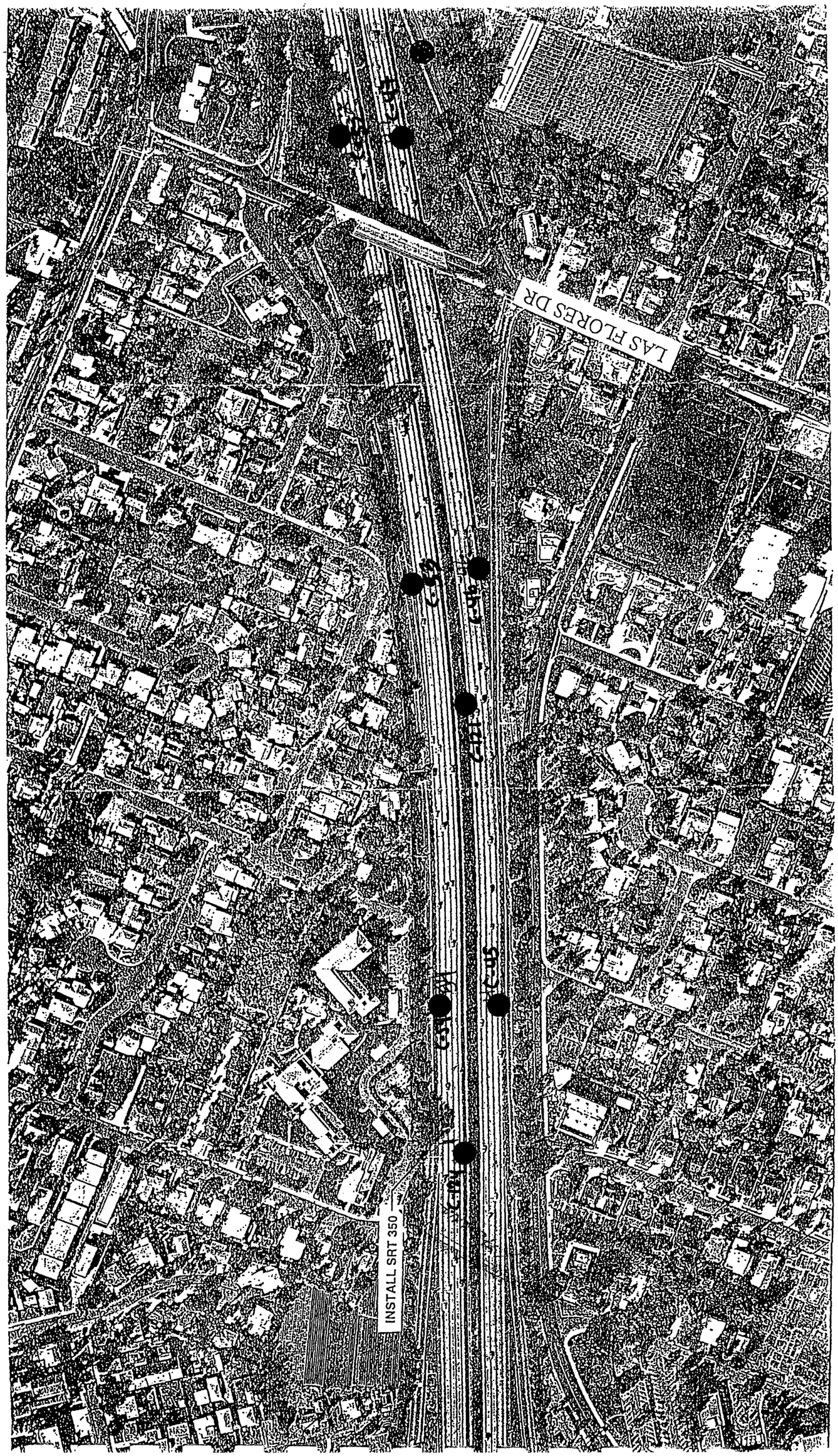
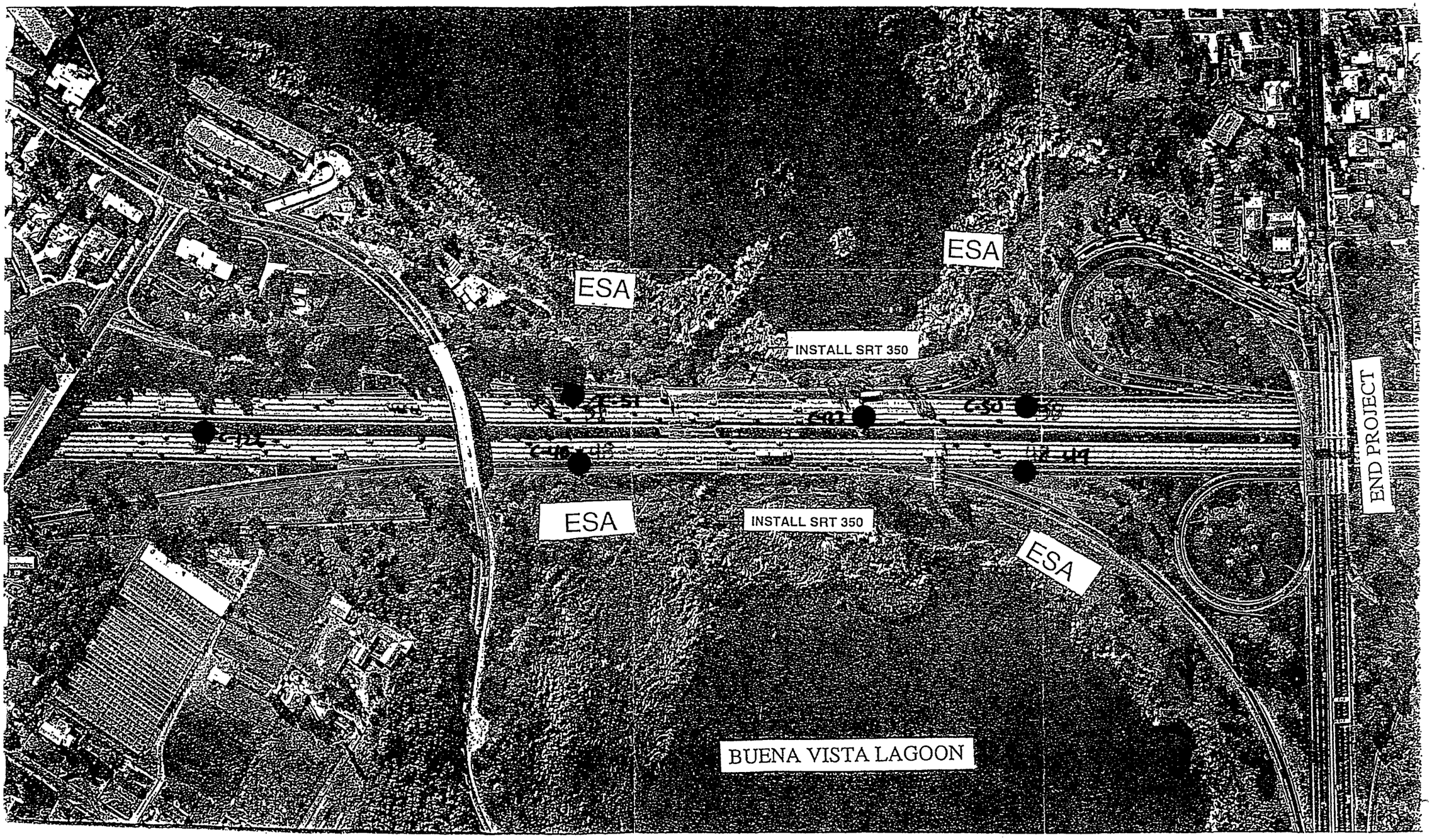
PLACE METAL BEAM GUARD RAIL
ESA
ESA
BURY METAL BEAM GUARD RAIL
C-38
AGUA HEINDIONDA LAGOON


C-58
C-41
C-46
C-110
C-39
C-111
INSTALL ET-2000
INSTALL ET-2000
TAMARACK AV


INSTALL 457 mm DIA. GRATE
INSTALL ET-2000
INSTALL CONCRETE PAD/APRON
INSTALL SRT 350
INSTALL CONCRETE PAD/APRON
INSTALL 457 mm DIA. GRATE
CHESTNUT AVE
CARLSBAD VILLAGE DR
C-114
C-42
C-57
C-125
C-56
C-43
C-120
C-44
C-55


LAS FLORES DR
INSTALL SRT 350


ESA
ESA
INSTALL SRT 350
ESA
INSTALL SRT 350
ESA
BUENA VISTA LAGOON
END PROJECT

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

10-31-02

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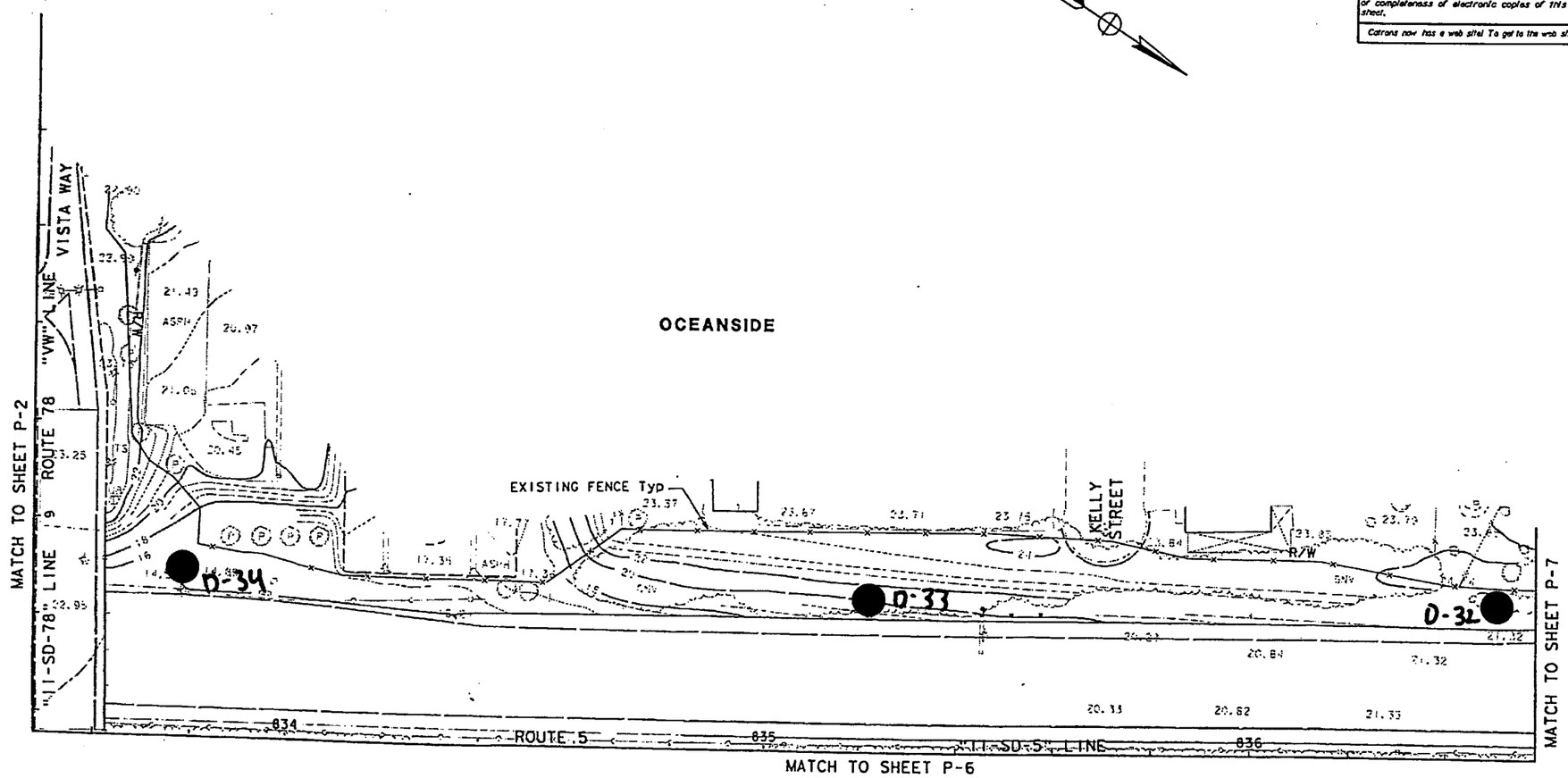

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SCALE 1:500

P-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

CALCULATED/DESIGNED BY | RM | DATE MM/YY | REVISED BY | JN

CHECKED BY | XX | | DATE REVISED | 12/99

LAST REVISION 01-31-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 08:10:41

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DGN FILE => ...\D23960p05.dgn

CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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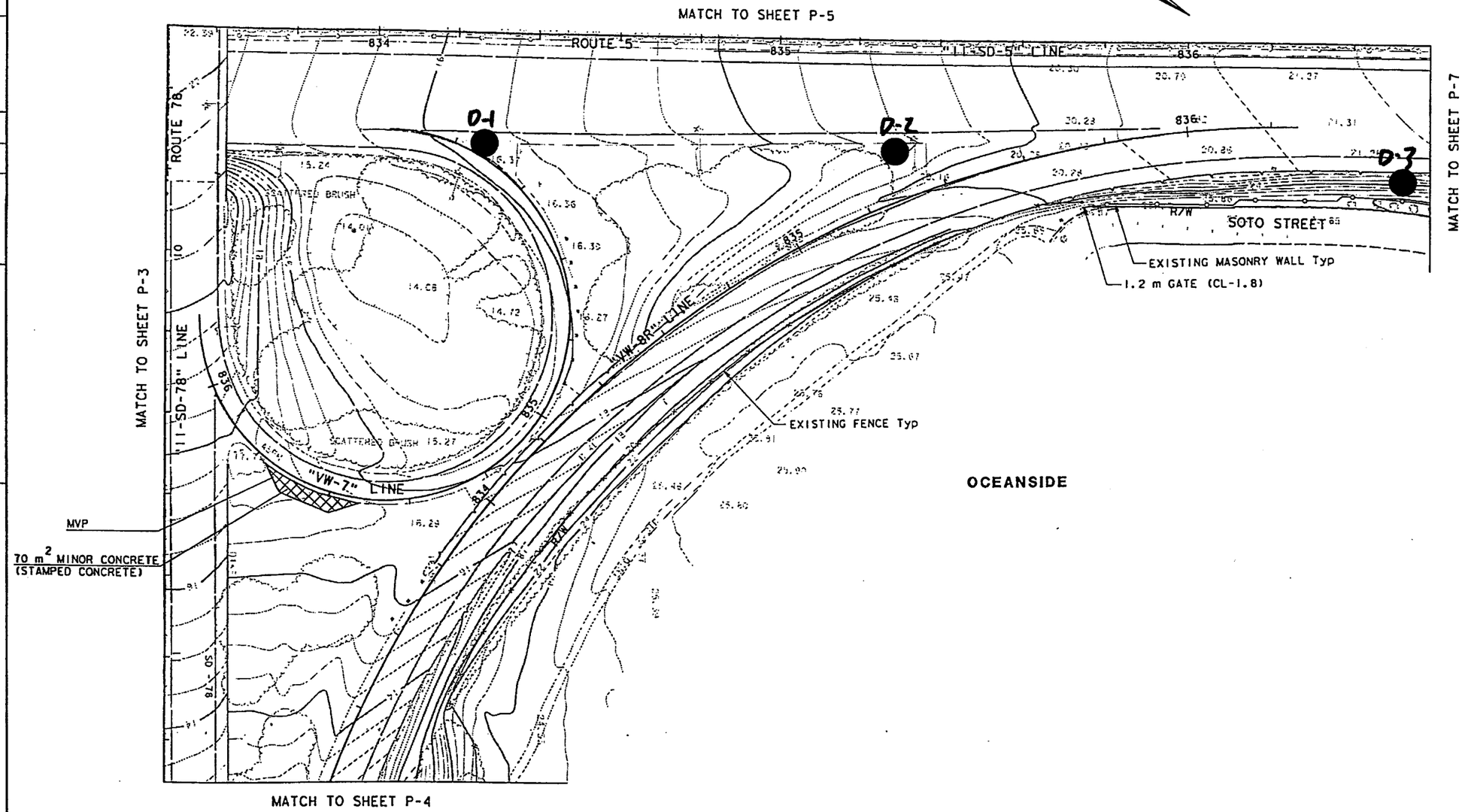

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SCALE 1:500

P-6

REVISED BY	DATE REVISED
JN	12/99

CALCULATED/DESIGNED BY: RM XX — DATE MM/YY:
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PROJECT LANDSCAPE ARCHITECT: STEPHEN WARREN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE

LAST REVISION 01-31-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 08:11:05

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DGN FILE => ...\b23960p06.dgn

CU 11342

EA 239601

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11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE 10-31-02

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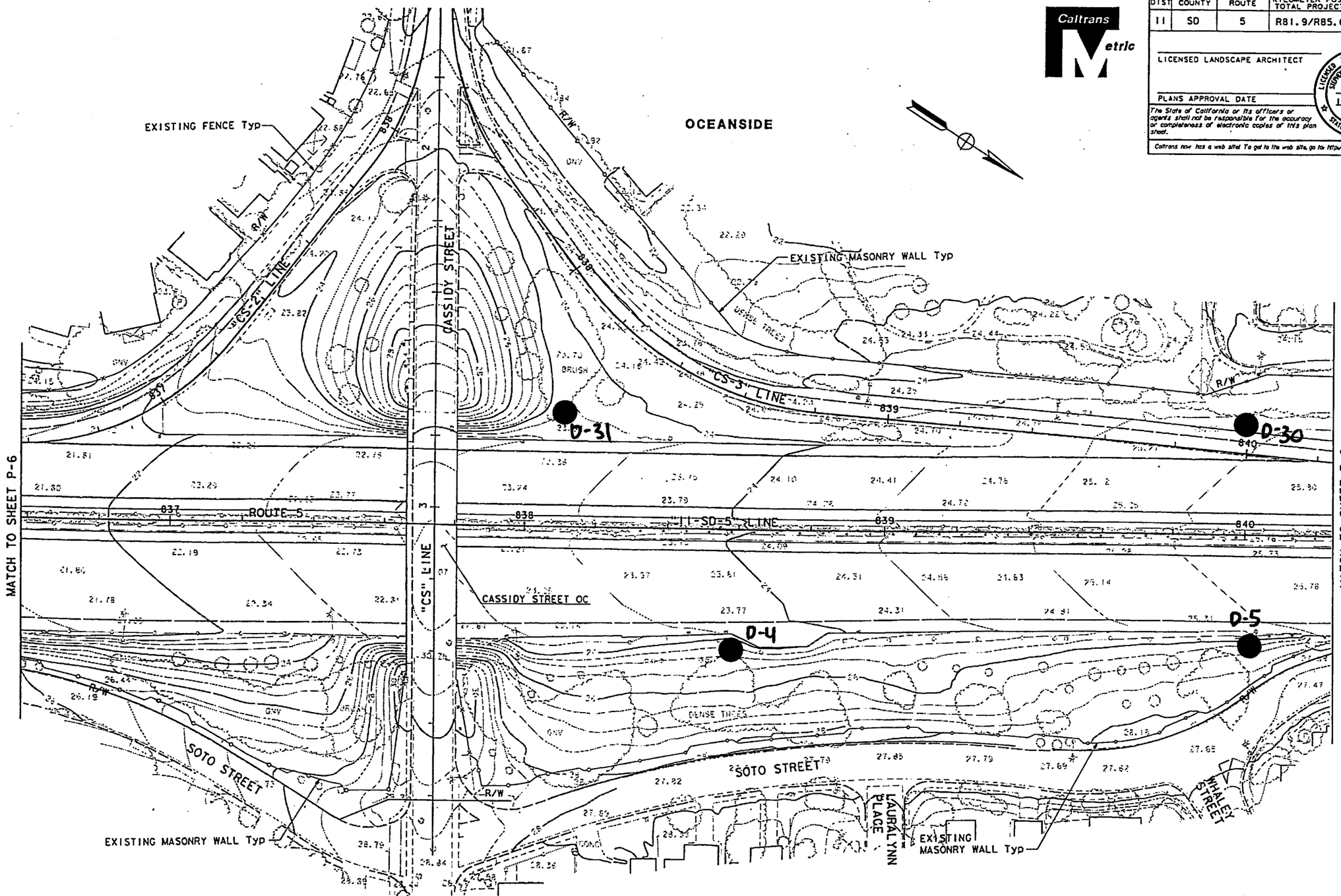

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P-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

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CU 11342

EA 239601

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11	SD	5	R81.9/R85.0	XX	

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PLANS APPROVAL DATE

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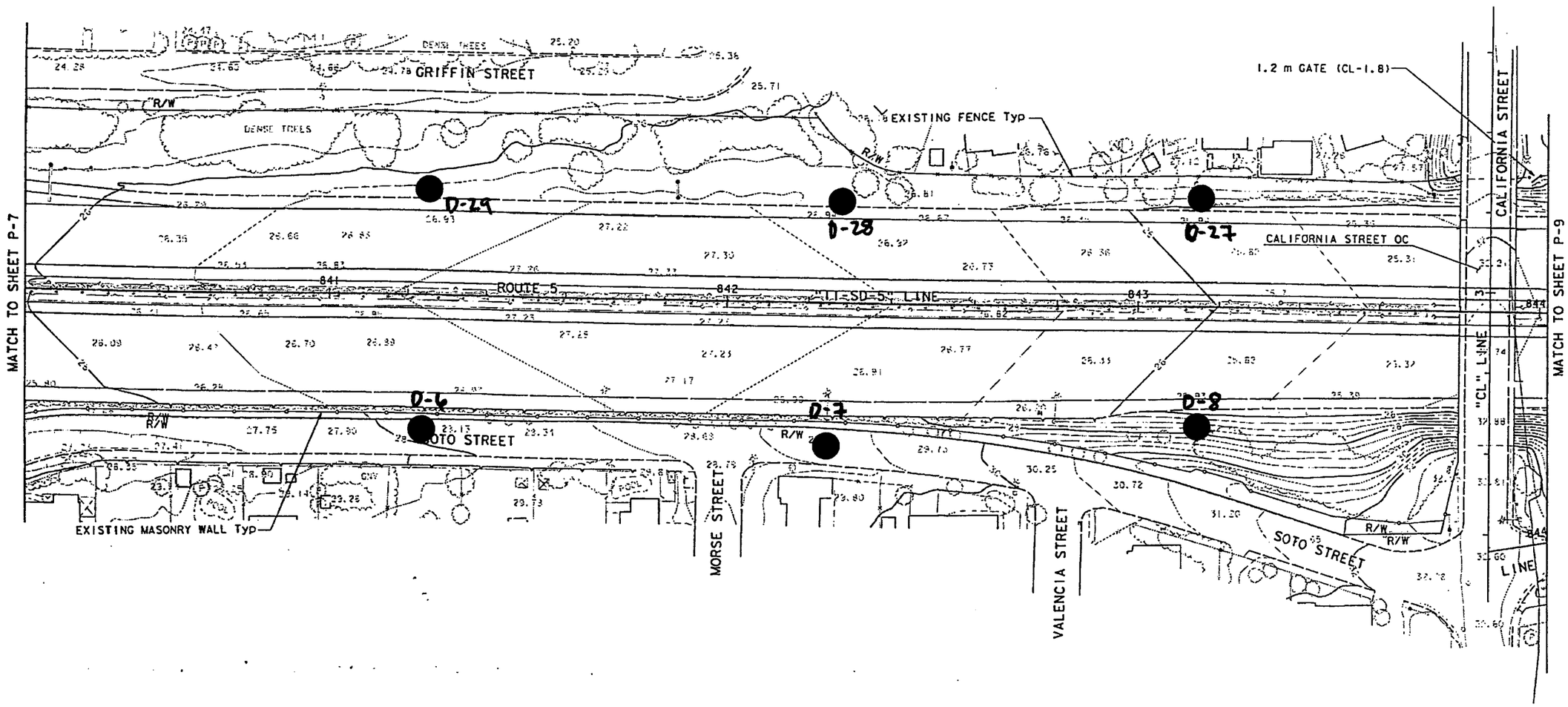

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P-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

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LAST REVISION 01-31-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 08:12:27

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT STEPHEN F. WARREN No. 3482 Signature 10-31-02 Date STATE OF CALIFORNIA

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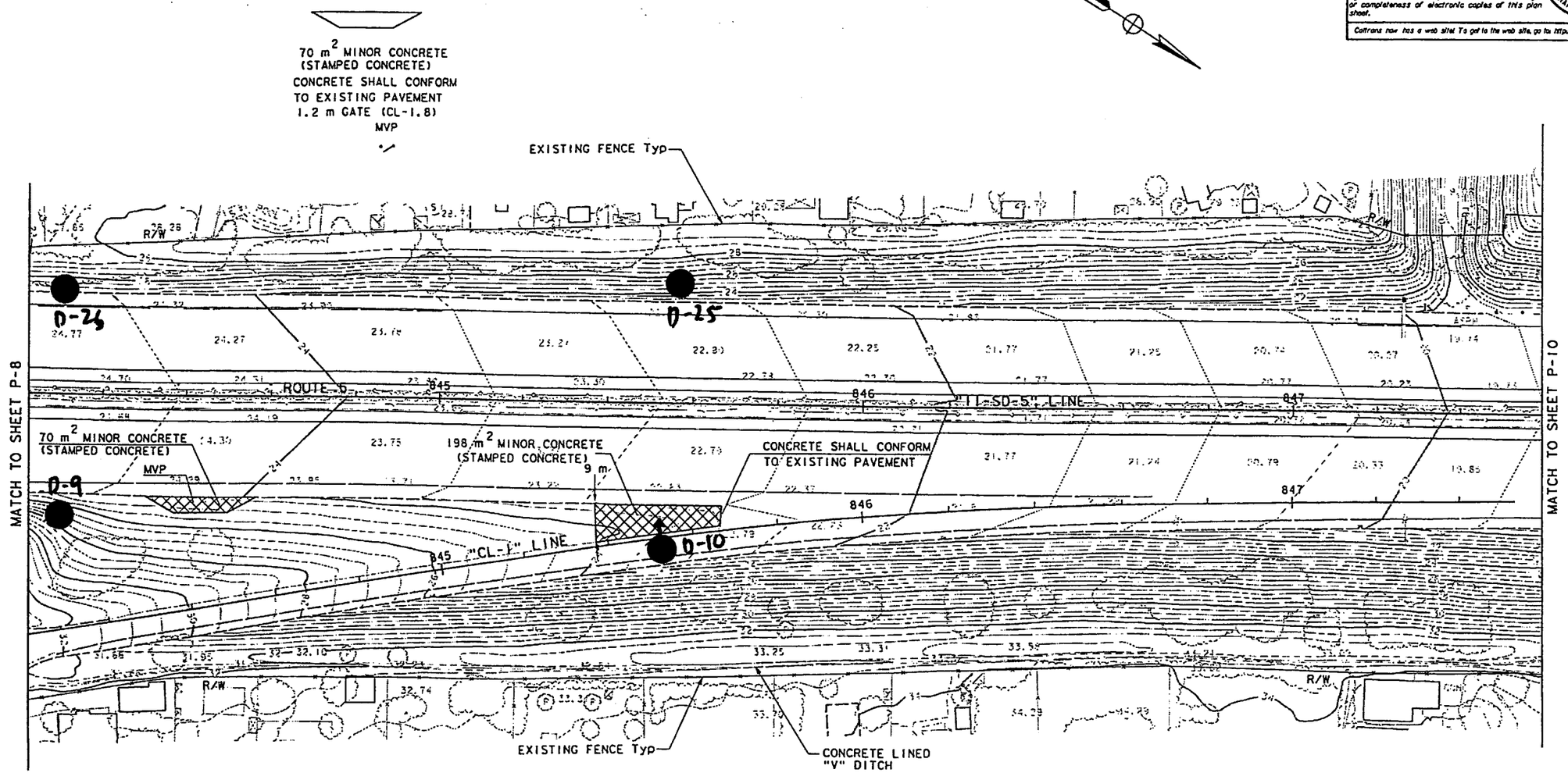

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P-9

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DATE REVISED	12/99		
DATE MM/YY			
RM XX			
CALCULATED/ DESIGNED BY			
CHECKED BY			

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 01-31-01

DATE PLOTTED => 20 FEB 2001
TIME PLOTTED => 08:12:49

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

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PLANS APPROVAL DATE

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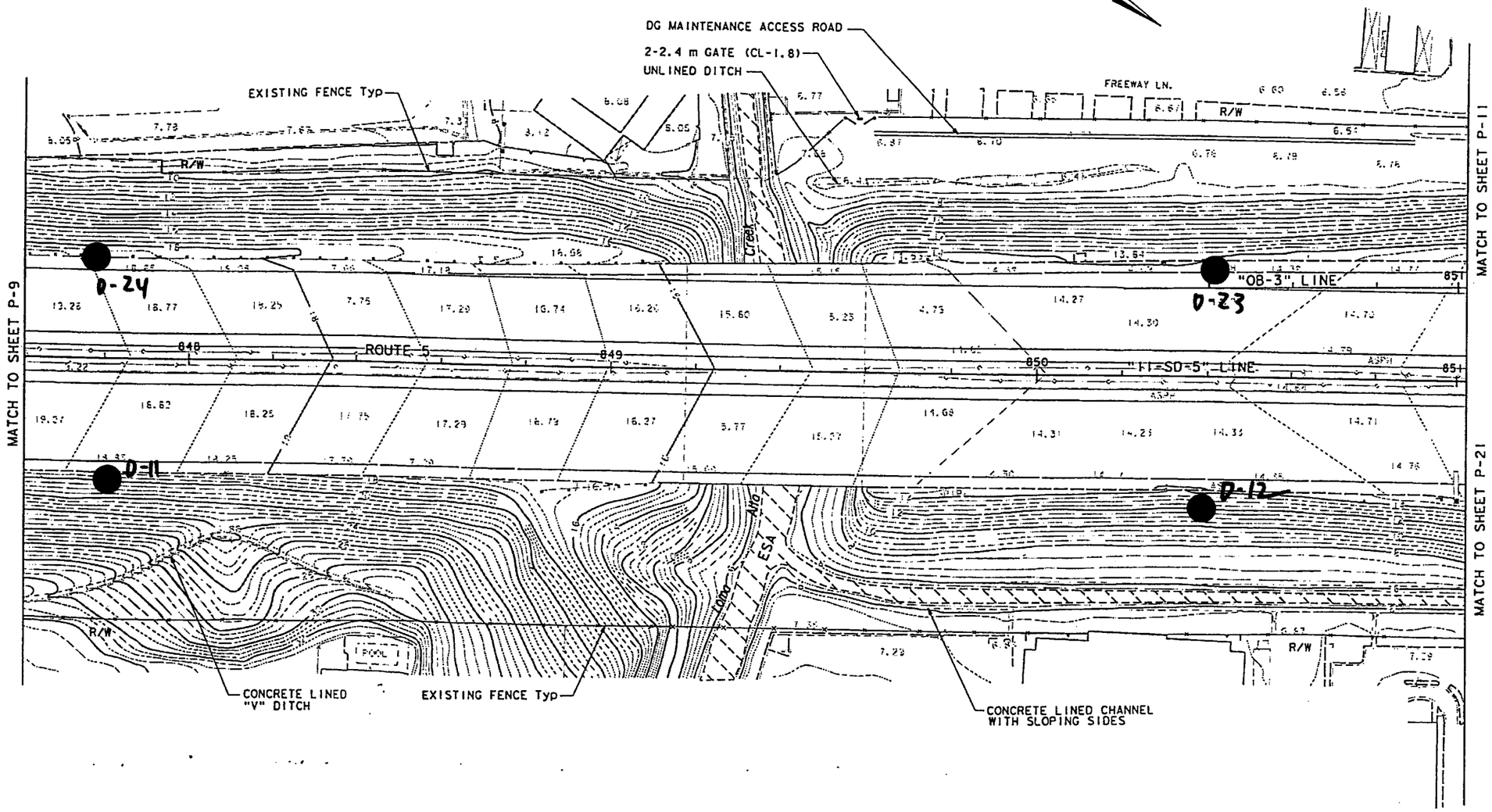

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P-10

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PROJECT LANDSCAPE ARCHITECT: STEPHEN WARREN

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LAST REVISION 01-31-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 08:15:08

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT STEPHEN P. WARREN NO. 3842 Signature 10-31-02 Renewal Date STATE OF CALIFORNIA

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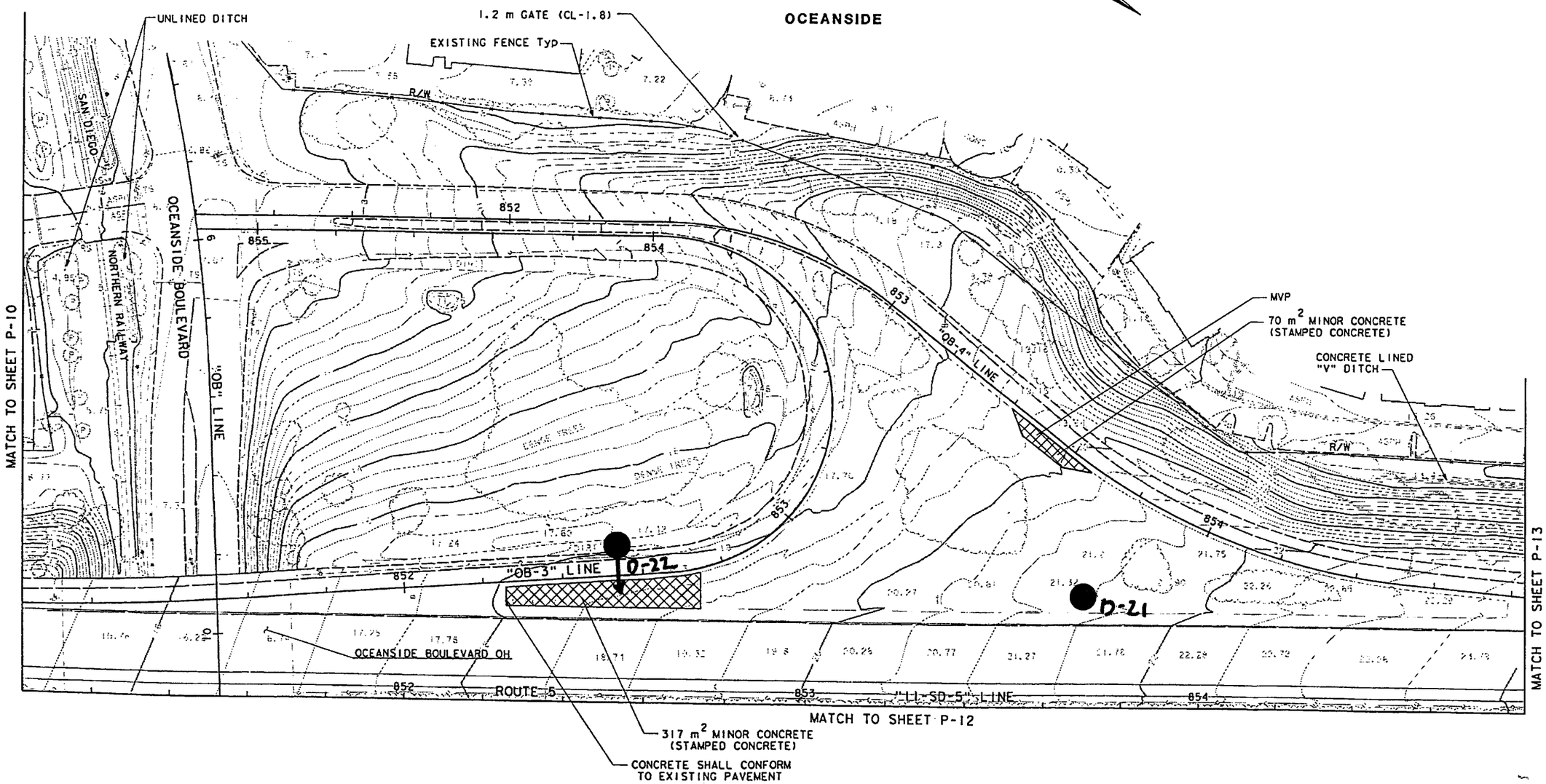

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PLANTING PLAN

SCALE 1:500

P-11

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Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

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LAST REVISION 02-20-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 09:07:50

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

Caltrans Metric

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT SIDNEY F. WARREN NO. 3442 10-31-02 STATE OF CALIFORNIA

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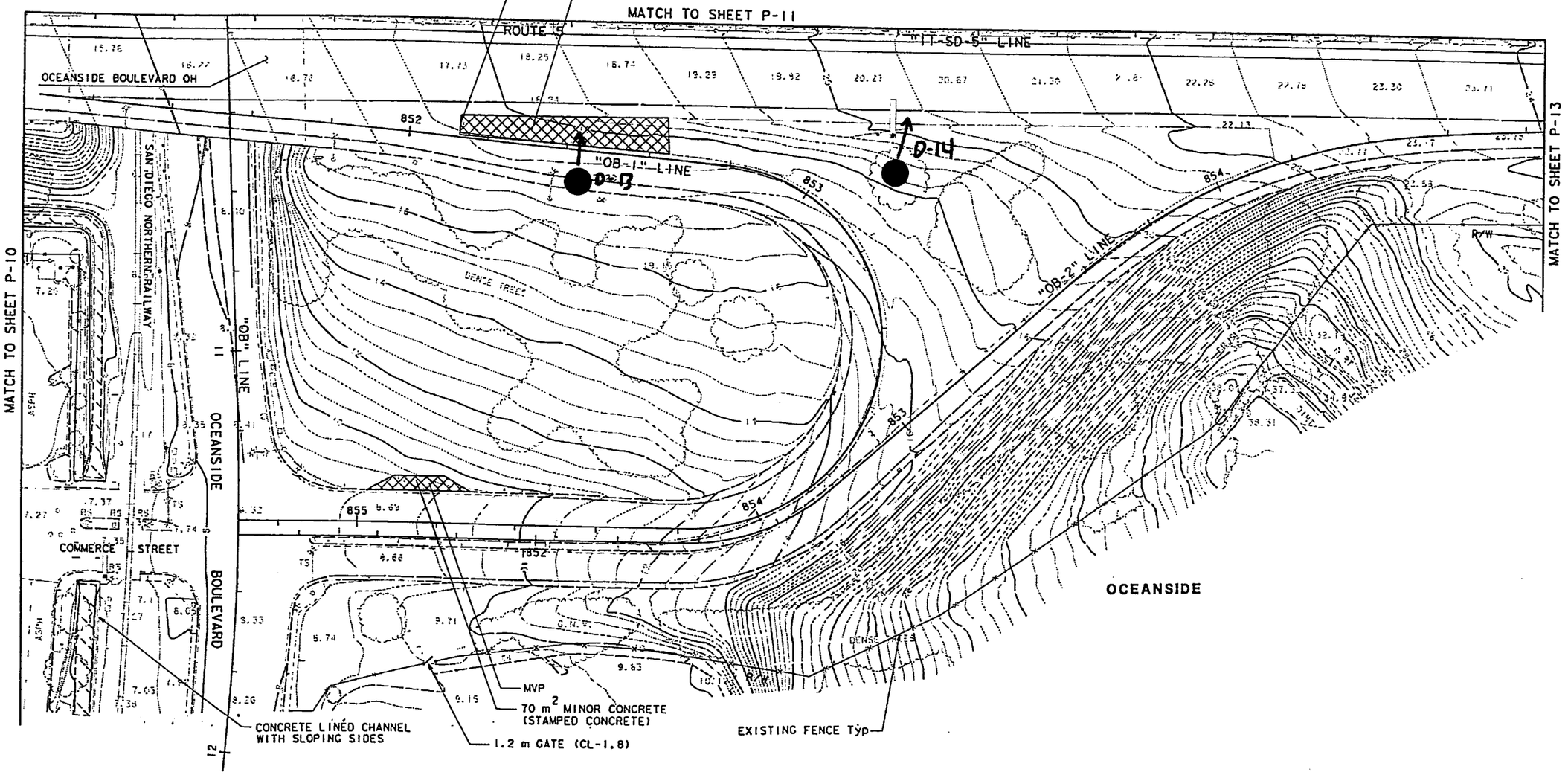

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SCALE 1:500

P-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

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LAST REVISION 01-31-01 | DATE PLOTTED => 20 FEB 2001 | TIME PLOTTED => 08:37:00

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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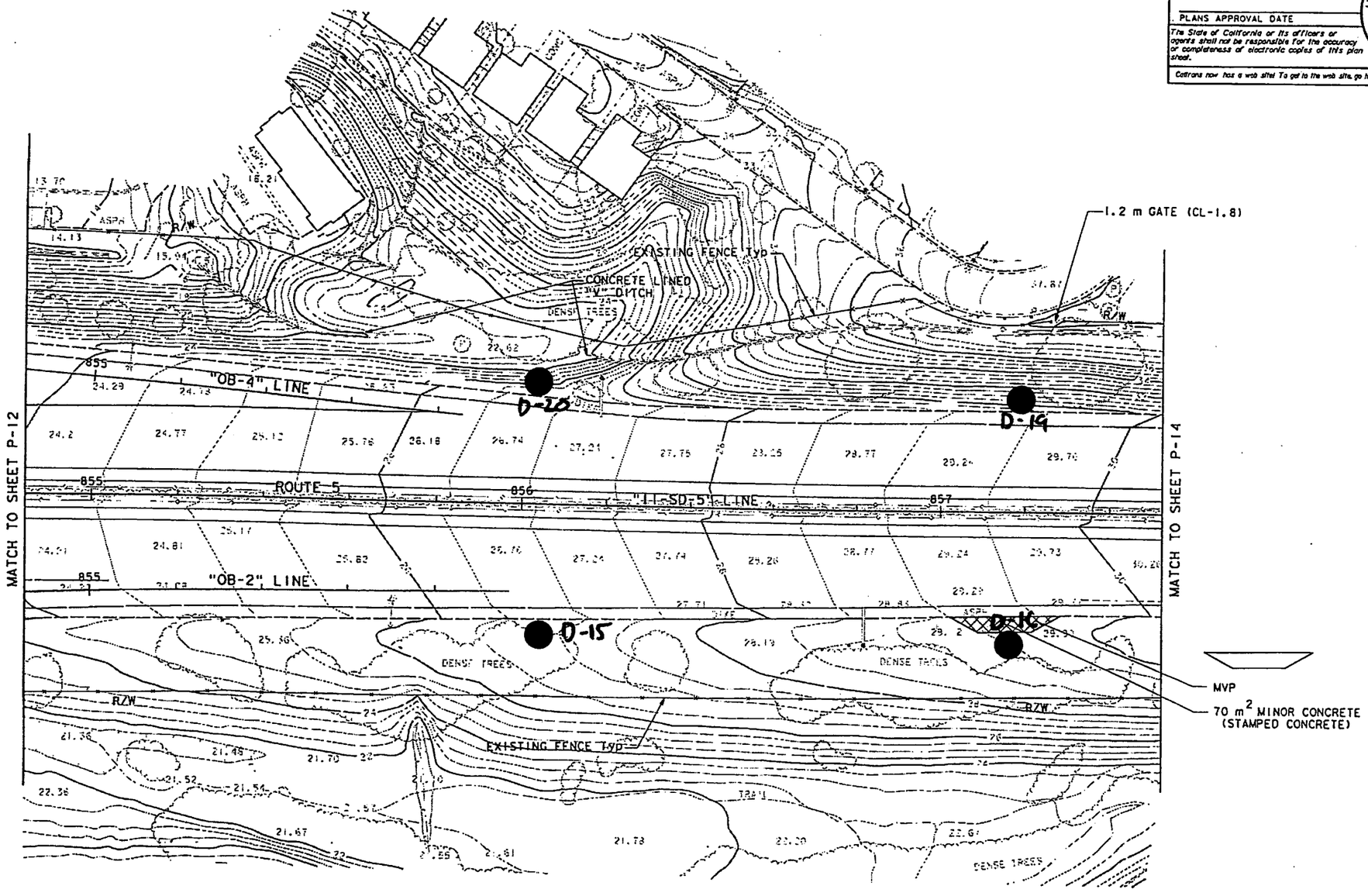

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SCALE 1:500

P-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

CALCULATED/DESIGNED BY | RM | DATE MM/YY | REVISED BY | JN

CHECKED BY | XX | | DATE REVISED | 12/99

LAST REVISION 01-31-01

DATE PLOTTED => 20 FEB 2001
TIME PLOTTED => 08:55:23

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CU 11342

EA 239601

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	5	R81.9/R85.0	XX	

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT STEPHEN P. WARREN NO. 3442 STATE OF CALIFORNIA
Signature 10-31-02 Renewal Date Date

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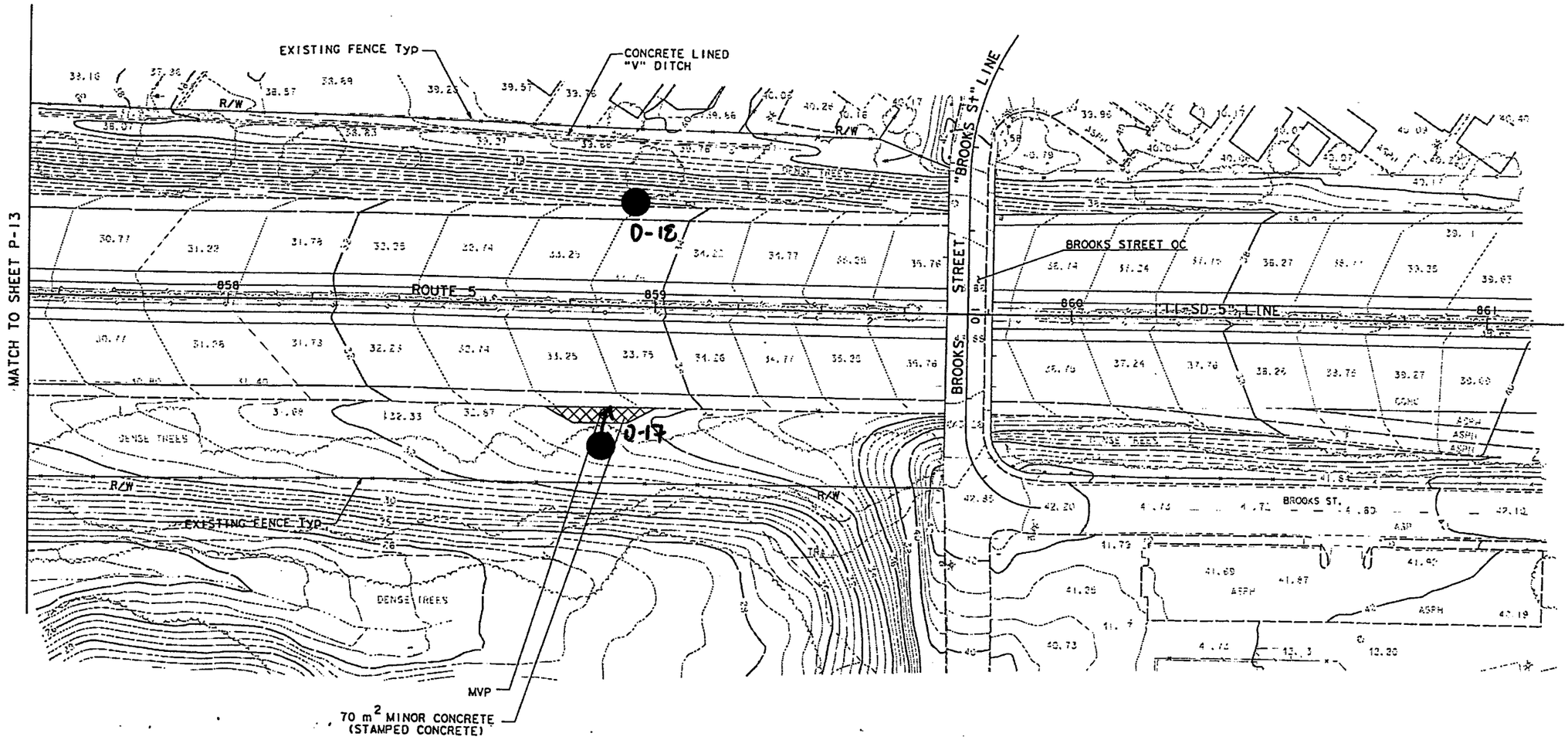

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SCALE 1:500

P-14

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans LANDSCAPE ARCHITECTURE

PROJECT LANDSCAPE ARCHITECT STEPHEN WARREN

LAST REVISION 01-31-01

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TIME PLOTTED => 08:52:48

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USERNAME => $(USER)
DGN FILE => ...\b23960p14.dgn

CU 11342

EA 239601

Table 2: Summary of Analytical Results - Total Lead and Soluble Lead

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
C-1	0.15	64	4.3	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-2	0.15	360	27	NA
	0.3	77	1.8	NA
	0.6	94	5.5	NA
C-3	0.15	11	NA	NA
	0.3	18	NA	NA
	0.6	ND	NA	NA
C-4	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-5	0.15	81	4.1	NA
	0.3	9.8	NA	NA
	0.6	7.4	NA	NA
C-6	0.15	9.6	NA	NA
	0.3	12	NA	NA
	0.6	ND	NA	NA
C-7	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-8	0.15	95	4.1	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-9	0.15	5.4	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-10	0.15	ND	NA	NA
	0.3	ND	NA	NA
C-11	0.15	9.2	NA	NA
	0.3	19	NA	NA
C-12	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-13	0.15	180	5.5	ND
	0.3	91	5.9	0.24
	0.6	38	NA	NA
C-14	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	12	NA	NA

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
B-30	0.15	19	NA	NA
	0.3	8.8	NA	NA
	0.6	ND	NA	NA
C-31	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-32	0.15	49	NA	NA
	0.3	35	NA	NA
	0.6	44	NA	NA
C-33	0.15	17	NA	NA
	0.3	12	NA	NA
	0.6	25	NA	NA
C-34	0.15	55	1	NA
	0.3	73	0.92	NA
	0.6	ND	NA	NA
C-35	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	11	NA	NA
C-36	0.15	40	NA	NA
	0.3	51	8.9	ND
C-37	0.15	360	13	ND
	0.3	36	NA	NA
	0.6	61	12	ND
C-38	0.15	9.8	NA	NA
	0.3	ND	NA	NA
	0.6	14	NA	NA
C-39	0.15	9.8	NA	NA
	0.3	25	NA	NA
	0.6	76	2.2	NA
C-40	0.15	130	18	ND
	0.3	55	2.9	NA
	0.6	24	NA	NA
C-41	0.15	ND	NA	NA
	0.3	5	NA	NA
	0.6	ND	NA	NA
C-42	0.15	31	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-43	0.15	570	14	0.2
	0.3	26	NA	NA
C-44	0.15	110	18	ND
	0.3	8.2	NA	NA
	0.6	21	NA	NA

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
C-60	0.15	12	NA	NA
	0.3	ND	NA	NA
	0.6	8.1	NA	NA
C-61	0.15	130	9.5	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-62	0.15	120	9	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-63	0.15	280	31	ND
	0.3	190	13	ND
	0.6	ND	NA	NA
C-64	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-65	0.15	15	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-66	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	81	5.2	1.2
C-67	0.15	14	NA	NA
	0.3	14	NA	NA
	0.6	9.3	NA	NA
C-68	0.15	7.5	NA	NA
	0.3	ND	NA	NA
	0.6	6	NA	NA
C-69	0.15	7.8	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-70	0.15	190	12	1
	0.3	5	NA	NA
	0.6	ND	NA	NA
C-71	0.15	6.5	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-72	0.15	24	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-73	0.15	260	30	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA

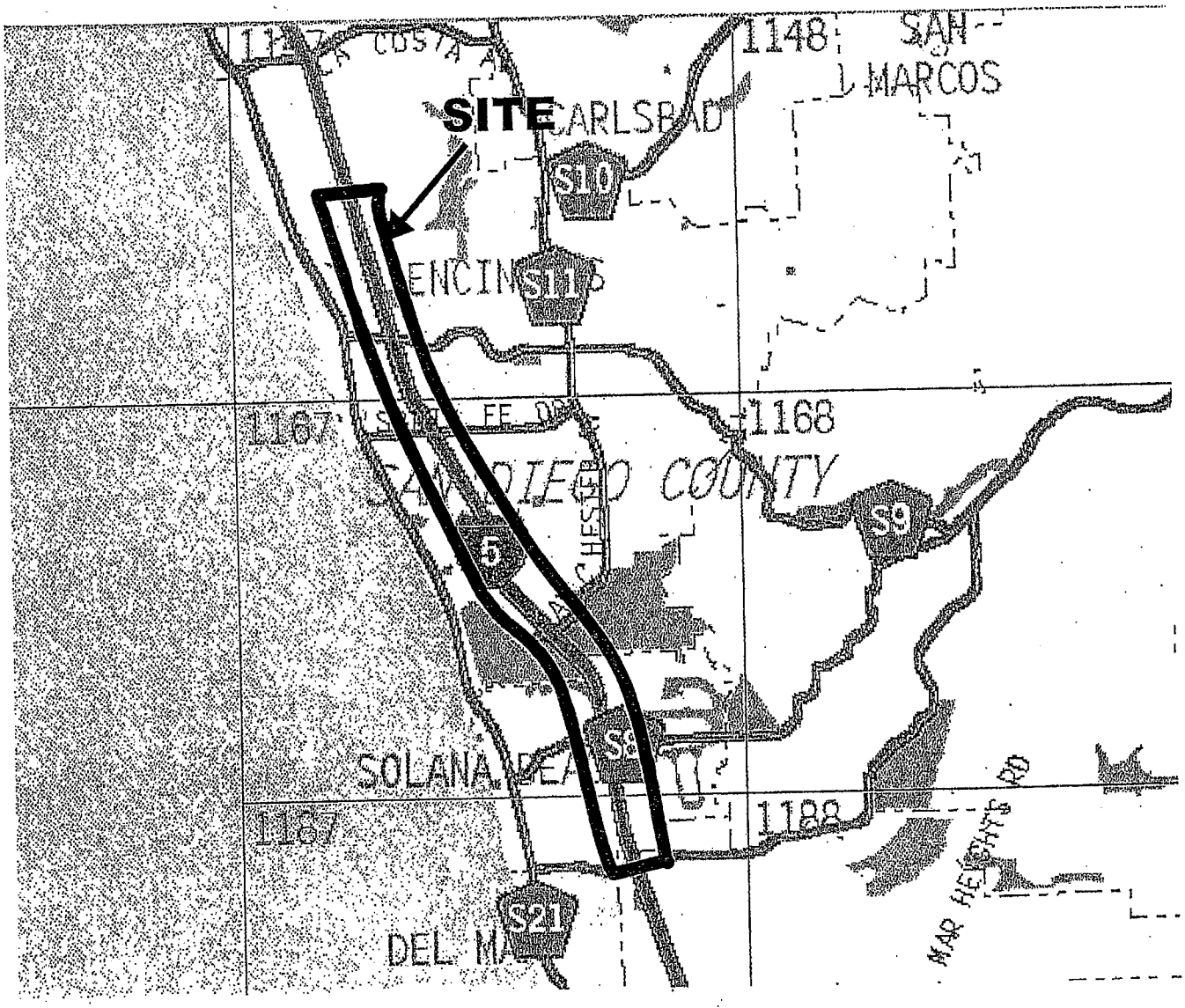
Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
C-89	0.15	ND	NA	NA
	0.3	5.7	NA	NA
C-90	0.15	200	14	ND
	0.3	8.6	NA	NA
	0.6	ND	NA	NA
C-91	0.15	ND	NA	NA
	0.3	6.9	NA	NA
	0.6	ND	NA	NA
C-92	0.15	130	14	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-93	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-94	0.15	9.5	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-95	0.15	250	28	ND
	0.3	620	74	0.27
	0.6	560	56	0.41
C-96	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-97	0.15	7.5	NA	NA
	0.3	44	NA	NA
	0.6	12	NA	NA
C-98	0.15	68	5.4	2.6
	0.3	61	4.4	NA
C-99	0.15	49	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-100	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	9.9	NA	NA
C-101	0.15	64	5.2	ND
	0.3	35	NA	NA
	0.6	31	NA	NA
C-102	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	5.2	NA	NA
C-103	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
C-119	0.15	5	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-120	0.15	ND	NA	NA
	0.3	55	3.5	NA
	0.6	ND	NA	NA
C-121	0.15	51	3.4	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-122	0.15	120	7.2	ND
	0.3	5.2	NA	NA
	0.6	12	NA	NA
C-123	0.15	6.5	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-124	0.15	43	NA	NA
	0.3	7.9	NA	NA
	0.6	ND	NA	NA
C-125	0.15	13	NA	NA
	0.3	ND	NA	NA
	0.6	71	5.9	ND
C-126	0.15	33	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-127	0.15	7.5	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
C-128	0.15	ND	NA	NA
	0.3	55	8.2	ND
	0.6	ND	NA	NA
C-129	0.15	6.1	NA	NA
	0.3	40	NA	NA
	0.6	ND	NA	NA
C-130	0.15	ND	NA	NA
	0.3	16	NA	NA
	0.6	13	NA	NA
C-131	0.15	19	NA	NA
	0.3	ND	NA	NA
	0.6	110	6.2	0.44
C-132	0.15	7.1	NA	NA
	0.3	ND	NA	NA
	0.6	95	10	ND

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
D-1	0.15	170	24	ND
	0.3	ND	NA	NA
	0.6	300	25	ND
D-2	0.15	1000	130	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-3	0.15	41	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-4	0.15	36	NA	NA
	0.3	16	NA	NA
	0.6	31	NA	NA
D-5	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-6	0.15	5.6	NA	NA
	0.3	7.2	NA	NA
	0.6	ND	NA	NA
D-7	0.15	ND	NA	NA
	0.3	11	NA	NA
	0.6	11	NA	NA
D-8	0.15	6.7	NA	NA
	0.3	5	NA	NA
	0.6	ND	NA	NA
D-9	0.15	12	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-10	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-11	0.15	280	15	ND
	0.3	ND	NA	NA
	0.6	ND	NA	NA
D-12	0.15	41	NA	NA
	0.3	57	5.6	ND
	0.6	120	9.4	ND
D-13	0.15	350	24	ND
	0.3	ND	NA	NA
	0.6	22	NA	NA
D-14	0.15	ND	NA	NA
	0.3	ND	NA	NA
	0.6	16	NA	NA

Sample ID	Depth (m)	Lead Concentration (mg/kg)	Citric Acid Lead Concentration (mg/L)	De-Ionized Water Lead Concentration (mg/L)
D-30	0.15	7.2	NA	NA
	0.3	27	NA	NA
	0.6	ND	NA	NA
D-31	0.15	11	NA	NA
	0.3	ND	NA	NA
	0.6	42	NA	NA
D-32	0.15	17	NA	NA
	0.3	13	NA	NA
	0.6	14	NA	NA
D-33	0.15	24	NA	NA
	0.3	37	NA	NA
	0.6	ND	NA	NA
D-34	0.15	ND	NA	NA
	0.3	11	NA	NA
	0.6	ND	NA	NA

ND = Non-Detect
NA = Not Analyzed



SOURCE: 2001 THOMAS BROTHERS MAP
SAN DIEGO COUNTY, CALIFORNIA

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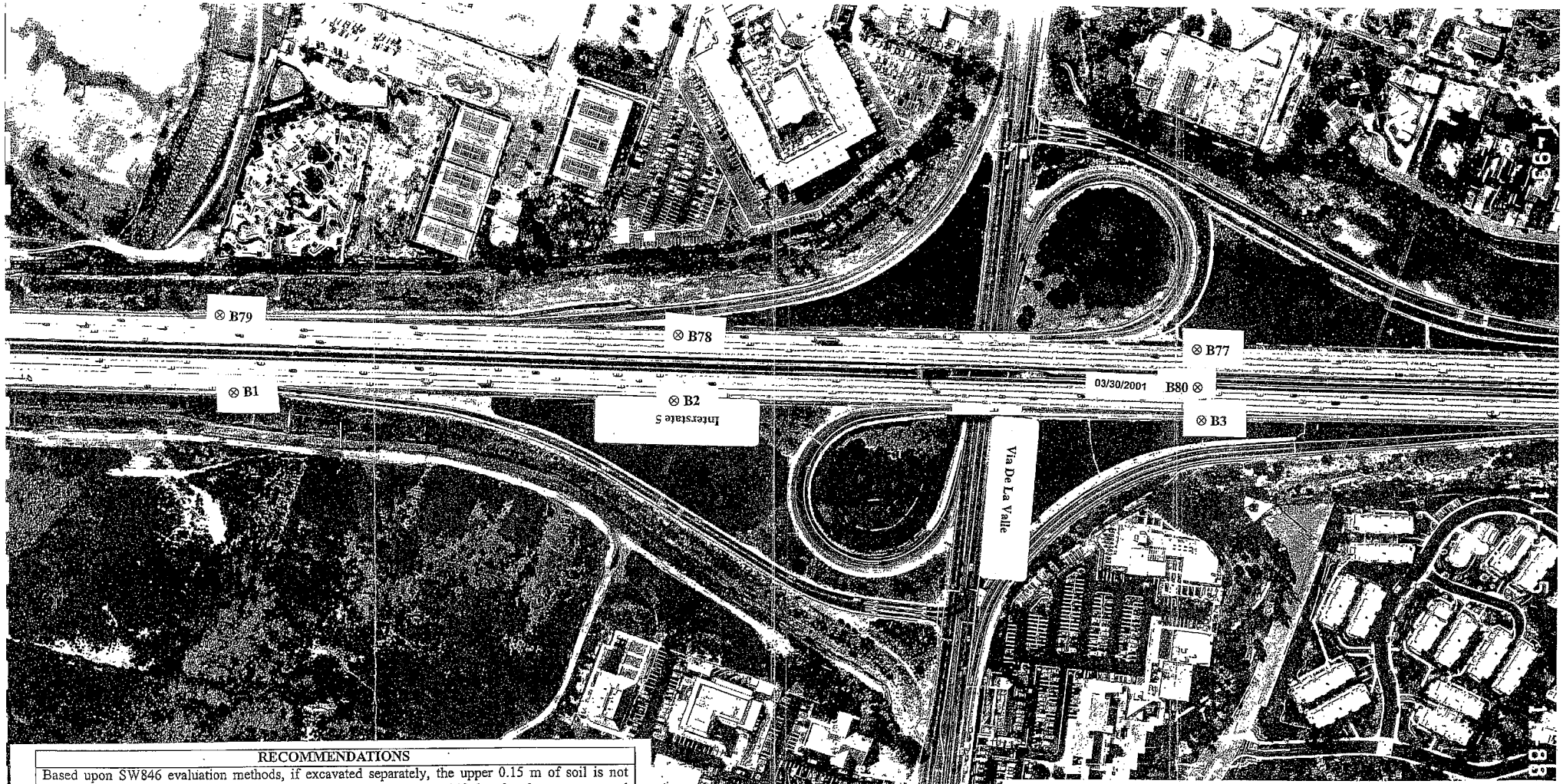
RCO/SC	VM-Rt 5 VDLV to Leucadia-107-052401

VICINITY MAP

ROUTE 5, VIA DE LA VALLE
TO LEUCADIA BOULEVARD
SAN DIEGO, SOLANA BEACH, AND
ENCINITAS, CALIFORNIA

DATE 6-22-2001	PROJECT NO. 08900-06-107	FIG. 1



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BORING LOCATION PLAN

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PROJECT NO. 08900-06-107
FIGURE 2, PLATE 1
DATE: 6-22-2001

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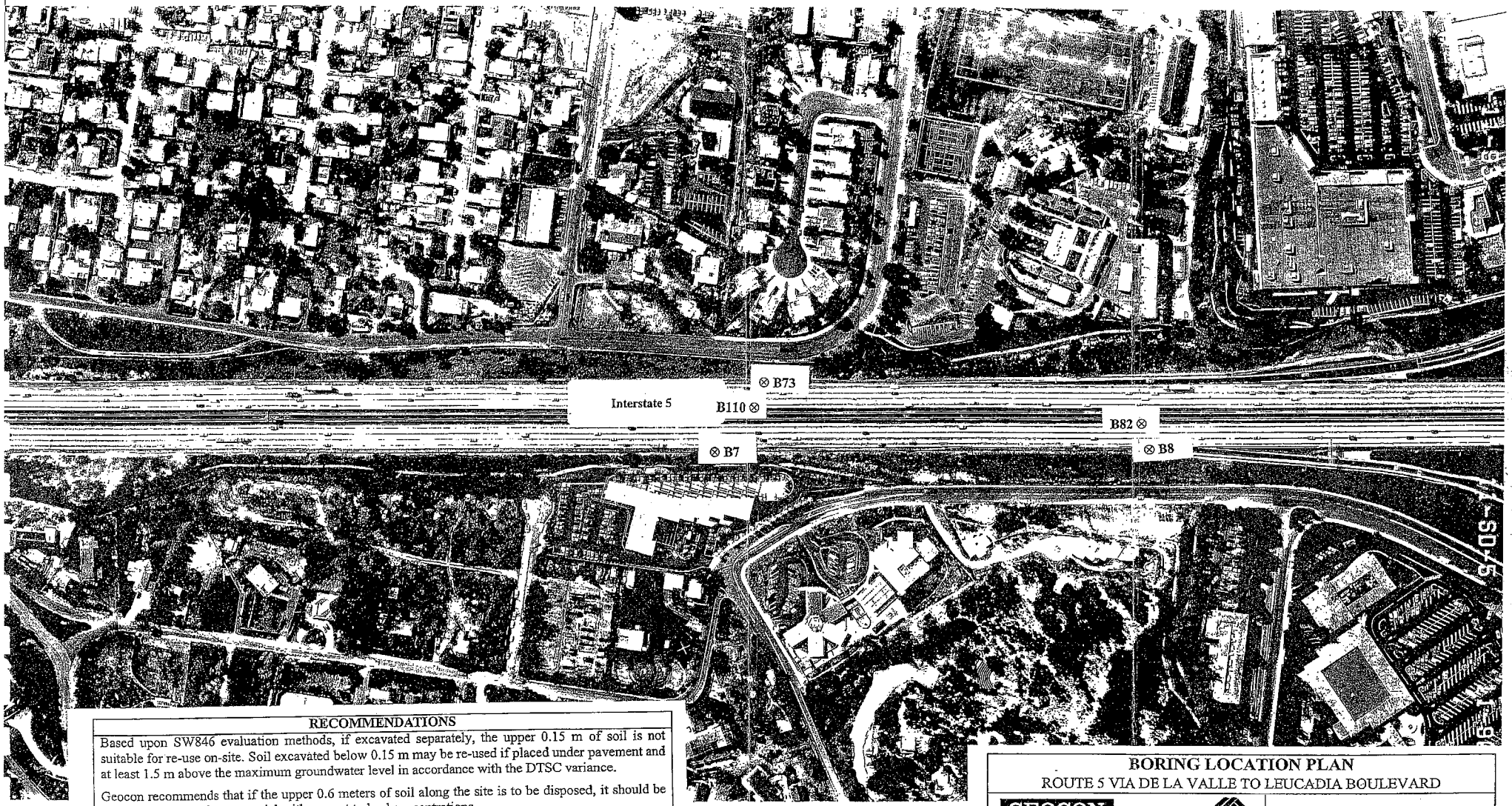
PROJECT NO. 08900-06-107

FIGURE 2, PLATE 2

DATE: 6-22-2001



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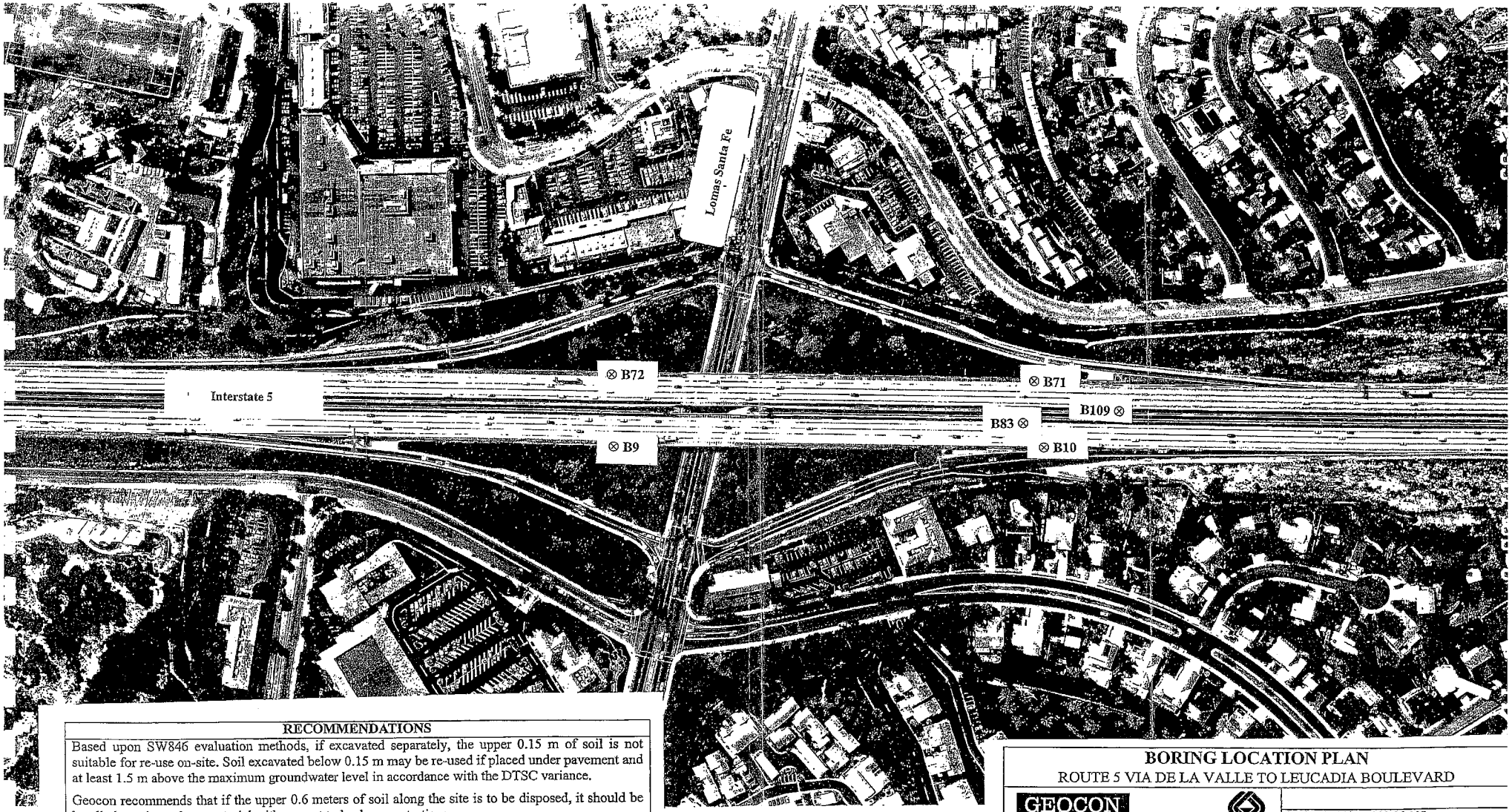
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 3
DATE: 6-22-2001



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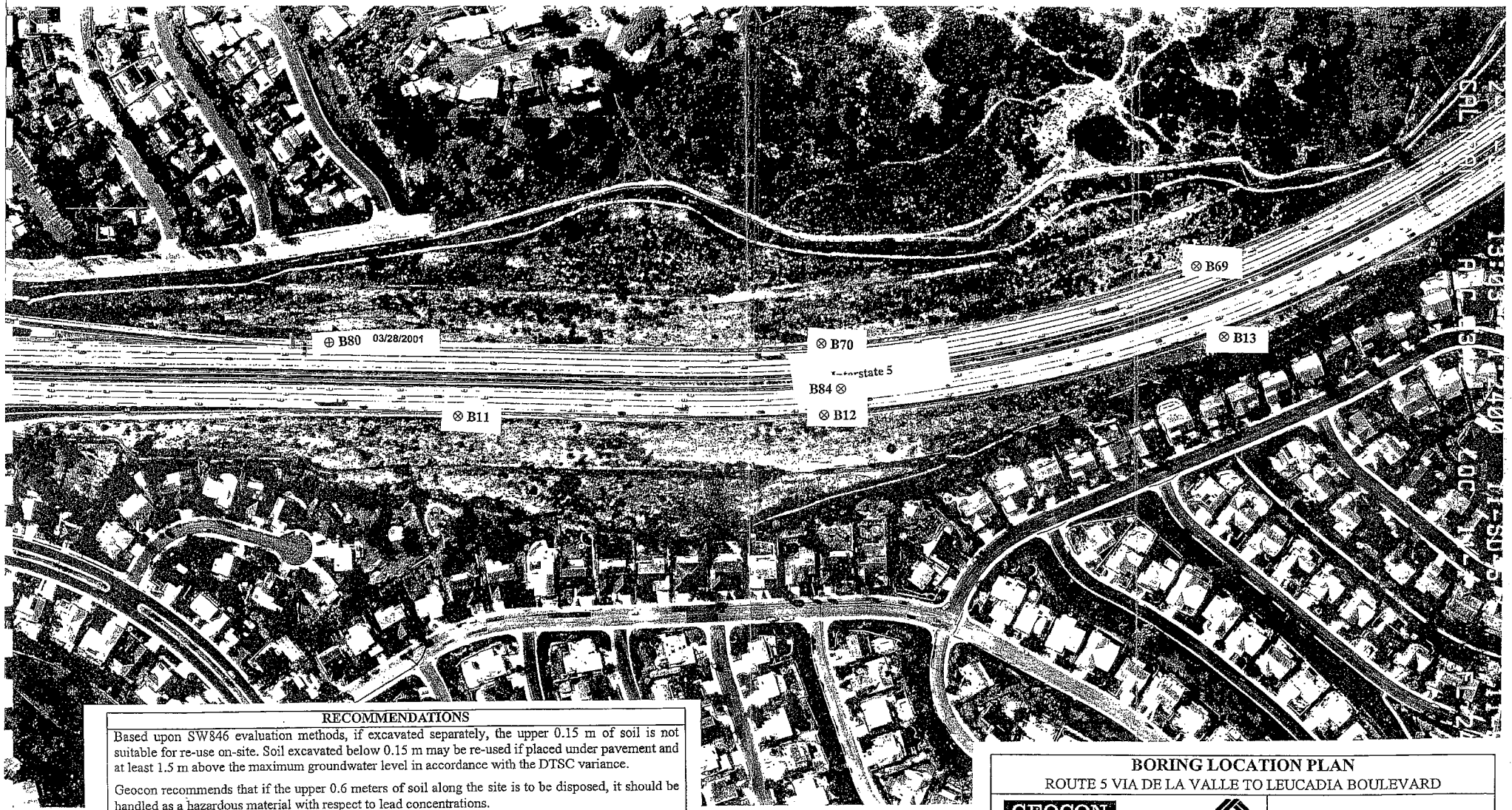
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 4
DATE: 6-22-2001



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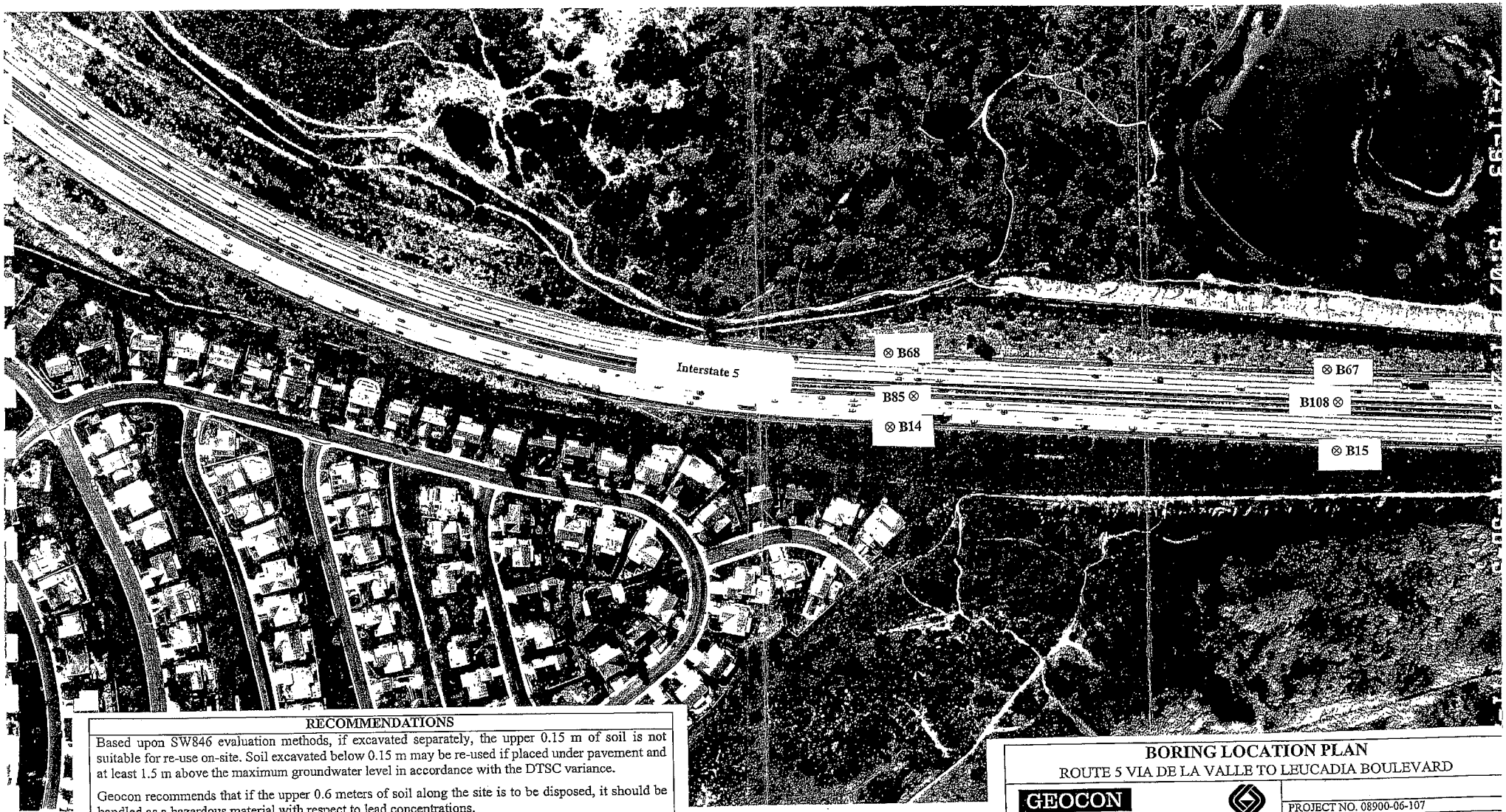
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 5
DATE: 6-22-2001



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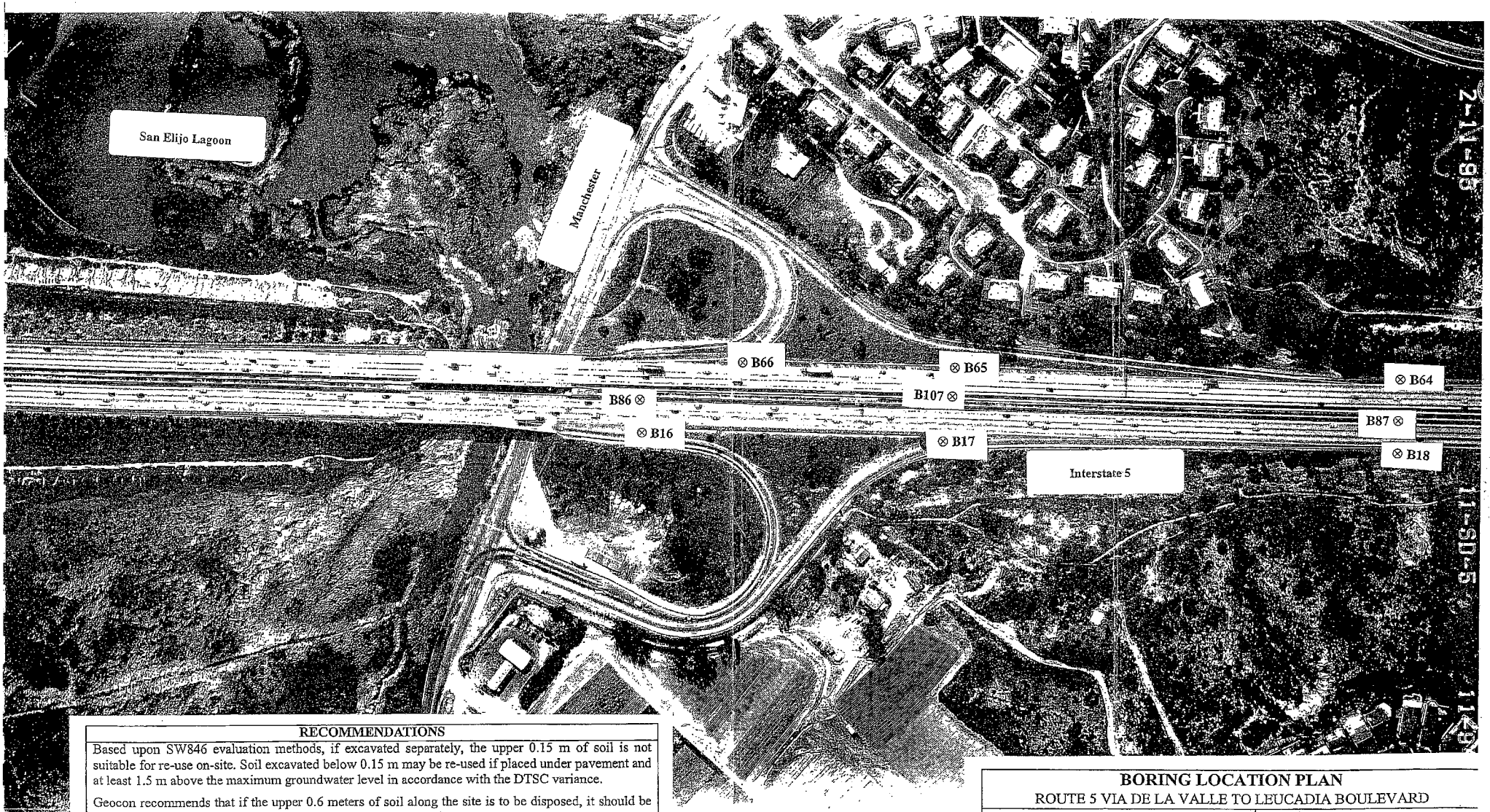
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 6
DATE: 6-22-2001



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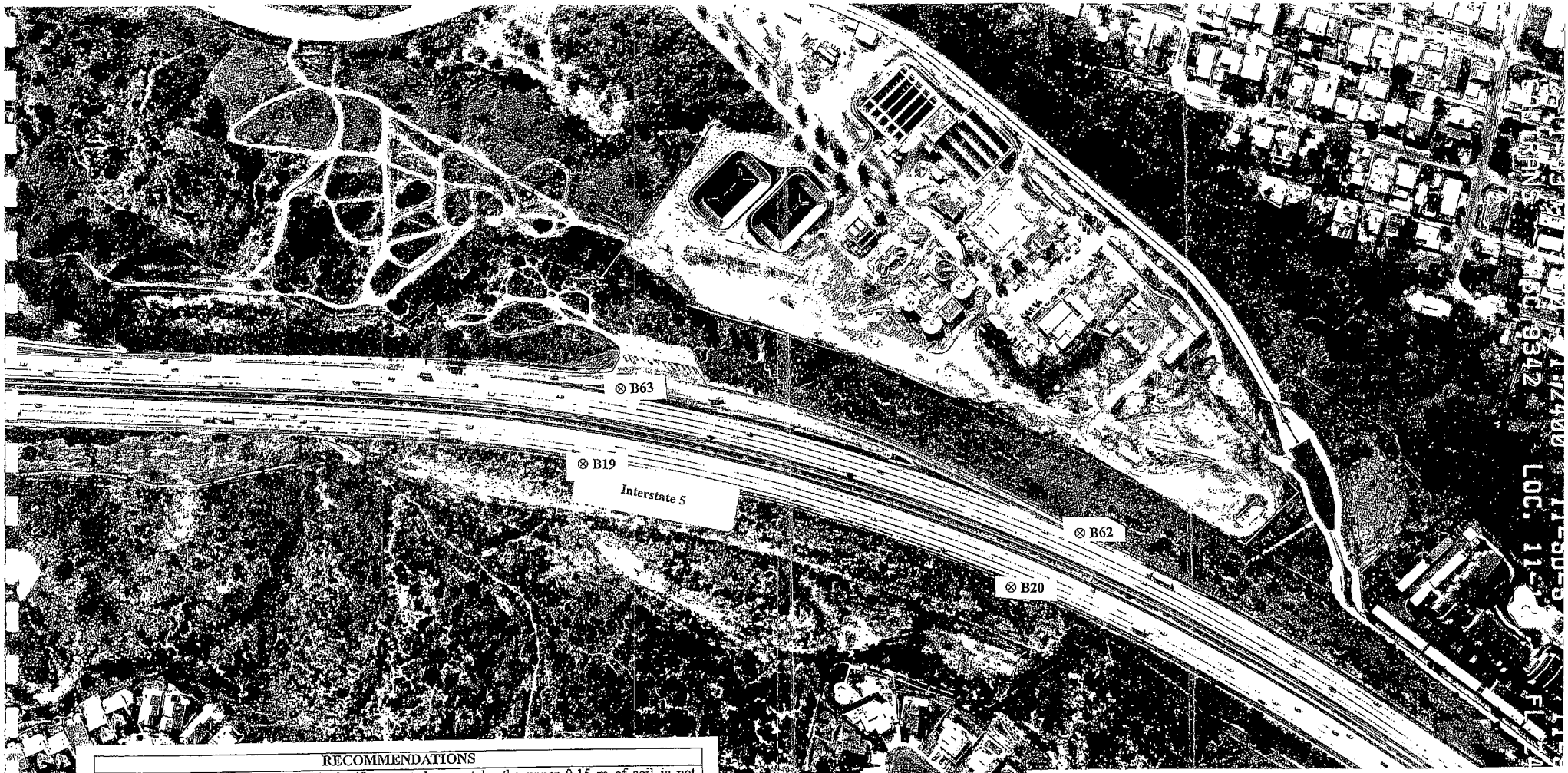
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 7
DATE: 5-22-2001



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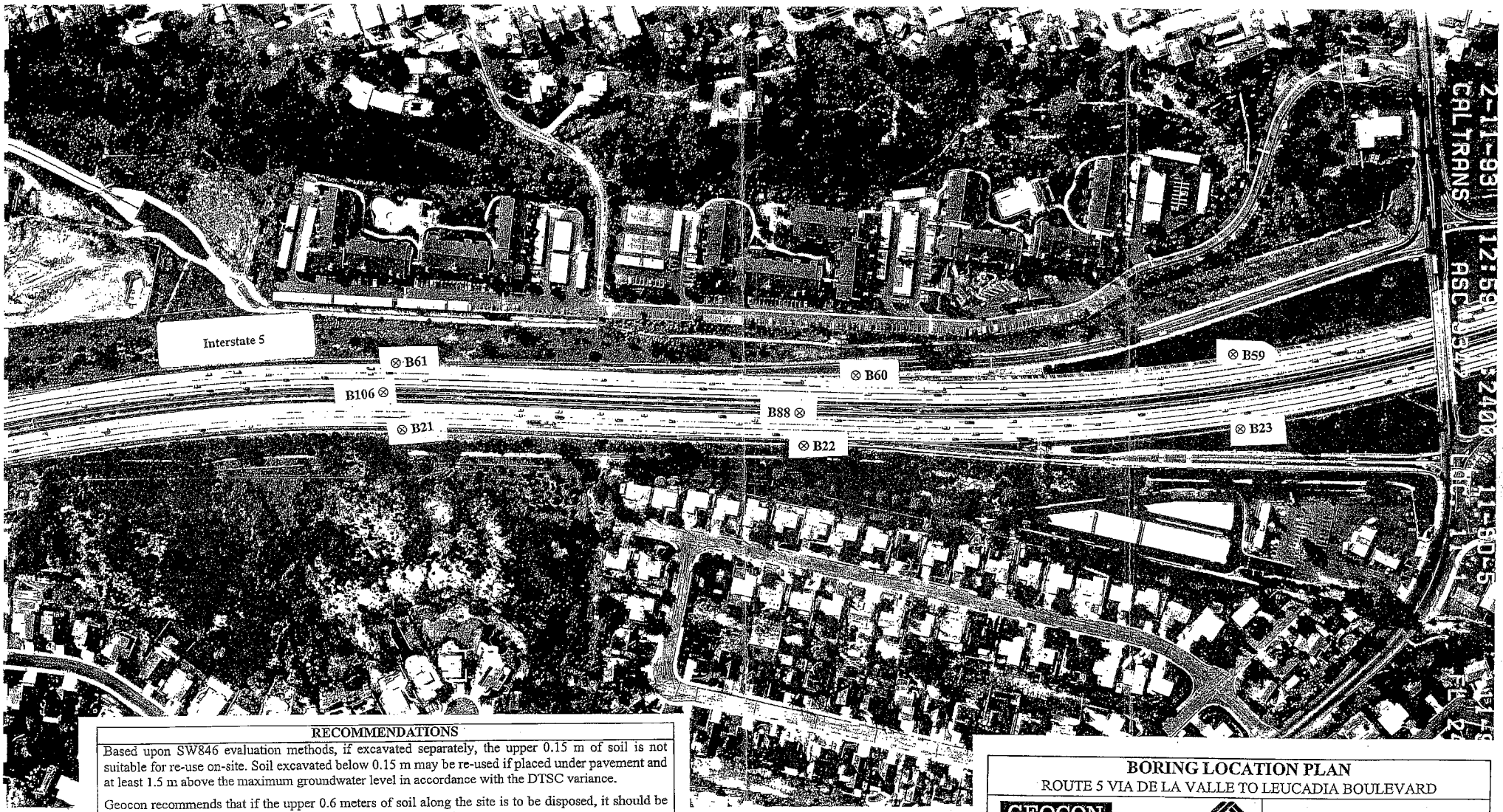
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 8
DATE: 6-22-2001



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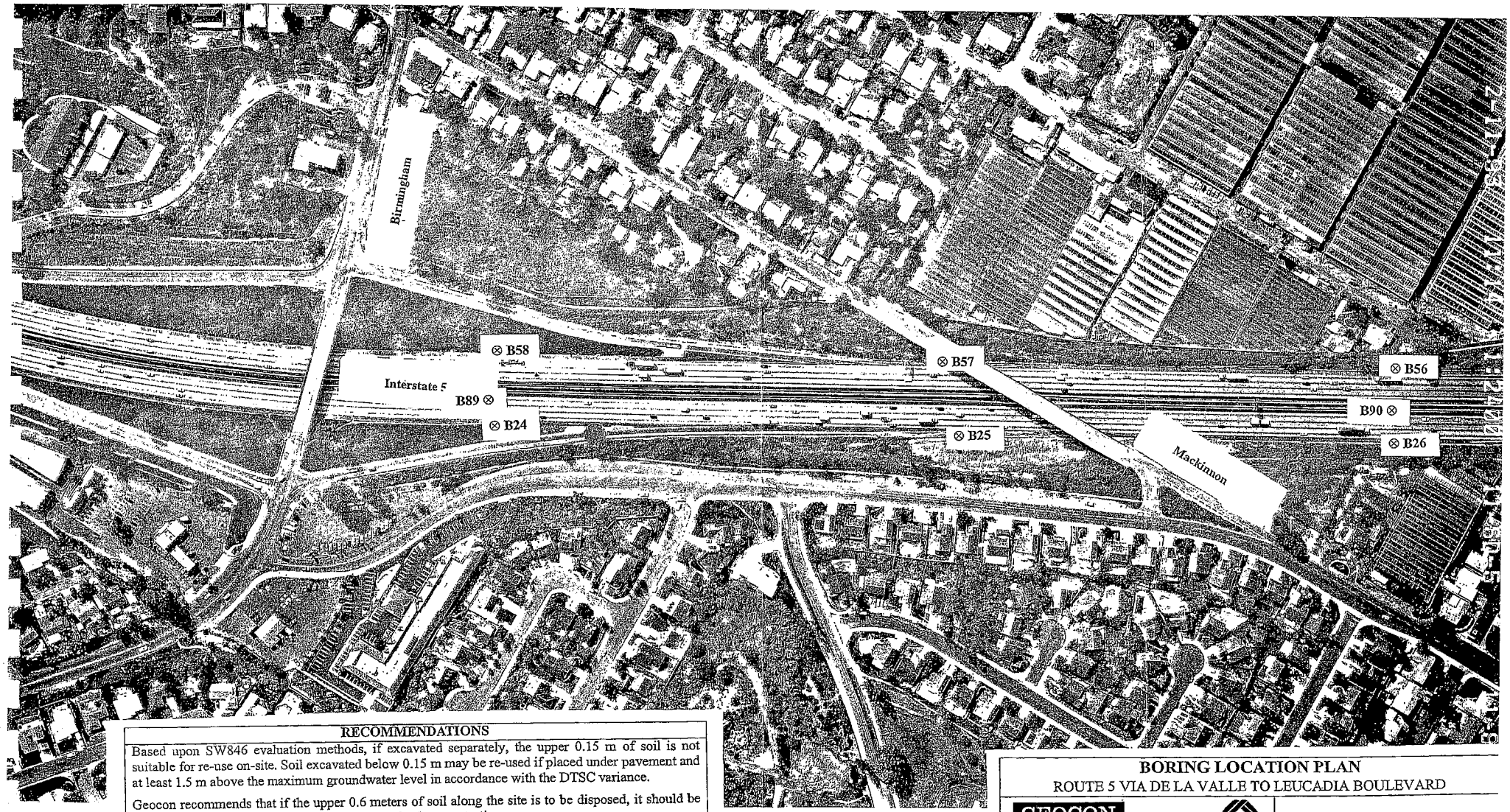
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 9
DATE: 6-22-2001



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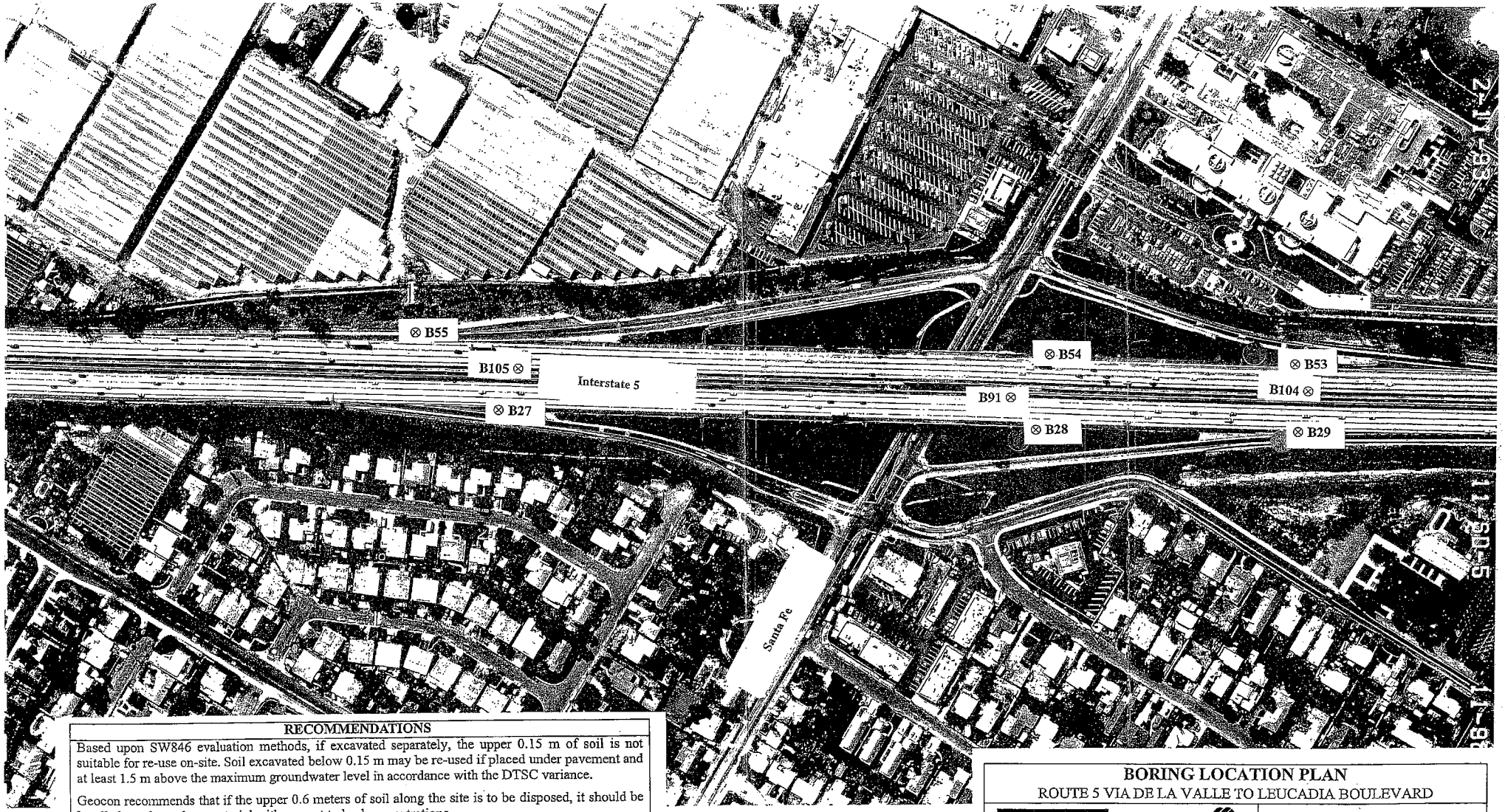
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 10
DATE: 6-22-2001



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PROJECT NO. 08900-06-107
FIGURE 2, PLATE 11
DATE: 6-22-2001

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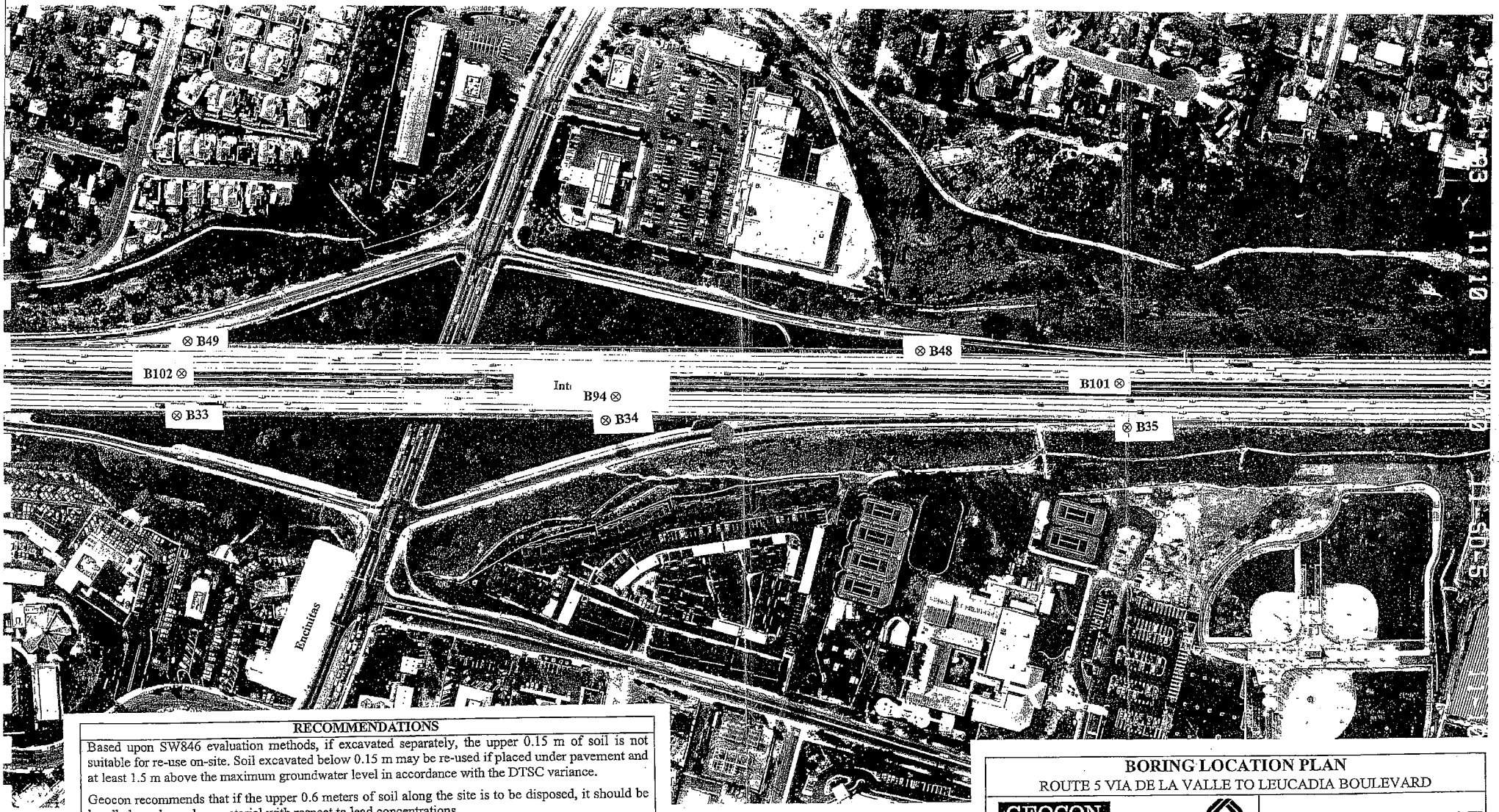
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 12
DATE: 6-22-2001



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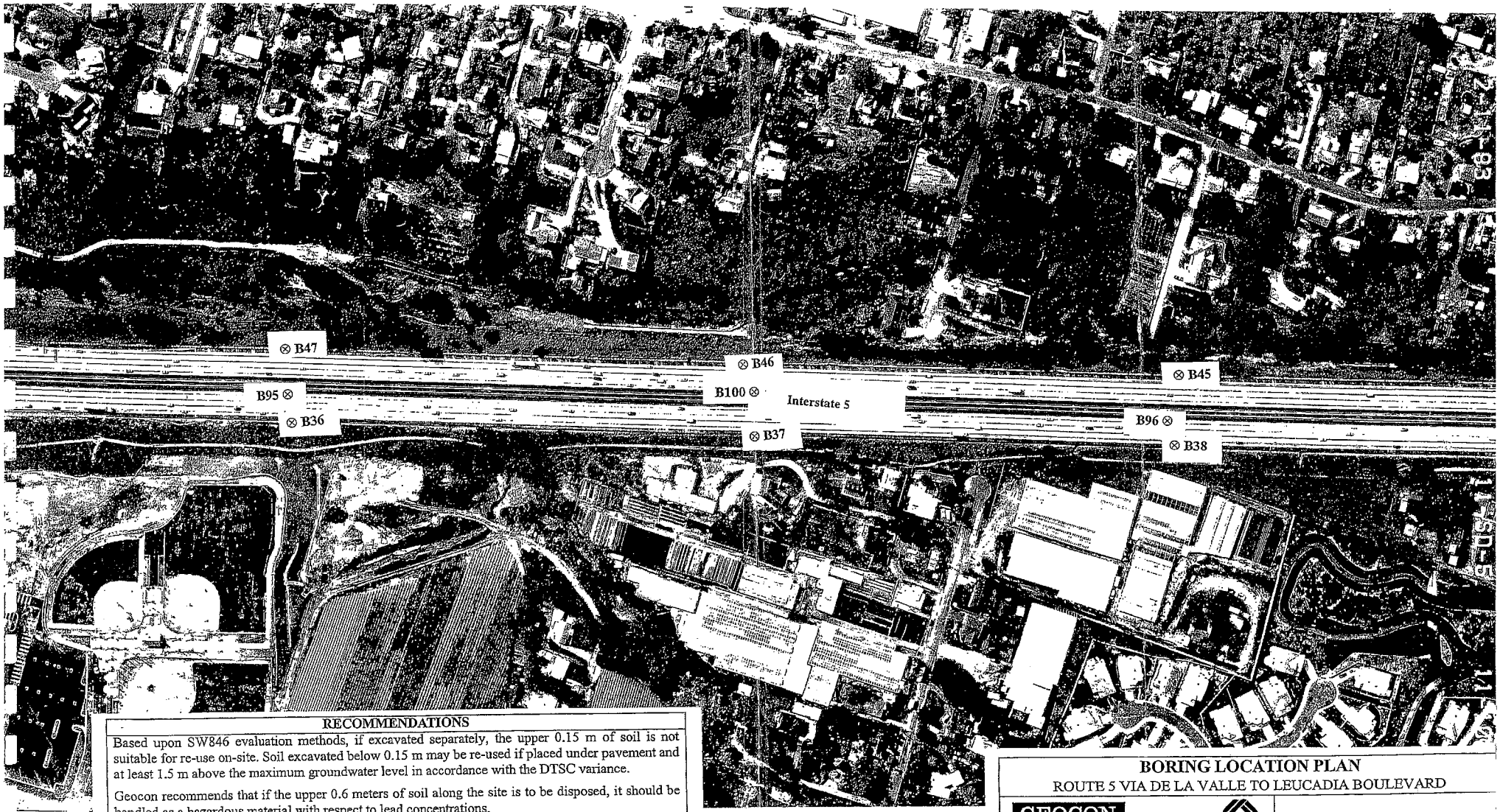
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 13
DATE: 6-22-2001



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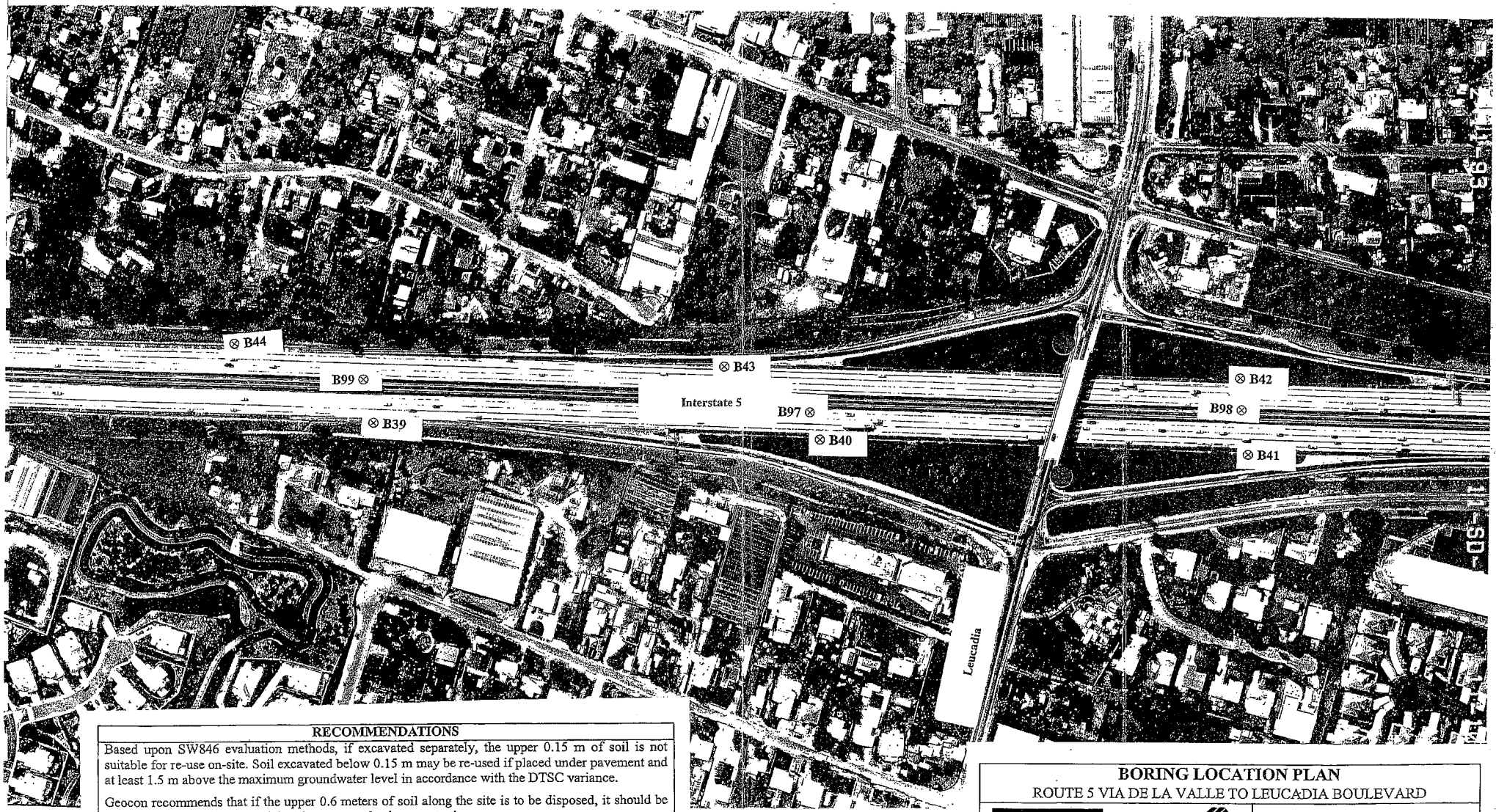
PROJECT NO. 08900-06-107
FIGURE 2, PLATE 14
DATE: 6-22-2001



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BORING LOCATION PLAN

ROUTE 5 VIA DE LA VALLE TO LEUCADIA BOULEVARD

GEOCON
CONSULTANTS, INC
ENVIRONMENTAL ■ GEOTECHNICAL ■ MATERIALS
6970 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6100 - FAX 858 558-8437

PROJECT NO. 08900-06-107
FIGURE 2, PLATE 15
DATE: 6-22-2001

TABLE I
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B1-S	0.15	39	---	---	7.9
B1-1	0.3	9.0	---	---	---
B1-2	0.6	3.0	---	---	---
B2-S	0.15	1123	---	---	---
B2-1	0.3	10	---	---	---
B2-2	0.6	7.0	---	---	---
B3-S	0.15	1848	---	---	---
B3-1	0.3	27	---	---	---
B4-S	0.15	61	2.7	---	---
B4-1	0.3	52	2.2	---	---
B5-S	0.15	ND	---	---	5.6
B5-1	0.3	ND	---	---	---
B5-2	0.6	3.0	---	---	---
B6-S	0.15	401	30	0.22	---
B6-1	0.3	10	---	---	---
B6-2	0.6	5.0	---	---	---
B7-S	0.15	321	23	0.31	---
B7-1	0.3	6.0	---	---	---
B7-2	0.6	3.0	---	---	---
B8-S	0.15	166	16	0.61	---
B8-1	0.3	7.0	---	---	---
B8-2	0.6	ND	---	---	9.1
B9-S	0.15	998	54	0.47	---
B9-1	0.3	34	---	---	---
B9-2	0.6	18	---	---	---
B10-S	0.15	285	13	0.48	---
B10-1	0.3	8.0	---	---	---
B10-2	0.6	ND	---	---	---
B11-S	0.15	105	7.7	0.35	---
B11-1	0.3	ND	---	---	---
B11-2	0.6	4.0	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B12-S	0.15	12	---	---	---
B12-1	0.3	9.0	---	---	5.3
B13-S	0.15	27	---	---	---
B13-1	0.3	6.0	---	---	---
B13-2	0.6	3.0	---	---	---
B14-S	0.15	504	57	1.6	---
B14-1	0.3	23	---	---	---
B14-2	0.6	4.0	---	---	---
B15-S	0.15	50	---	0.27	7.6
B15-1	0.3	ND	---	---	---
B15-2	0.6	ND	---	---	---
B16-S	0.15	1074	---	---	---
B16-1	0.3	ND	---	---	8.1
B16-2	0.6	ND	---	---	---
B17-S	0.15	8.0	---	---	---
B17-1	0.3	ND	---	---	---
B17-2	0.6	ND	---	---	---
B18-S	0.15	44	---	---	---
B18-1	0.3	5.0	---	---	---
B19-S	0.15	112	6.6	0.16	---
B19-1	0.3	24	---	---	---
B20-S	0.15	ND	---	---	---
B20-1	0.3	ND	---	---	---
B20-2	0.6	ND	---	---	7.9
B21-S	0.15	108	5.6	0.78	---
B21-1	0.3	ND	---	---	---
B21-2	0.6	ND	---	---	---
B22-S	0.15	129	9.9	0.65	---
B22-1	0.3	ND	---	---	---
B22-2	0.6	18	---	---	---
B23-S	0.15	276	13	ND	---
B23-1	0.3	33	---	---	---
B23-2	0.6	ND	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B24-S	0.15	34	---	---	---
B24-1	0.3	ND	---	---	6.3
B24-2	0.6	ND	---	---	---
B25-S	0.15	21	---	---	---
B25-1	0.3	ND	---	---	---
B26-S	0.15	743	49	0.46	---
B26-1	0.3	ND	---	---	---
B26-2	0.6	ND	---	---	---
B27-S	0.15	460	32	0.74	---
B27-1	0.3	ND	---	---	---
B27-2	0.6	ND	---	---	---
B28-S	0.15	472	20	1.1	---
B28-1	0.3	ND	---	---	4.6
B28-2	0.6	ND	---	---	---
B29-S	0.15	798	68	3.6	---
B29-1	0.3	1.0	---	---	---
B29-2	0.6	8.0	---	---	---
B30-S	0.15	ND	---	---	---
B30-1	0.3	393	69	6.1	---
B30-2	0.6	ND	---	---	---
B32-S	0.15	73	5.4	0.28	---
B32-1	0.3	ND	---	---	---
B32-2	0.6	ND	---	---	---
B33-S	0.15	300	30	1.9	7.7
B33-1	0.3	210	14	0.27	---
B33-2	0.6	397	36	1.3	---
B34-S	0.15	181	16	0.56	---
B34-1	0.3	5.0	---	---	---
B34-2	0.6	ND	---	---	---
B35-S	0.15	589	50	4.5	---
B35-1	0.3	ND	---	---	---
B35-2	0.6	6.0	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B36-S	0.15	739	46	3.7	---
B36-1	0.3	123	14	2.3	---
B36-2	0.6	120	7.8	0.91	6.5
B37-S	0.15	235	23	1.4	---
B37-1	0.3	ND	---	---	---
B37-2	0.6	ND	---	---	---
B38-S	0.15	924	65	2.0	---
B38-1	0.3	ND	---		---
B38-2	0.6	5.0	---	---	---
B39-S	0.15	387	29	2.3	---
B39-1	0.3	11	---	---	---
B39-2	0.6	ND	---	---	---
B40-S	0.15	18	---	---	---
B40-1	0.3	5.0	---	---	---
B40-2	0.6	ND	---	---	4.8
B41-S	0.15	124	6.1	0.21	---
B41-1	0.3	150	6.6	0.88	---
B41-2	0.6	ND	---	---	---
B42-S	0.15	50	---	---	4.3
B42-1	0.3	15	---	---	---
B42-2	0.6	ND	---	---	---
B43-S	0.15	ND	---	---	---
B43-1	0.3	ND	---	---	---
B43-2	0.6	ND	---	---	---
B44-S	0.15	332	20	2.1	---
B44-1	0.3	63	12	ND	---
B44-2	0.6	ND	---	---	5.8
B45-S	0.15	902	57	2.7	---
B45-1	0.3	15	---	---	---
B45-2	0.6	ND	---	---	---
B46-S	0.15	669	50	1.2	---
B46-1	0.3	ND	---	---	---
B46-2	0.6	ND	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B47-S	0.15	9.0	---	---	---
B47-1	0.3	ND	---	---	---
B47-2	0.6	ND	---	---	---
B48-S	0.15	133	9.5	ND	---
B48-1	0.3	ND	---	---	4.9
B48-2	0.6	ND	---	---	---
B49-S	0.15	544	54	1.8	---
B49-1	0.3	3.0	---	---	---
B49-2	0.6	ND	---	---	---
B50-S	0.15	40	---	---	---
B50-1	0.3	174	13	ND	---
B50-2	0.6	112	10	ND	---
B51-S	0.15	92	7.4	0.68	---
B51-1	0.3	278	21	1.1	---
B52-S	0.15	561	38	2.8	6.8
B52-1	0.3	51	7.2	0.22	---
B52-2	0.6	ND	---	---	---
B53-S	0.15	179	13	0.2	---
B53-1	0.3	15	---	---	---
B53-2	0.6	ND	---	---	---
B54-S	0.15	45	---	---	---
B54-1	0.3	ND	---	---	---
B54-2	0.6	ND	---	---	---
B55-S	0.15	626	65	4.0	---
B55-1	0.3	7.0	---	---	4.6
B55-2	0.6	5.0	---	---	---
B56-S	0.15	388	18	1.6	---
B56-1	0.3	ND	---	---	---
B56-2	0.6	ND	---	---	---
B57-S	0.15	23	---	---	---
B57-1	0.3	ND	---	---	---
B57-2	0.6	ND	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B58-S	0.15	147	4.8	---	---
B58-1	0.3	ND	---	---	---
B58-2	0.6	ND	---	---	5.6
B59-S	0.15	284	36	0.45	---
B59-1	0.3	77	4.4	---	---
B59-2	0.6	ND	---	---	---
B60-S	0.15	5.0	---	---	---
B60-1	0.3	ND	---	---	---
B60-2	0.6	ND	---	---	---
B62-S	0.15	283	18	0.75	---
B62-1	0.3	ND	---	---	---
B62-2	0.6	ND	---	---	---
B63-S	0.15	36	---	---	7.4
B63-1	0.3	ND	---	---	---
B63-2	0.6	ND	---	---	---
B64-S	0.15	279	20	ND	---
B64-1	0.3	ND	---	---	---
B65-S	0.15	600	35	0.85	---
B65-1	0.3	ND	---	---	---
B65-2	0.6	ND	---	---	---
B66-S	0.15	860	73	ND	---
B66-1	0.3	ND	---	---	---
B67-S	0.15	373	38	0.78	5.7
B67-1	0.3	ND	---	---	---
B67-2	0.6	ND	---	---	---
B68-S	0.15	339	44	0.69	---
B68-1	0.3	ND	---	---	---
B68-2	0.6	ND	---	---	7.9
B69-S	0.15	18	---	---	---
B69-1	0.3	7.0	---	---	---
B70-S	0.15	21	---	---	---
B70-1	0.3	7.0	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B71-S	0.15	802	53	0.23	---
B71-1	0.3	23	---	---	---
B71-2	0.6	10	---	---	3.9
B72-S	0.15	394	15	ND	---
B72-1	0.3	24	---	---	---
B72-2	0.6	11	---	---	---
B73-S	0.15	194	15	ND	---
B73-1	0.3	7.0	---	---	---
B73-2	0.6	9.0	---	---	---
B74-S	0.15	169	8.9	ND	---
B74-1	0.3	8.0	---	---	---
B74-2	0.6	10	---	---	---
B75-S	0.15	226	16	ND	5.8
B75-1	0.3	6.0	---	---	---
B76-S	0.15	98	8.5	ND	---
B76-1	0.3	83	4.3	ND	---
B77-S	0.15	351	23	2.0	---
B77-1	0.3	45	---	---	---
B77-2	0.6	25	---	---	---
B78-S	0.15	654	21	ND	---
B78-1	0.3	27	---	---	---
B78-2	0.6	7.0	---	---	---
B79-S	0.15	50	---	---	7.4
B79-1	0.3	7.0	---	---	---
B79-2	0.6	9.0	---	---	8.4
B80-S 03/28/01	0.15	204	15	ND	---
B80-1 03/28/01	0.3	7.0	---	---	---
B80-2 03/28/01	0.6	21	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B80-S 03/30/01	0.15	702	90	2.8	---
B80-1 03/30/01	0.3	9.0	---	---	---
B80-2 03/30/01	0.6	8.0	---	---	---
B81-S	0.15	2128	---	---	---
B81-1	0.3	12	---	---	---
B81-2	0.6	17	---	---	7.4
B82-S	0.15	401	76	0.23	---
B82-1	0.3	10	---	---	---
B82-2	0.6	13	---	---	---
B83-S	0.15	1497	---	---	---
B83-1	0.3	14	---	---	---
B83-2	0.6	62	14	0.64	6.7
B84-S	0.15	ND	---	---	7.9
B84-1	0.3	ND	---	---	---
B84-2	0.6	ND	---	---	---
B85-S	0.15	ND	---	---	---
B85-1	0.3	ND	---	---	---
B85-2	0.6	ND	---	---	---
B86-S	0.15	180	16	0.95	---
B86-1	0.3	ND	---	---	---
B86-2	0.6	ND	---	---	---
B87-S	0.15	86	62	1.0	---
B87-1	0.3	ND	---	---	4.6
B87-2	0.6	ND	---	---	---
B88-S	0.15	820	89	15	---
B88-1	0.3	ND	---	---	---
B88-2	0.6	ND	---	---	---
B89-S	0.15	ND	---	---	---
B89-1	0.3	ND	---	---	---
B89-2	0.6	ND	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B90-S	0.15	840	14	9.5	---
B90-1	0.3	ND	---	---	---
B90-2	0.6	ND	---	---	7.9
B91-S	0.15	81	29	ND	---
B91-1	0.3	ND	---	---	---
B91-2	0.6	12	---	---	---
B92-S	0.15	11	---	---	---
B92-1	0.3	ND	---	---	---
B92-2	0.6	ND	---	---	---
B93-S	0.15	ND	---	---	---
B93-1	0.3	47	---	---	---
B94-S	0.15	10	---	---	---
B94-1	0.3	ND	---	---	8.2
B94-2	0.6	ND	---	---	---
B95-S	0.15	760	86	0.26	---
B95-1	0.3	79	13	1.5	---
B95-2	0.6	190	10	2.9	---
B96-S	0.15	ND	---	---	---
B96-1	0.3	ND	---	---	---
B96-2	0.6	ND	---	---	---
B97-S	0.15	20	---	---	---
B97-1	0.3	5.5	---	---	---
B97-2	0.6	ND	---	---	---
B98-S	0.15	ND	---	---	---
B98-1	0.3	ND	---	---	7.6
B98-2	0.6	ND	---	---	---
B99-S	0.15	2100	---	---	---
B99-1	0.3	ND	---	---	---
B99-2	0.6	5.0	---	---	---
B100-S	0.15	11	---	---	7.7
B100-1	0.3	ND	---	---	---
B100-2	0.6	ND	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Sample ID	Depth (meters)	Total Lead (mg/kg)	Soluble Lead WET Citric (mg/l)	Soluble Lead WET-DI (mg/l)	Soil pH
B101-S	0.15	180	69	7.3	---
B101-1	0.3	ND	---	---	---
B102-S	0.15	ND	---	---	---
B102-1	0.3	ND	---	---	---
B102-2	0.6	7.0	---	---	---
B103-S	0.15	32	---	---	---
B103-1	0.3	ND	---	---	---
B103-2	0.6	ND	---	---	---
B104-S	0.15	1200	---	---	---
B104-1	0.3	ND	---	---	---
B104-2	0.6	ND	---	---	8.1
B105-S	0.15	260	130	31	---
B105-1	0.3	ND	---	---	---
B105-2	0.6	ND	---	---	---
B106-S	0.15	54	7.2	1.7	---
B106-1	0.3	28	---	---	---
B106-2	0.6	40	---	---	---
B107-S	0.15	200	6.8	0.25	---
B107-1	0.3	5.5	---	---	---
B107-2	0.6	10	---	---	---
B108-S	0.15	16	---	---	7.4
B108-1	0.3	ND	---	---	---
B108-2	0.6	ND	---	---	---
B109-S	0.15	440	180	17	---
B109-1	0.3	ND	---	---	---
B109-2	0.6	ND	---	---	---
B110-S	0.15	270	26	2.1	---
B110-1	0.3	ND	---	---	---
B110-2	0.6	ND	---	---	---
B111-S	0.15	880	31	1.8	---
B111-1	0.3	ND	---	---	7.2
B111-2	0.6	11	---	---	---

TABLE I (continued)
SUMMARY OF ANALYTICAL LABORATORY RESULTS

Notes:

mg/kg	=	milligrams per kilogram
mg/l	=	milligrams per liter
---	=	analysis not performed
EPA	=	United States Environmental Protection Agency
Total Lead	=	Total Lead by EPA Test Method 6010.
Soluble Lead WET Citric	=	Soluble Lead by WET Method. Extractant analyzed by EPA Test Method 7420.
Soluble Lead WET DI	=	Soluble Lead by WET Method modified with deionized water. Extractant analyzed by EPA Test Method 7420.
Soil pH	=	Soil pH by EPA Test Method 9045

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	8	7.9/8.7, 10.0/11.4	6	51

REGISTERED CIVIL ENGINEER 5-5-98

7-27-98
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.

REGISTERED PROFESSIONAL ENGINEER M.H. ORSO No. C 56817 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

Caltrans Metric

NOTE:

FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

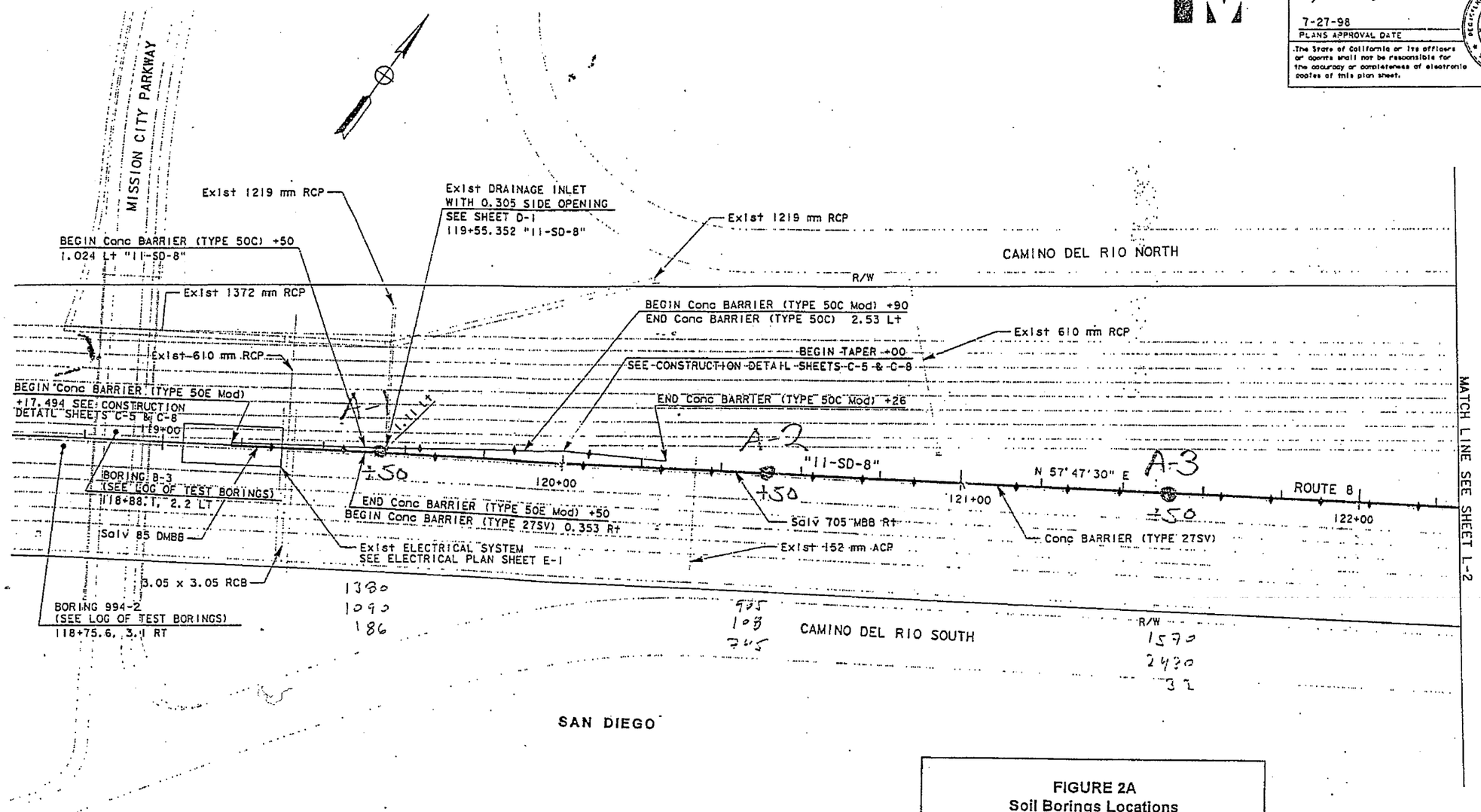

FIGURE 2A
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

NOTE: ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

LAYOUT
LOCATION 1

SCALE: 1:500

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC

PROJECT ENGINEER M. H. ORSO

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

DATE PLOTTED => 30-Jul-1998
TIME PLOTTED => 10:04
LAST REVISION 05-05-98

FOR REDUCED PLANS ORIGINAL GRAPHIC IS 11" X 17"

CU 11233 EA 276001

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT		
11	SD	8	7.9/8.7, 10.0/11.4	7	5:

5-5-98
REGISTERED CIVIL ENGINEER

7-27-98
PLANS APPROVAL DATE

M. H. ORSO
No. C 56417
Exp. 6-30-01
CIVIL

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.

Caltrans Metric

NOTE:

FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA				
No.	R	Δ	T	L
1	914.402	31°35'59.8"	258.749	504.314

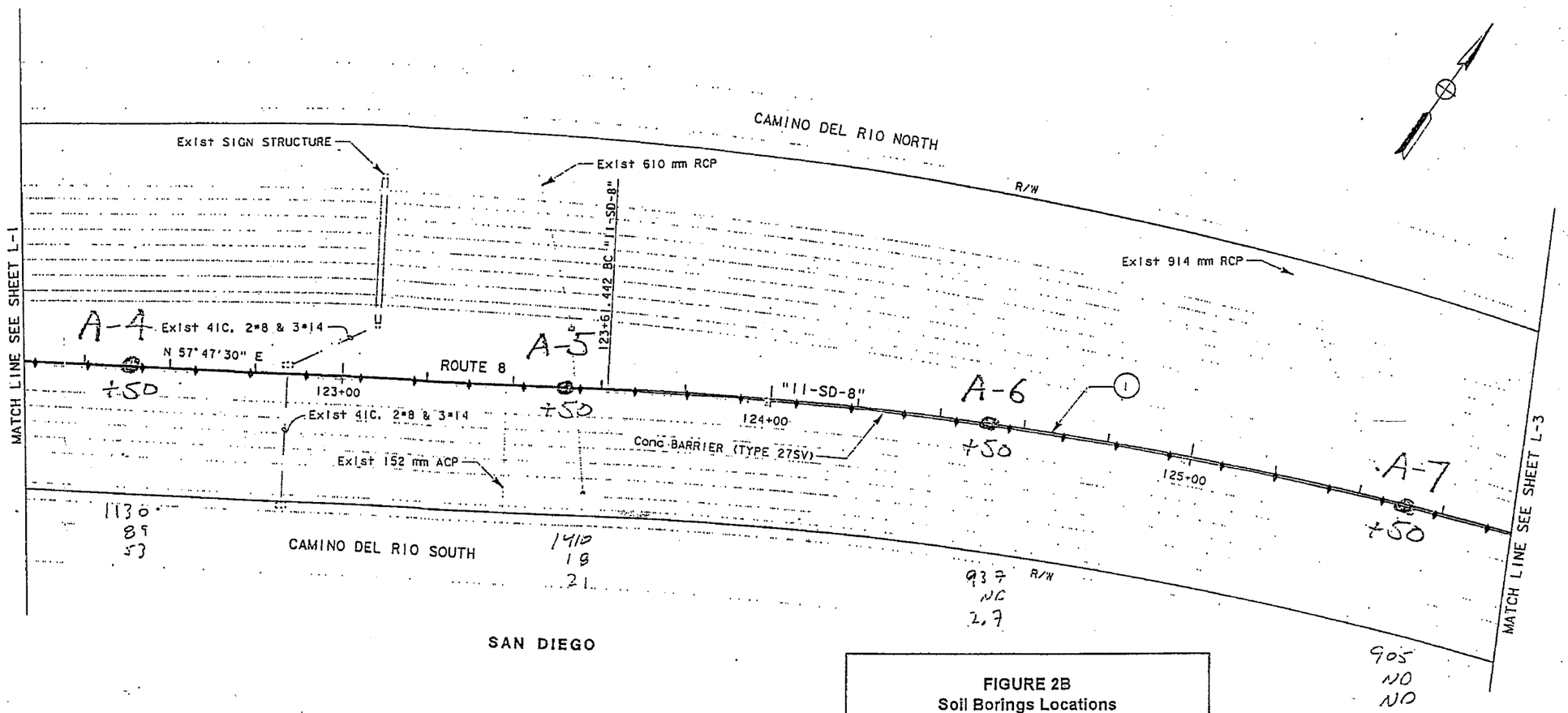

FIGURE 2B
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

LAYOUT
LOCATION 1

SCALE: 1:500

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

PROJECT ENGINEER: M. H. ORSO

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	8	7.9/8.7, 10.0/11.4	8	51

REGISTERED CIVIL ENGINEER 5-5-98

7-27-98
PLANS APPROVAL DATE

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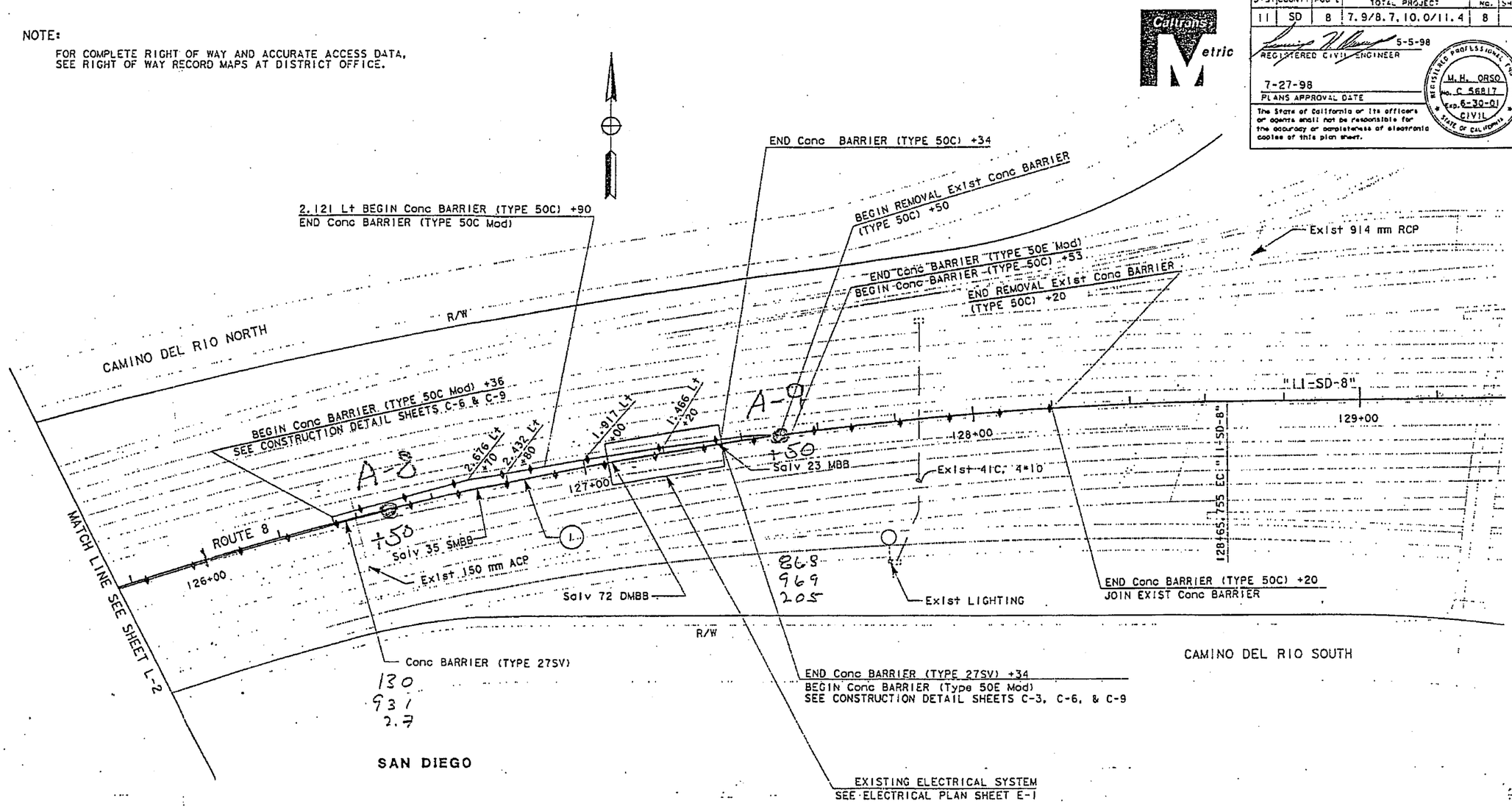
NOTE:
FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



CURVE DATA				
No.	R	Δ	T	L
1	914.402	31°35'59.8"	258.749	504.314

FIGURE 2C
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

LAYOUT
LOCATION 1

SCALE: 1:500

L-3

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

PROJECT ENGINEER M. H. ORSO

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C. 11233 | EA 139401

DATE PLOTTED => 30-Jul-1998
TIME PLOTTED => 09:36
04-10-98

DISTRICT	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	PHASE	TOTAL PHASES
11	SD	8	7.9/8.7, 10.0/11.4	9	5

REGISTERED CIVIL ENGINEER 5-5-98

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Caltrans Metric

NOTE:
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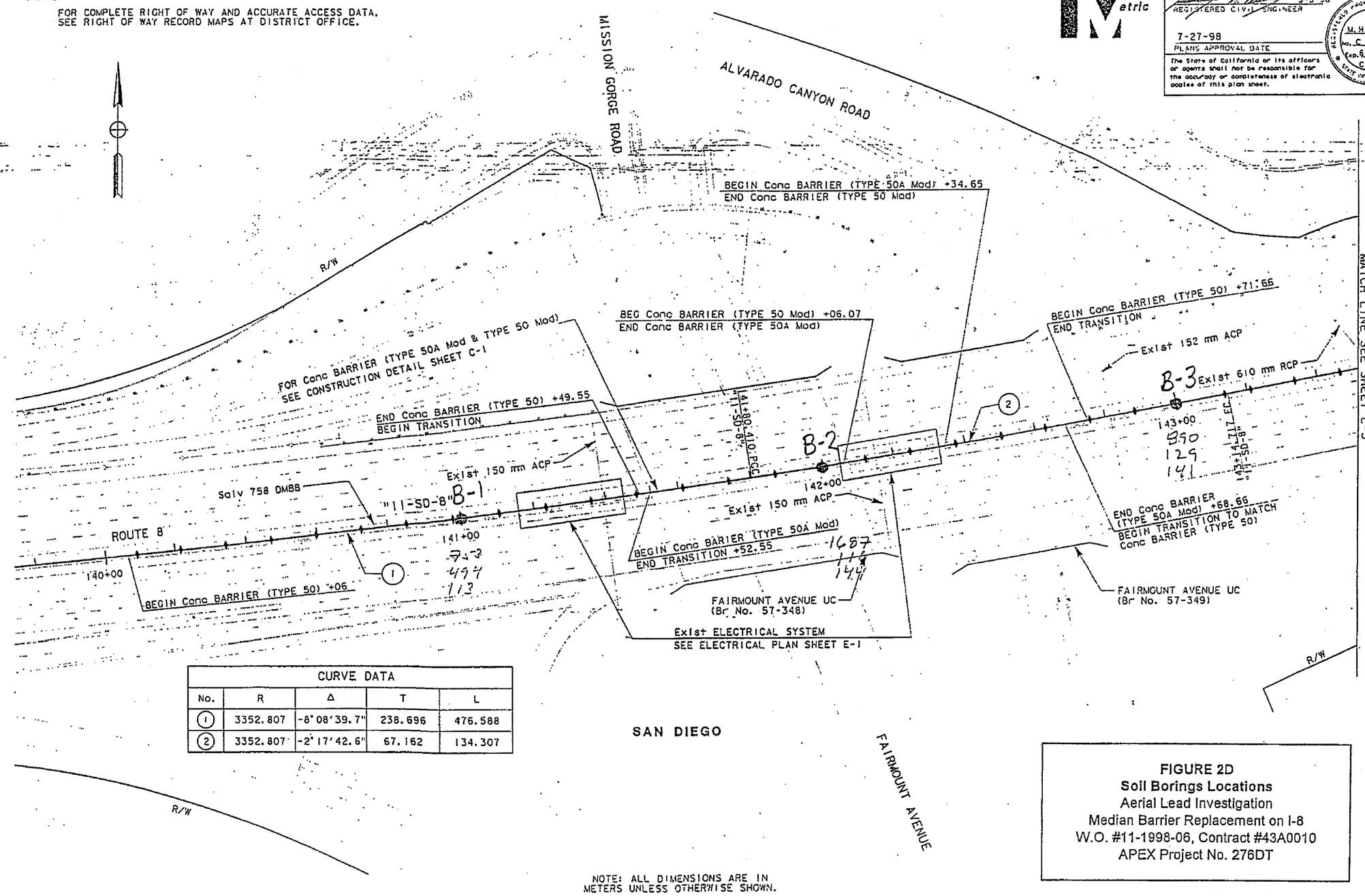

CURVE DATA				
No.	R	Δ	T	L
1	3352.807	-8°08'39.7"	238.696	476.588
2	3352.807	-2°17'42.6"	67.162	134.307

FIGURE 2D
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

NOTE: ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC

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L-4

01-22-98

NOTE:

FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

DIST	COUNTY	ROUTE	PM LINE & POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8	7.9/8.7, 10.0/11.4	10	51

REGISTERED CIVIL ENGINEER 5-5-98

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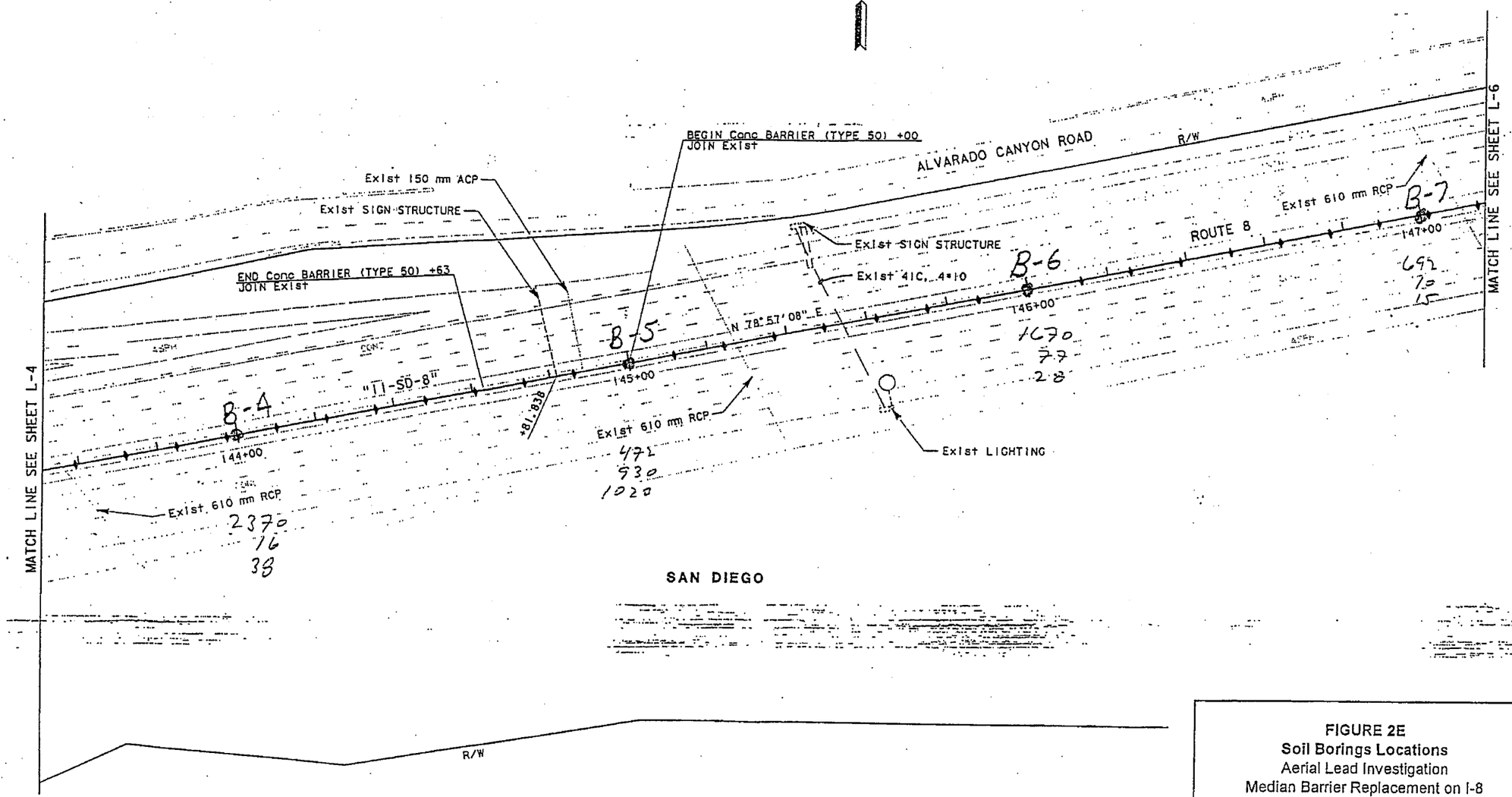

NOTE: ALL DIMENSIONS ARE METERS UNLESS OTHERWISE S

FIGURE 2E
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

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NOTE:

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Caltrans Metric

11: SD, 8	7.9/8.7, 10.0/11.4	11	51

5-5-98
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PLANS APPROVAL DATE

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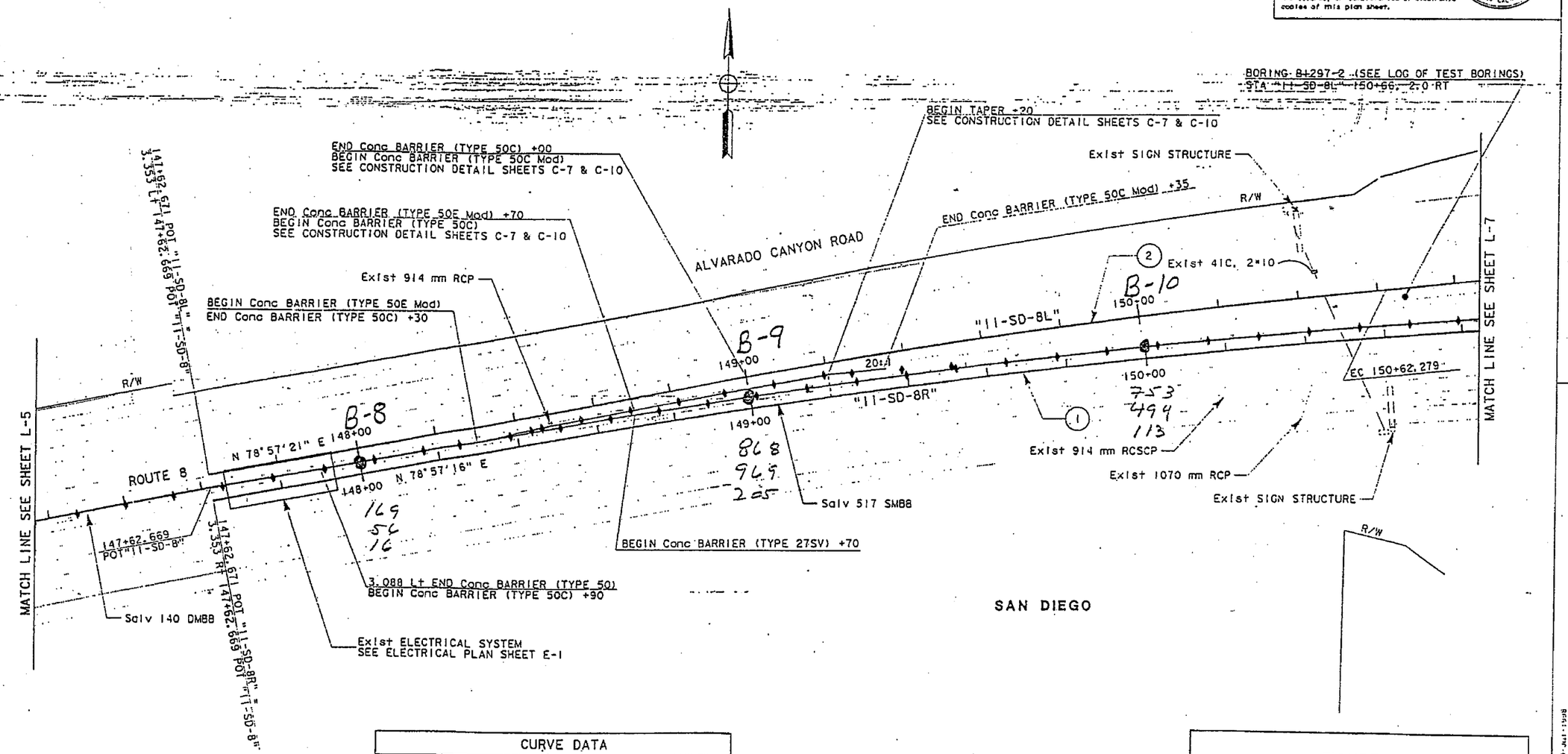

CURVE DATA				
No.	R	Δ	T	L
1	2133.604	8°35'18.1"	160.208	319.817
2	1829.049	5°28'38.7"	87.495	174.856

NOTE: ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

FIGURE 2F
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
PROJECT ENGINEER M. H. ORSO

DATE	REVISED BY	DATE REVISED
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FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS

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NOTE:

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DIST	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS
11	SD	8	7.9/8.7, 10.0/11.4	12	51

REGISTERED CIVIL ENGINEER 5-5-98

7-27-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER M. H. ORSO No. C 56817 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA

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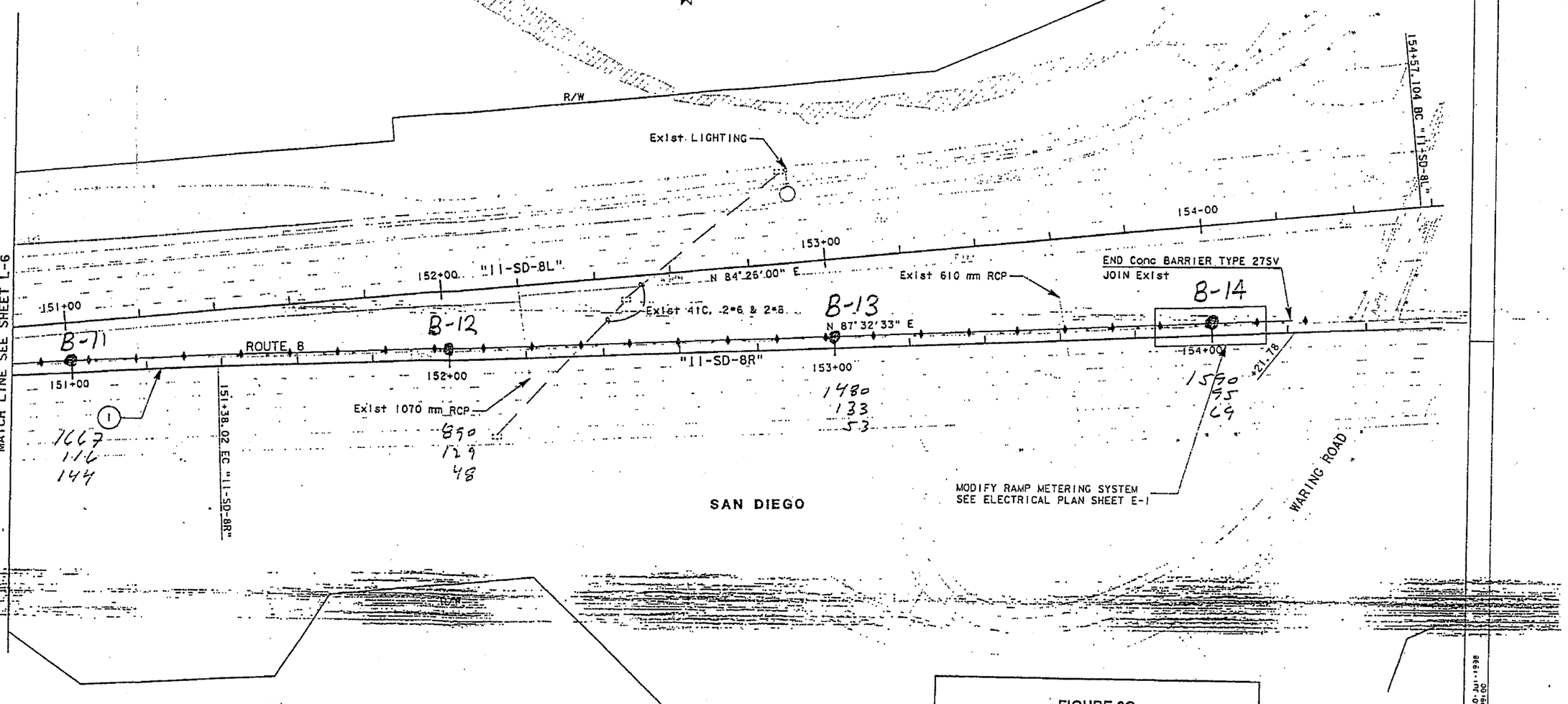

CURVE DATA				
No.	R	Δ	T	L
1	2133.604	8°35'18.1"	160.208	319.817

FIGURE 2G
Soil Borings Locations
Aerial Lead Investigation
Median Barrier Replacement on I-8
W.O. #11-1998-06, Contract #43A0010
APEX Project No. 276DT

LAYOUT
LOCATION 2

L-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC

PROJECT ENGINEER M. H. ORSO

REVISED BY	DATE REVISED

CALCULATED/DESIGNED BY	CHECKED BY

DATE

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CU 11233 EA 139401

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TIME PLOTTED = 09:00
04-22-98 15:36 R:\PROJ\

TABLE 1
ANALYTICAL SUMMARY FOR SOIL
Total Lead
I-8 and I-15 Interchange
W.O. #11-1998-06, Contract # 43A0010
APEX Project No. 276DT

Sample ID	Pb, mg/kg	STLC Citric mg/l	STLC Di mg/l
A1A	1380	NA	14
A1B	1090	NA	8.2
A1C	186	37.3	NA
A2A	905	87	4.6
A2B	108	208	NA
A2C	745	39	7.7
A3A	1570	NA	7.7
A3B	2430	NA	12.4
A3C	32	NA	NA
A4A	1130	608	6.5
A4B	89	NA	NA
A4C	53	NA	NA
A5A	1410	NA	28.6
A5B	18	NA	NA
A5C	21	NA	NA
A6A	937	127	1.6
A6B	NA	NA	NA
A6C	2.7	NA	NA
A7A	905	128	13.6
A7B	NA	NA	NA
A7C	NA	NA	NA
A8A	130	28.9	NA
A8B	931	148	25
A8C	2.7	NA	NA
A9A	868	75.6	5.78
A9B	969	77.3	15.3
A9C	205	32	5.3

Notes: (1) ND, non-detected at concentrations greater than the laboratory detection limit.
(2) NA, not analyzed.

TABLE 2
ANALYTICAL SUMMARY FOR SOIL
Total Lead
I-8 and I-15 Interchange
W.O. #11-1998-06, Contract # 43A0010
APEX Project No. 276DT

Sample ID	Pb mg/kg	STLC Citric mg/l	STLC Di mg/l
B1A	753	16	NA
B1B	494	33.6	12.9
B1C	113	12.4	NA
B2A	1687	NA	24
B2B	116	15.3	NA
B2C	144	4.4	NA
B3A	890	25.8	5.1
B3B	129	1.1	NA
B3C	141	0.2	NA
B4A	2370	31.1	NA
B4B	16	NA	NA
B4C	38	NA	NA
B5A	472	51.7	19.2
B5B	930	90.7	11.1
B5C	1020	NA	16
B6A	1670	NA	16.9
B6B	77	16.9	NA
B6C	28	NA	NA
B7A	692	77.4	13.3
B7B	10	NA	NA
B7C	15	NA	NA
B8A	169	110	NA
B8B	56	NA	NA
B8C	16	NA	NA
B9A	868	86.2	2.7
B9B	969	129	21.3
B9C	205	20.3	NA
B10A	753	97.2	8.3
B10B	494	15.7	3.1
B10C	113	18.4	NA
B11A	1667	14.7	5.33
B11B	116	NA	NA
B11C	144	66.7	NA
B12A	890	387	28.4
B12B	129	6.2	NA
B12C	48	NA	NA
B13A	1480	NA	31.2
B13B	133	34.4	NA
B13C	53	NA	NA
B14A	1590	NA	39.5
B14B	95	4.9	NA
B14C	69	NA	NA

Notes: (1) ND, non-detected at concentrations greater than the laboratory detection limit.
(2) NA, not analyzed.

LIMITED ASBESTOS SURVEY REPORT
BRIDGE STRUCTURES ASSOCIATED WITH
BRIDGE RAIL END TREATMENTS
UPGRADE PROJECT
SAN DIEGO COUNTY, CALIFORNIA

CALTRANS DISTRICT 11 EA 407600 AND 406400
CONTRACT NO. 11A1996
TASK ORDER NO. 11

August 21, 2013

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A Report Prepared for:

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California Department of Transportation
District 11
4050 Taylor Street
San Diego, California 92110

LIMITED ASBESTOS SURVEY REPORT
BRIDGE STRUCTURES ASSOCIATED WITH
BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
SAN DIEGO COUNTY, CALIFORNIA
CALTRANS DISTRICT 11 EA 407600 AND 406400
CONTRACT NO. 11A1996
TASK ORDER NO. 11

Kleinfelder Project No. 133297

Prepared by:

Richard H. Stevenson
Certified Asbestos Consultant No. 06-3992

Reviewed by:

Margaret R. Carroll
Project Professional

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August 21, 2013

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1 INTRODUCTION AND SITE DESCRIPTION

1.1 INTRODUCTION

This report presents the results of a limited survey conducted to assess the presence, quantities, and conditions, of asbestos-containing guard rail post shims associated with bridge rail end treatments on 11 bridge structures (collectively referred to as the "Site") in various locations of San Diego County, California. The limited asbestos survey was performed consistent with the Scope of Services in Task Order Number (No.) 11 of Contract No. 11A1996. Kleinfelder conducted the survey between July 10 and 12, 2013, and on July 16, 2013. Kleinfelder understands that the California Department of Transportation (Caltrans; the Client) is planning to upgrade the end treatments of the 11 bridge structures. The survey is considered "limited" because only guard rail post shim materials associated with the bridge rail end treatments were included in the scope of the survey.

1.2 SITE DESCRIPTION

The limited asbestos survey was conducted at the following 11 locations in San Diego County, California:

- Winter Gardens Boulevard Overcrossing (OC), along State Route (SR) 67;
- El Camino Real Eastbound Exit Ramp, along SR-78;
- Barcelona Street Undercrossing (UC), along SR-94;
- Sixth Street On-ramp UC, along SR-163;
- Friars Road OC, along SR-163;
- Genesee Avenue UC, along SR-163;
- SR-163/ I-805 Separation, along SR-163;
- San Ysidro Boulevard UC, along I-805;
- Main Street UC, along I-805;
- Del Sur Boulevard UC, along SR-905; and,
- SR-905/I-805 Separation, along SR-905.

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1.3 PHYSICAL LIMITATIONS

The survey only included assessment and sampling of accessible guard rail post shims associated with bridge rail end treatments on the 11 bridge structures included in the scope of Task Order No. 11. No other suspect asbestos-containing materials (ACMs) were assessed as part of the survey. If other suspect ACMs are encountered during the planned bridge rail end treatment upgrade activities, they either may be assumed to be hazardous and handled accordingly, or may be sampled and analyzed to assess whether they are hazardous.

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2 ASBESTOS SURVEY

2.1 ASBESTOS SURVEY METHODS

Kleinfelder personnel conducted a visual survey of each of the 11 bridge structures at the Site. Based on observations made during the visual surveys, representative bulk samples of guard rail post shim materials were collected from each of the 11 bridge structures.

Mr. Richard Stevenson, a California Division of Occupational Safety and Health (DOSH, also known as Cal/OSHA) Certified Asbestos Consultant (CAC) No. 06-3992 performed the survey. The survey was completed consistent with Federal Asbestos Hazard Emergency Response Act (AHERA) methods (40 Code of Federal Regulations [CFR] Part 763) as a guideline. Bulk samples were collected using various hand tools (e.g., utility knives, chisels, and pliers). Destructive inspection and sampling methods were not used, since the bridges are still in use.

The bulk samples collected during the survey were delivered to EMS Laboratories in Pomona, California, a United States Environmental Protection Agency (US EPA) and California State-certified laboratory and National Voluntary Laboratory Accreditation Program (NVLAP) participant for analysis by Polarized Light Microscopy (PLM). A summary of bulk samples collected, sample locations, asbestos content, condition, friability, and quantity estimates are summarized in Table 1 of Appendix A. Sample location maps are provided in Appendix B. Photographs of the bridge structures and representative sample locations are presented in Appendix C. Copies of the analytical laboratory report and chain-of-custody documentation are included in Appendix D.

2.2 ASBESTOS SURVEY RESULTS

Kleinfelder collected one sample of guard rail post shim material from each bridge structure where guard rail post shims were observed. Guard rail post shims were observed and samples were collected from the following bridge locations:

- Winter Gardens Boulevard OC, along State Route (SR) 67;
- El Camino Real Eastbound Exit Ramp, along SR-78;
- Barcelona Street UC, along SR-94;
- Sixth Street On-ramp UC, along SR-163;

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- Friars Road OC, along SR-163;
- Genesee Avenue UC, along SR-163;
- SR-163/ I-805 Separation, along SR-163;
- San Ysidro Boulevard UC, along I-805;
- Main Street UC, along I-805;
- Del Sur Boulevard UC, along SR-905; and,
- SR-905/I-805 Separation, along SR-905.

Asbestos was detected in each of the sampled guard rail post shims with an asbestos content ranging from 65 percent (%) to 85% asbestos. A listing of asbestos content at each sampled bridge structure is included in Table 1 of Appendix A.

2.3 REGULATORY OVERVIEW FOR ASBESTOS

Regulatory oversight for the management, removal, and disposal of ACMs is provided by a variety of Federal, State, and local agencies.

The three primary regulations enforced by regulatory agencies that govern various activities (e.g., inspection, assessment, abatement, etc.) relating to ACMs include the following: AHERA, National Emission Standard for Hazardous Air Pollutants (NESHAP), and the Asbestos Standard for the Construction Industry (as codified in Federal OSHA and Cal/OSHA regulations). US EPA regulations concerning the identification, handling, management, and abatement of ACMs (as found in the AHERA and NESHAP) are implemented locally by the San Diego County Air Pollution Control District (SDCAPCD). Both Cal/OSHA and Federal OSHA regulate asbestos as a worker health and safety issue. In addition, the transportation and disposal of asbestos-containing wastes are overseen by the California EPA Department of Toxic Substance Control (DTSC). The Federal OSHA, US EPA, DTSC, and SDCAPCD define ACMs as materials containing greater than 1% asbestos.

The following is a brief description of the three major regulations relating to ACMs.

Asbestos Hazard Emergency Response Act (AHERA)

AHERA (40 CFR part 763), as implemented by the US EPA, primarily pertains to the assessment and management of ACMs in Kindergarten through Grade 12, non-profit

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schools. However, many of the procedures, training requirements, and certifications defined by AHERA have become the industry standard for other facilities. For this survey, AHERA protocols were generally utilized in the identification, assessment, and sampling of suspect ACM.

National Emission Standard for Hazardous Air Pollutants (NESHAP)

NESHAP (40 CFR Part 61, Subpart M) is an asbestos standard that protects the general public from asbestos exposure due to renovation or demolition activities. NESHAP requires surveying for suspect materials (as defined above), notifying of intent to renovate or demolish, removing regulated ACM (RACM) prior to renovation or demolition, and properly managing asbestos-containing wastes. RACM is defined by NESHAP as follows:

- Any friable ACM;
- A Category I non-friable ACM (such as vinyl floor tiles and asphalt roofing products) that has become friable or will be subject to sanding, grinding, cutting, or abrading during renovation or demolition activities; or,
- A Category II non-friable ACM (all other non-friable ACMs) that has a high probability of becoming friable during demolition or renovation activities.

NESHAP requires that demolition activities be conducted with no visible emissions using wet methods. It should be noted that while NESHAP regulates renovation and demolition activities, it does not protect individual workers performing asbestos abatement, or provide instructions for how asbestos abatement projects should be performed.

Asbestos Standard for the Construction Industry

The Asbestos Standard for the Construction Industry (Federal OSHA, 29 CFR 1926.1101 and Cal/OSHA California Code of Regulations [CCR], Title 8 Section 1529) regulate asbestos exposure in the work place. This includes both persons working in a building containing ACMs and asbestos workers/contractors. For asbestos workers and contractors, the Asbestos Standard for Construction (i.e., the Construction Standard) regulates the following:

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- Protection of workers and the public during removal;
- Medical surveillance requirements for workers;
- Detailed requirements for how asbestos is to be removed; and,
- Training requirements for abatement personnel.

Cal/OSHA defines asbestos-containing construction material (ACCM) as any building material that contains more than 0.1% (one-tenth of 1%) asbestos by weight. In addition, building materials presumed or known to contain at least “trace” amounts (less than 1%, but greater than 0.1% by weight) of asbestos should be considered as ACCM and managed according to Cal/OSHA regulations (as presented in CCR, Title 8 Section 1529).

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3 CONCLUSIONS AND RECOMMENDATIONS

Based upon the limited asbestos survey and subsequent laboratory analysis of guard rail post shim materials, asbestos-containing guard rail post shims are present at the bridge rail end treatments at each of the bridge structures associated with Task Order 11.

Future bridge rail end treatment upgrade activities that could disturb guard rail post shims at each bridge structure should be performed by properly trained and certified personnel, in accordance with applicable Federal, State, and local regulations, as implemented by Cal/OSHA, Federal OSHA, US EPA, DTSC, and the SDCAPCD. Prior to future bridge expansion activities, Kleinfelder recommends that the following actions be taken:

- Caltrans should provide notification to contractors and subcontractors as to the presence and location of guard rail post shims at each bridge structure where asbestos was detected. Notification should be provided to workers who may contact these materials or if the materials will be disturbed. At this time, and in their current physical state, the guard rail post shims do not pose a significant health risk as long as they are not disturbed.
- The removal of ACMs is regulated by SDCAPCD and Cal/OSHA. ACMs should be removed and disposed of only by properly licensed California asbestos contractors in compliance with applicable Federal, State, and local regulations. The general contractor for the bridge rail end treatments upgrade project may be a source for local licensed asbestos contractors. Kleinfelder can also provide names of licensed and qualified asbestos contractors in the area upon request.
- A 10-working-day notification is required for every demolition project even when ACMs are not present, and for each abatement project where the amount of friable ACM is equal to or greater than 160 square feet or 260 linear feet. However, since the quantity of guard rail post shims at each bridge location does not exceed the quantity required for notification, and demolition of the bridge structures is not planned as part of the bridge rail end treatments upgrade project, notification to SDCAPCD should not be required.
- A 24-hour advance written notification to the local Cal/OSHA office is required from the asbestos contractor regarding their "Intent to Conduct Asbestos Related Work."

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4 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two years from the date of the report.

The work performed was based on project information provided by the Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the site conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

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During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project Site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order. The Client is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment, or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. The Client is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including samples resulting from Kleinfelder's services.

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APPENDIX A

Table

Table 1
Summary of Asbestos Survey Results
Bridge Rail End Treatments Upgrade Project
San Diego County, California

Sample No.	Sample Description	Sample Location	Asbestos Content	Condition/ Friability	Amount of Material
Sixth Street On-Ramp Undercrossing (UC)					
KLF-1	Guard rail post shim	Guard rail post adjacent to bridge end treatment on southeastern side of UC	65% CH	Good/NF	3 shims
Friars Road Overcrossing (OC)					
KLF-2	Guard rail post shim	Guard rail post adjacent to bridge end treatment on northeastern side of OC	70% CH	Good/NF	2 shims
Genesee Avenue UC					
KLF-3	Guard rail post shim	Guard rail post adjacent to bridge end treatment on southeastern side of UC	75% CH	Good/NF	4 shims
State Route (SR)-163 / Interstate (I)-805 Interchange					
KLF-4	Guard rail post shim	Guard rail post adjacent to bridge end treatment on northbound SR-163	70% CH	Good/NF	3 shims
Winter Gardens Boulevard OC					
KLF-5	Guard rail post shim	Guard rail post adjacent to bridge end treatment on northeastern side of OC	65% CH	Good/NF	3 shims
Barcelona Street UC					
KLF-6	Guard rail post shim	Bridge end treatment, vertical rail post on eastbound SR 94, southwestern side of undercrossing	85% CH	Good/NF	5 shims
El Camino Real Eastbound Exit Ramp					
KLF-7	Guard rail post shim	Guard rail post adjacent to bridge end treatment on southern side of eastbound exit ramp	75% CH	Good/NF	2 shims
Main Street UC					
KLF-8	Guard rail post shim	Guard rail post adjacent to bridge end treatment on southbound I-805, northwestern side of UC	70% CH	Good/NF	4 shims
San Ysidro Boulevard UC					
KLF-9	Guard rail post shim	Guard rail post adjacent to bridge end treatment on southbound I-805, northwestern side of UC	65% CH	Good/NF	2 shims

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Table 1
Summary of Asbestos Survey Results
Bridge Rail End Treatments Upgrade Project
San Diego County, California

Sample No.	Sample Description	Sample Location	Asbestos Content	Condition/ Friability	Amount of Material
I-905 / I-805 Interchange					
KLF-10	Guard rail post shim	Guard rail post adjacent to bridge end treatment at interchange of westbound I-905 and southbound I-805	65% CH	Good/NF	2 shims
Del Sur UC					
KLF-11	Guard rail post shim	Guard rail post adjacent to bridge end treatment on westbound I-905, southwestern side of UC	65% CH	Good/NF	1 shim

Notes:
CH = Chrysotile asbestos
NF = Non-friable
Shim quantity estimates are based on number of shims observed on bridge end treatment posts and guard rail posts adjacent to bridge end treatment. Quantity does not take into account guard rail post shims that may be present at other locations on a bridge structure. Contractor should verify shim quantities prior to bid.

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APPENDIX B

Plates

LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

N

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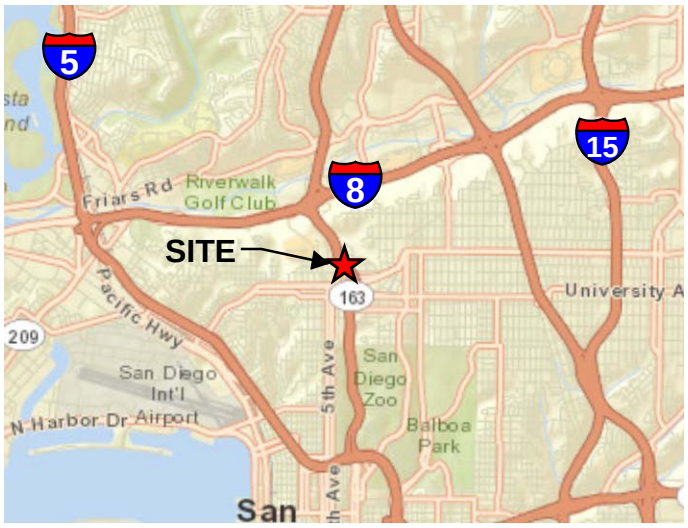

VICINITY MAP

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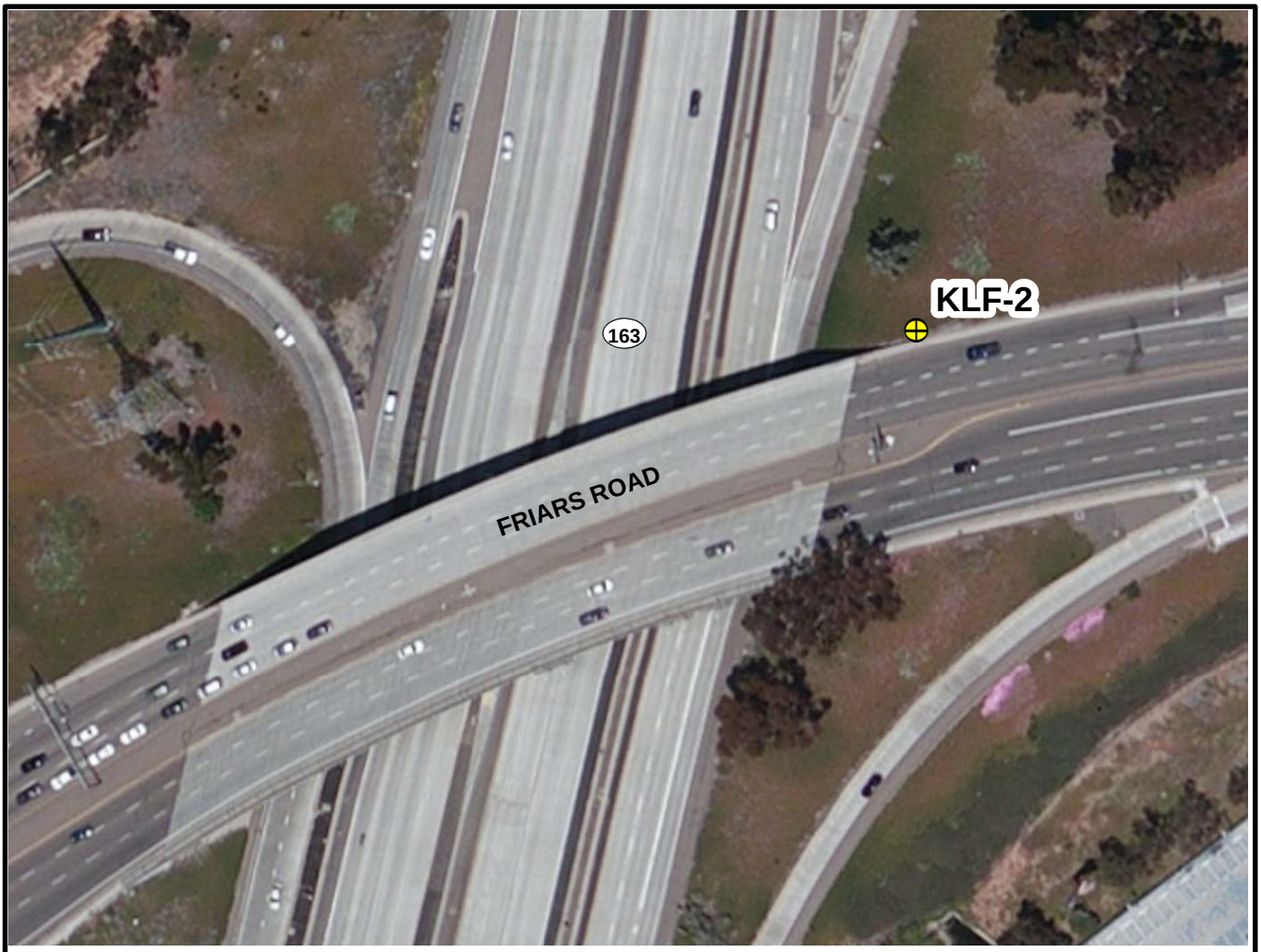
PROJECT NO.	133297
DRAWN:	8/19/2013
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	133297_Samp4.MXD

SAMPLE LOCATION MAP
SIXTH STREET ON-RAMP
UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE

1



LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

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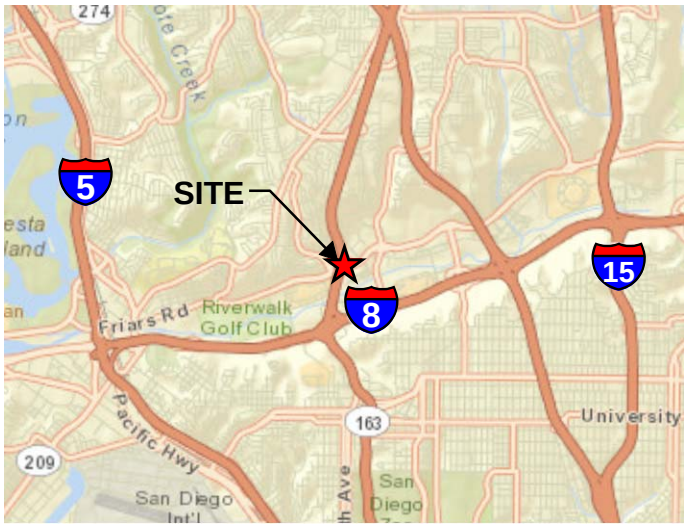

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FILE NAME:	133297_Samp5.MXD

SAMPLE LOCATION MAP
FRIARS ROAD OVERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE

2

LEGEND

⊕ SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

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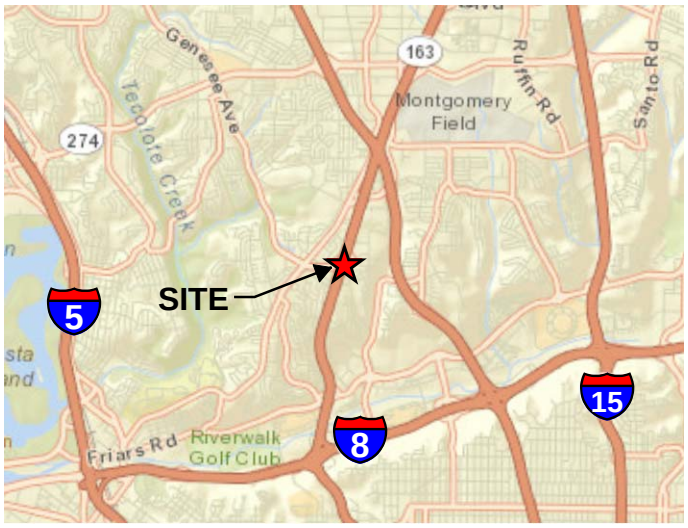

VICINITY MAP

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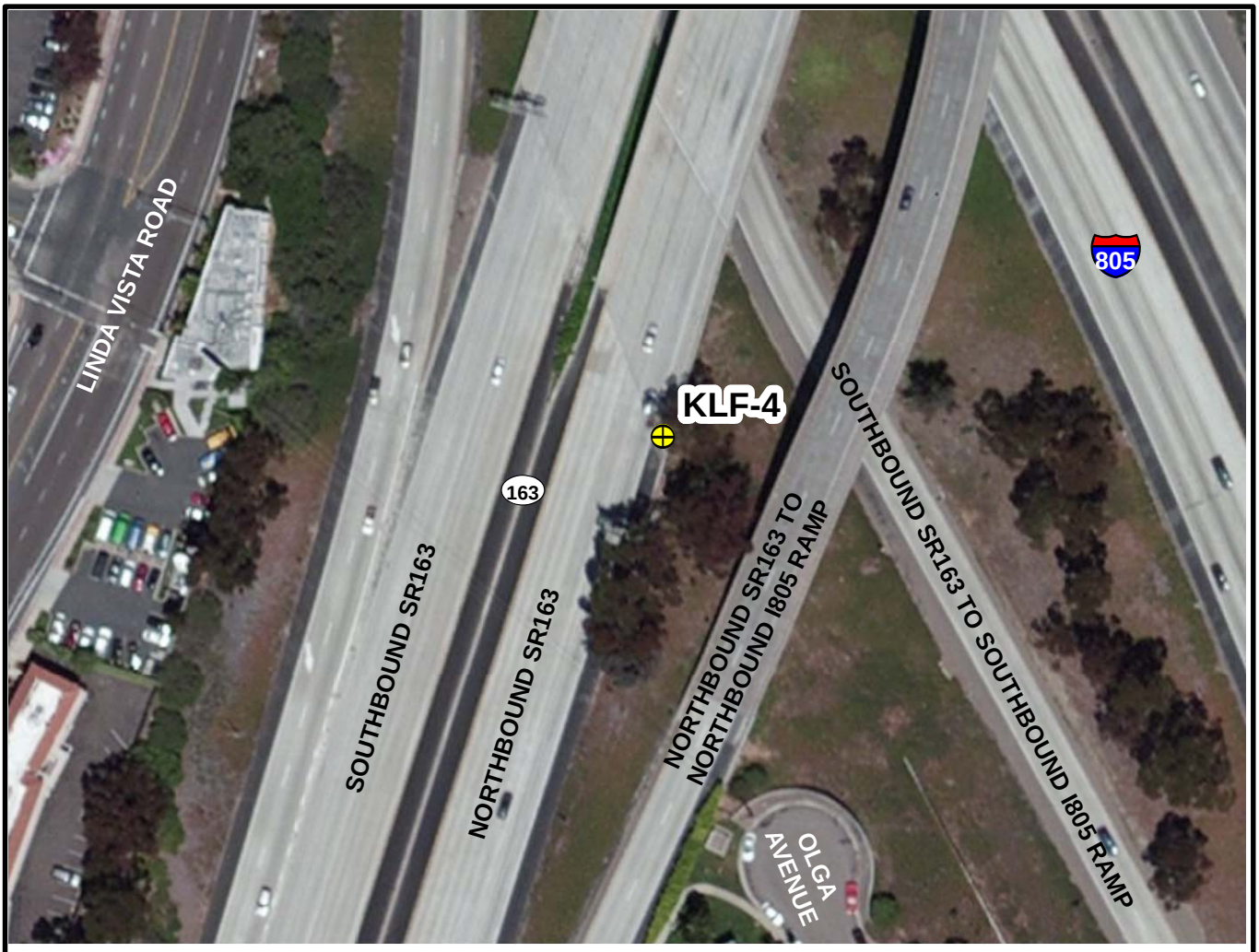
CHECKED BY:	RS
FILE NAME:	133297_Samp6.MXD

SAMPLE LOCATION MAP
GENESEE AVENUE UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
3



LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100
Feet

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PROJECT NO.	133297
DRAWN:	8/19/2013
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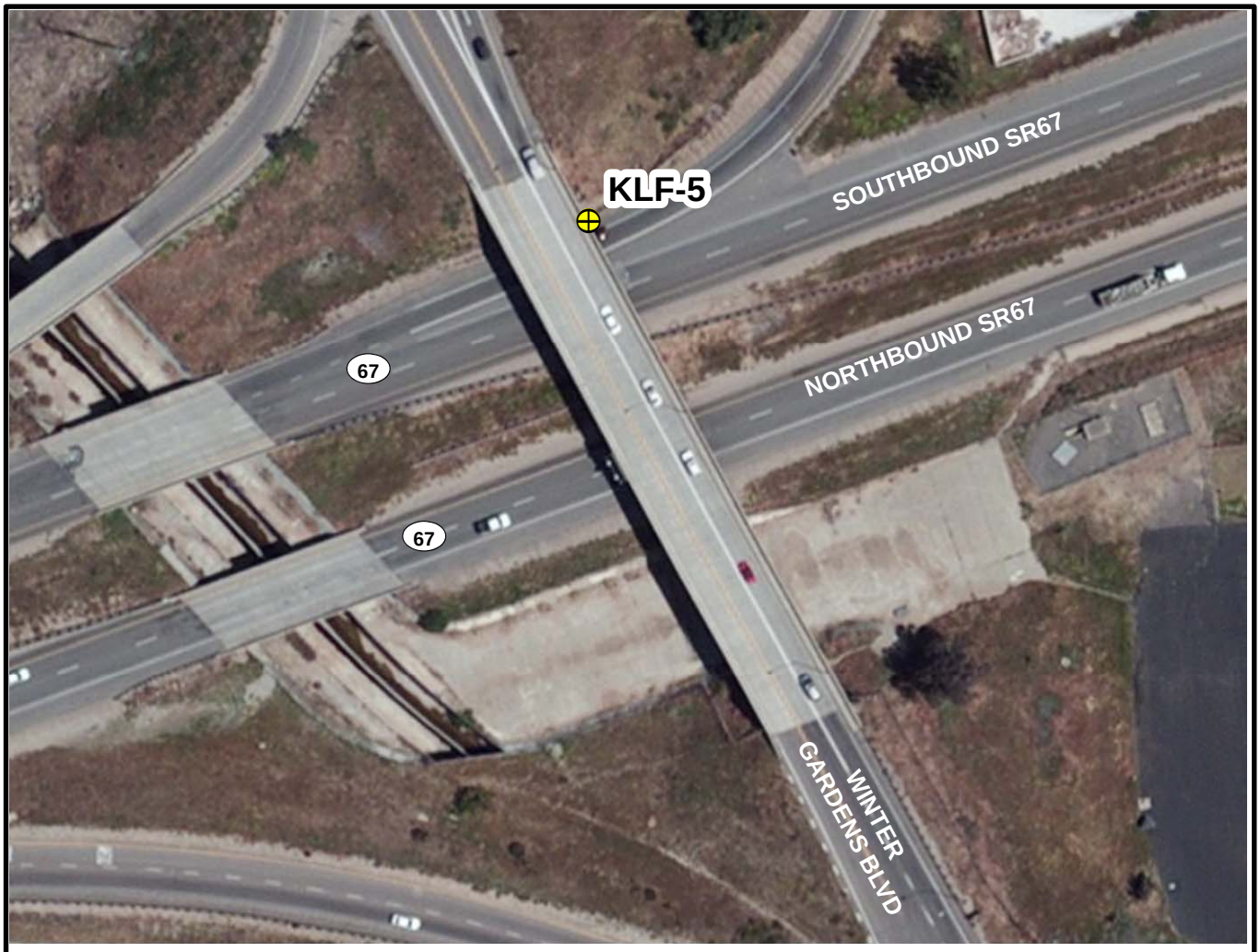
CHECKED BY:	RS
FILE NAME:	133297_Samp7.MXD

SAMPLE LOCATION MAP
STATE ROUTE 163 /
INTERSTATE 805 INTERCHANGE

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
4



LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

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PROJECT NO.	133297
DRAWN:	8/19/2013
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	133297_Samp1.MXD

SAMPLE LOCATION MAP
WINTER GARDENS OVERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
5

LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100
Feet

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FILE NAME:	133297_Samp3.MXD

SAMPLE LOCATION MAP
BARCELONA STREET
UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
6

LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100
Feet

N

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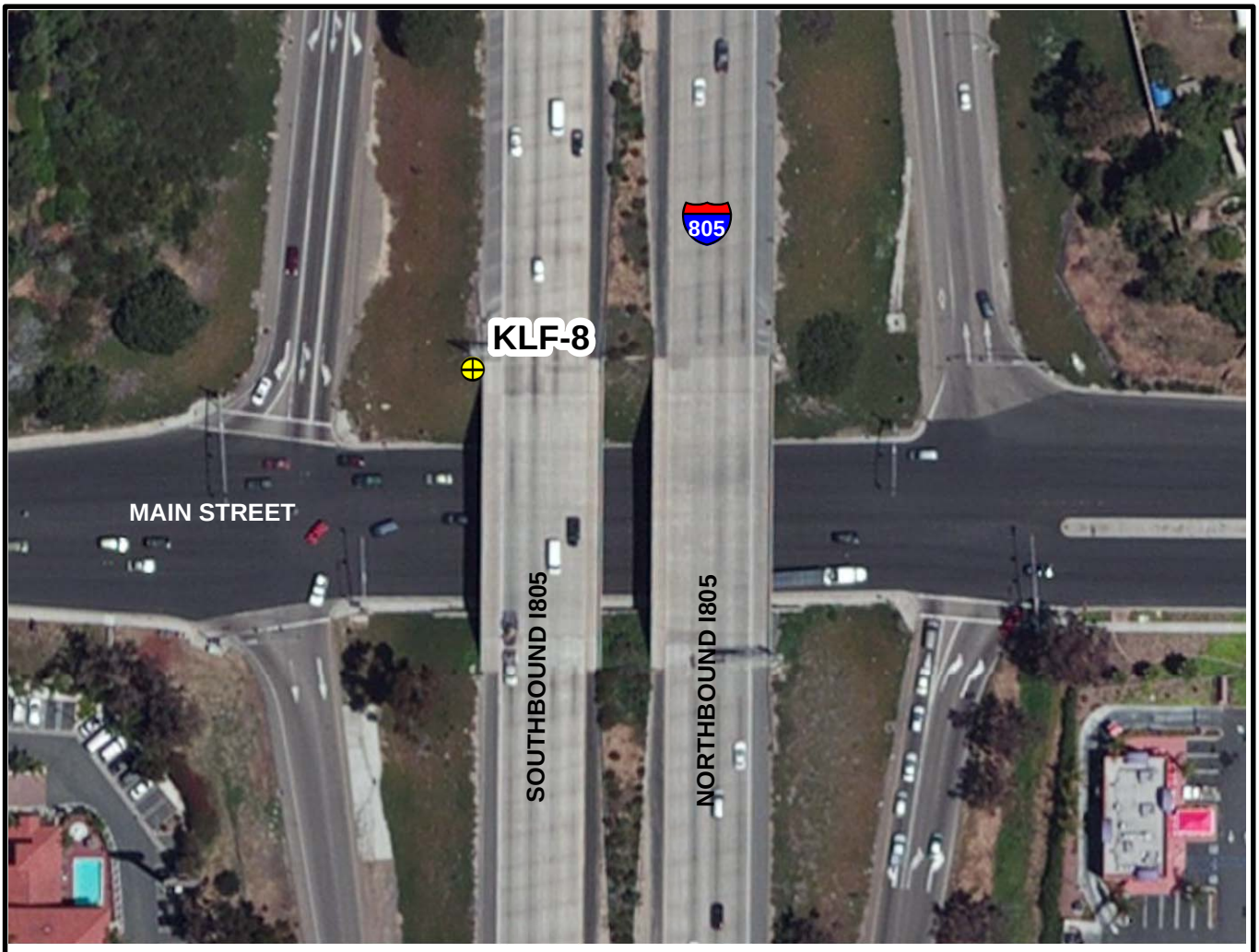
PROJECT NO.	133297
DRAWN:	8/19/2013
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	133297_Samp2.MXD

SAMPLE LOCATION MAP
EL CAMINO REAL EASTBOUND
EXIT RAMP

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
7



LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

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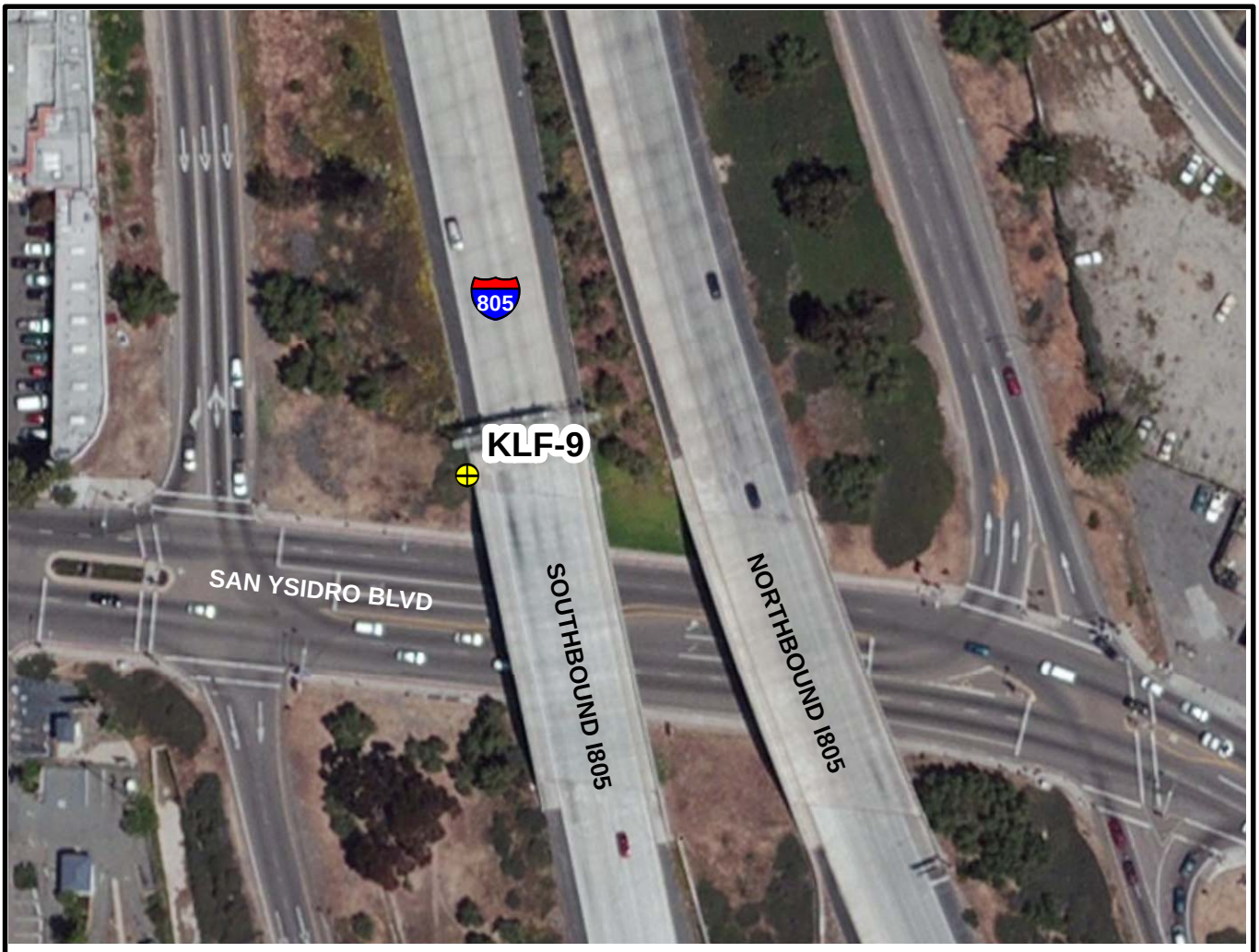
FILE NAME:	133297_Samp9.MXD

SAMPLE LOCATION MAP
MAIN STREET UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE

8



LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

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DRAWN:	8/19/2013
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	133297_Samp8.MXD

SAMPLE LOCATION MAP
SAN YSIDRO BOULEVARD
UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE
9

LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

N

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FILE NAME:	133297_Samp11.MXD

SAMPLE LOCATION MAP
STATE ROUTE 905 /
INTERSTATE 805 INTERCHANGE

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE

10

LEGEND

SAMPLE IDENTIFICATION AND APPROXIMATE LOCATION OF GUARD RAIL POST SHIM SAMPLE

BASEMAP SOURCES:
ESRI ONLINE MAPS, IMAGERY
MAY 3, 2010 AND STREETS

100 50 0 100 Feet

N

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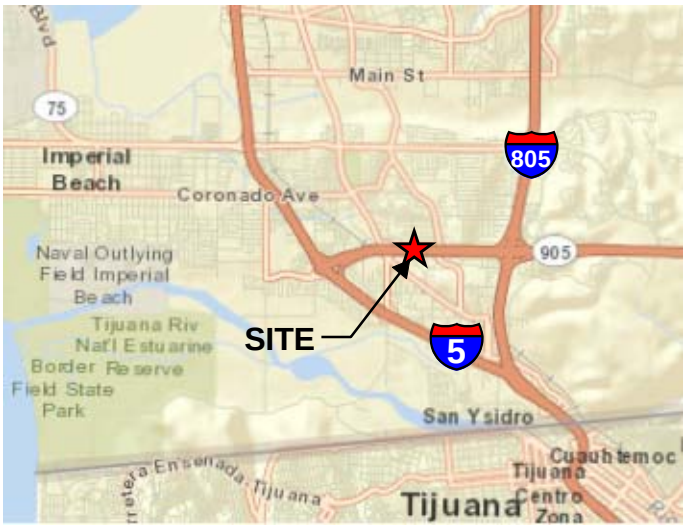

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PROJECT NO.	133297
DRAWN:	8/19/2013
DRAWN BY:	JP
CHECKED BY:	RS
FILE NAME:	133297_Samp10.MXD

SAMPLE LOCATION MAP
DEL SUR BOULEVARD
UNDERCROSSING

BRIDGE RAIL END TREATMENTS UPGRADE PROJECT
TASK ORDER 11, CALTRANS EA 407600 AND 406400
SAN DIEGO COUNTY, CALIFORNIA

PLATE

11

APPENDIX C

Photographs

View of bridge rail end treatment at Sixth Street Avenue On-Ramp Undercrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at Sixth Street Avenue On-Ramp Undercrossing (Sample KLF-1)

KLEINFELDER Bright People. Right Solutions.	PROJECT NO: 133297 DRAWN BY: RHS CHECKED BY: MRC DATE: 8/2013 REVISED:	SITE PHOTOGRAPHS Bridge Rail End Treatments Upgrade Project; Task Order 11 Caltrans EA 407600 and 406400 San Diego County, California	PLATE C-1

Document1

View of bridge rail end treatment at Friars Road Overcrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at Friars Road Overcrossing (Sample KLF-2)

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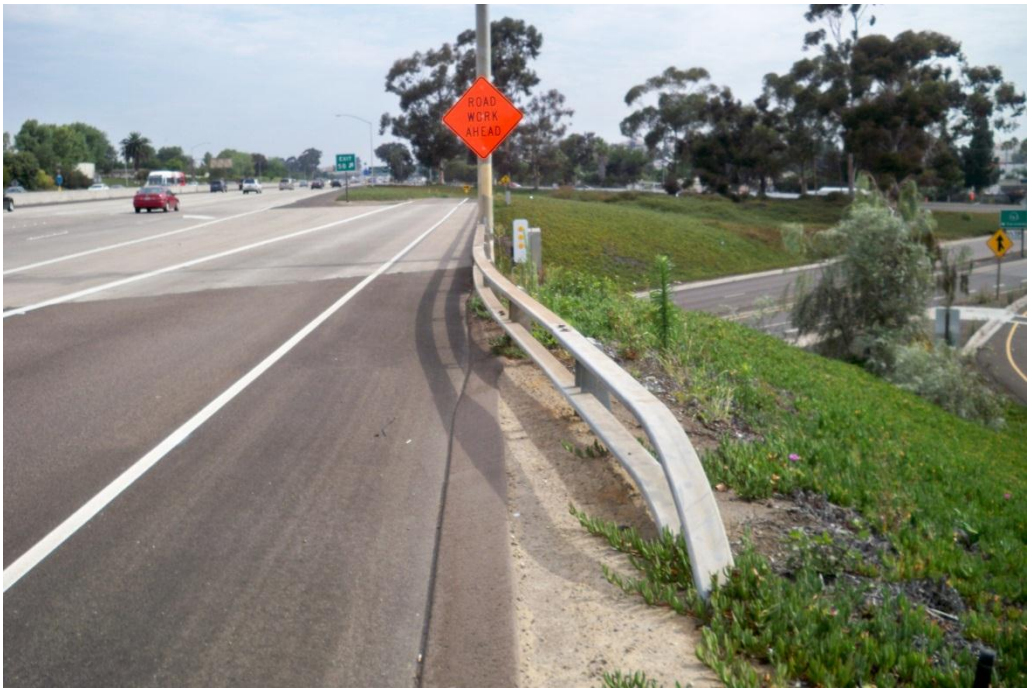
Document1



View of bridge rail end treatment at Genesee Avenue Undercrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at Genesee Avenue Undercrossing (Sample KLF-3)

KLEINFELDER Bright People. Right Solutions.	PROJECT NO: 133297 DRAWN BY: RHS CHECKED BY: MRC DATE: 8/2013 REVISED:	SITE PHOTOGRAPHS Bridge Rail End Treatments Upgrade Project; Task Order 11 Caltrans EA 407600 and 406400 San Diego County, California	PLATE C-3

Document1

View of bridge rail end treatment along northbound side of State Route 163 at the State Route 163 / Interstate 805 Interchange.

View of guard rail post and shim adjacent to bridge rail end treatment along northbound side of State Route 163 at State Route 163 / Interstate 805 Interchange (Sample KLF-4).

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Document1

View of bridge rail end treatment at northeastern side of Winter Gardens Boulevard Overcrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at northeastern side of Winter Gardens Boulevard Overcrossing.

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Document1

View of shim between bridge end rail and vertical support column at northeastern side of Winter Gardens Boulevard Overcrossing (Sample KLF-5).

View of bridge rail end treatment at Barcelona Street Undercrossing, along eastbound State Route 94.

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Document1

View of guard rail post and shim adjacent to bridge rail end treatment at Barcelona Street Undercrossing (Sample KLF-6).

View of shims between bridge rail end treatment and vertical support at Barcelona Street Undercrossing.

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Document1

View of bridge rail end treatment at eastbound exit ramp of El Camino Real Overcrossing.

View of guard rail post shims between guard rail and guard rail post (Sample KLF-7).

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Document1

View of bridge rail end treatment at Main Street Undercrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at Main Street Undercrossing (Sample KLF-8).

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Document1

View of bridge rail end treatment at San Ysidro Boulevard Undercrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at San Ysidro Boulevard Overscrossing (KLF-9).

KLEINFELDER Bright People. Right Solutions.	PROJECT NO: 133297 DRAWN BY: RHS CHECKED BY: MRC DATE: 8/2013 REVISED:	SITE PHOTOGRAPHS Bridge Rail End Treatments Upgrade Project; Task Order 11 Caltrans EA 407600 and 406400 San Diego County, California	PLATE C-10

Document1

View of bridge rail end treatment along eastbound State Route 905 at State Route 905 / Interstate 805 Interchange.

View of guard rail post and shim at bridge rail end treatment along eastbound State Route 905 at State Route 905 / Interstate 805 Interchange (KLF-10).

KLEINFELDER Bright People. Right Solutions.	PROJECT NO: 133297 DRAWN BY: RHS CHECKED BY: MRC DATE: 8/2013 REVISED:	SITE PHOTOGRAPHS Bridge Rail End Treatments Upgrade Project; Task Order 11 Caltrans EA 407600 and 406400 San Diego County, California	PLATE C-11

Document1

View of bridge rail end treatment at Del Sur Boulevard Undercrossing.

View of guard rail post and shim adjacent to bridge rail end treatment at Del Sur Boulevard Undercrossing (Sample KLF-11).

KLEINFELDER Bright People. Right Solutions.	PROJECT NO: 133297 DRAWN BY: RHS CHECKED BY: MRC DATE: 8/2013 REVISED:	SITE PHOTOGRAPHS Bridge Rail End Treatments Upgrade Project; Task Order 11 Caltrans EA 407600 and 406400 San Diego County, California	PLATE C-12

Document1

APPENDIX D

Analytical Laboratory Report and Chain-of-Custody Documentation

EMS LABORATORIES INC.
117 W. Bellevue Drive, Pasadena, CA 91105-2548 626-568-4065

National Institute of Standards and Technology (NIST) NVLAP Lab Code 101218-0
California Department of Health Services Environmental Testing Laboratory ELAP 1119
County Sanitation Districts of Los Angeles County ID No. 10120
Nevada Environmental Laboratory Certification CA00245

CUSTOMER:	Kleinfelder	PAGE #:	1 of 2
	2 Ada, suite 250	REPORT #:	0157247
	Irvine CA 92618	PROJECT:	PLM ANALYSIS
CONTACT:	Rich stevenson	DATE COLLECTED:	07/12/2013
REFERENCE:	Caltran Task Order 11	COLLECTED BY:	
METHOD:	EPA 600/R-93/116	DATE RECEIVED:	07/18/2013
		ANALYSIS DATE:	07/22/2013

BULK SAMPLE ANALYSIS FOR ASBESTOS CONTENT BY POLARIZED LIGHT MICROSCOPY

Laboratory ID - Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
0157247-001 KLF-1	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	65%	Non-Fibrous Material	35%
0157247-002 KLF-2	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	70%	Non-Fibrous Material	30%
0157247-003 KLF-3	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	75%	Non-Fibrous Material	25%
0157247-004 KLF-4	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	70%	Non-Fibrous Material	30%
0157247-005 KLF-5	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	65%	Non-Fibrous Material	35%
0157247-006 KLF-6	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	85%	Non-Fibrous Material	15%

CUSTOMER:	Kleinfelder 2 Ada, suite 250 Irvine CA 92618	PAGE #: REPORT #: PROJECT:	2 of 2 0157247 PLM ANALYSIS

BULK SAMPLE ANALYSIS FOR ASBESTOS CONTENT BY POLARIZED LIGHT MICROSCOPY

Laboratory ID - Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
0157247-007 KLF-7	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	75%	Cellulose Fiber Non-Fibrous Material	1% 24%
0157247-008 KLF-8	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	70%	Non-Fibrous Material	30%
0157247-009 KLF-9	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	65%	Non-Fibrous Material	35%
0157247-010 KLF-10	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	65%	Non-Fibrous Material	35%
0157247-011 KLF-11	Gray, Homogeneous, Fibrous, tease, non-friable Note: 29°C, 1.55 Oil	LAYER 1 100%	Chrysotile	65%	Non-Fibrous Material	35%

Analyst - JEFF WAN

Approved Signatory Laboratory Director

The EPA method is a semi-quantitative procedure. The detection limit is between 0.1-1% by area and dependent upon the size of the asbestos fibers, the means of sampling and the matrix of the sampled material. The test results reported are for the sample(s) delivered to us and may not represent the entire material from which the sample was taken. The EPA recommends three samples or more be taken from a "homogeneous sampling area" before friable material is considered non-asbestos-containing. Negative floor tile samples may contain significant amounts (>1%) of very thin fibers which cannot be detected by PLM. Confirmation by TEM is recommended by the EPA (Federal Register Vol.59, No.146). Asbestos fibers bound in a non-friable organic matrix may not be detected by PLM. Alternative preparation methods are recommended. This report, from a NIST-accredited laboratory through NVLAP, must not be used by the client to claim product endorsement by NVLAP or any agencyof the U.S. government. This report shall not be reproduced, except in full, without the written approval of EMS Laboratories, Inc. Samples were received in good condition unless otherwise noted.

NVLAP

NVLAP Lab Code: 101218-0

ASBESTOS BULK SAMPLE DATA SHEET

157247

Sheet 1 of 1

Kleinfelder, Inc. 2 Ada, Suite 250 Irvine, CA 92618 Tel: (949)727-4466 Fax: (949)727-9242	**Project Name : Caltrans Task Order 11** Project No.: 133297 Project Manager: Mark Peabody Site Address: San Diego County, CA	Sampled By: Rich Stevenson Sampled By: Sampled By: Date Sampled: 7/12/13, 7/16/13	**Laboratory:** EMS Laboratories Pasadena, CA

CHAIN OF CUSTODY INFORMATION:

Relinquished By: (sign/print)	Company	Date	Time(24 hr.)	Received By: (sign/print)	Laboratory
Rich Stevenson	Kleinfelder			Annette M	EMS

Sample ID	Building Number	Room Number	Sample Location	Sample Description	Quantity (SF/LF/E	Friable (Y/N)	Condition
KLF-1			Sixth Street On-Ramp UC	Guard rail post shim			
KLF-2			Friars Road OC	Guard rail post shim			
KLF-3			Genesee Ave UC	Guard rail post shim			
KLF-4			163/805 Interchange	Guard rail post shim			
KLF-5			Winter Gardens OC	Guard rail post shim			
KLF-6			Barcellona Street UC	Guard rail post shim			
KLF-7			El Camino Real OC	Guard rail post shim			
KLF-8			Main Street UC	Guard rail post sh			
KLF-9			San Ysidro Blvd UC	Guard rail post shim			
KLF-10			I-905/805 INTERCHANGE	Guard rail post shim			
KLF-11			Del Sur UC	Guard rail post shim			

Asbestos Sample

SUBMITTAL FORM/*Laboratory Services*

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PAGE 1 OF 1

TURNAROUND TIME: STD [X] 48 HR. [ ] 24 HR. [ ]
<8 HR. [ ] WKND [ ] OTHER: [ ]

- RELINQUISHED BY Rich Stevenson
- TIME / DATE 7/17/13 - 15:00
- CLIENT Rich Kleinfelder
- ADDRESS 2 ADA, Suite 250, Irvine, CA 92618
- TELEPHONE 949-727-4466
- CONTACT Rich Stevenson
- DATE OF SHIPMENT 7/17/13
- CARRIER Fed Ex
- CLIENT P.O. NO. 133297
- CLIENT JOB/PROJECT ID NO(S). Caltrans Task Order 11
- PACKAGE SHIPPED FROM Irvine, CA

- RESULTS REQUESTED VIA VERBAL [ ] FAX [ ] E-MAIL [X]
- E-MAIL rhstevenson@kleinfelder.com
- FAX NO.

(NOTE: Complete written reports will follow all analyses, in addition to any prior transmitted verbal, fax or e-mail results)

- DATE/TIME OF SAMPLE COLLECTION 7/12/13, 7/16/13
- SAMPLE PRESERVATIVES N/A
- HOLDING TIMES N/A
- NO. OF SAMPLES SENT 11
- SAMPLER'S NAME [signature] (SIGNATURE) / Rich Stevenson (PRINTED)
- TYPE: [ ] WATER [ ] WASTE WATER [ ] SOIL [ ] FILTER [ ] SORBENT TUBE [ ] IMPINGER [X] OTHER Bulk

(FOR EMS ONLY) EMS Sample No.	CLIENT SAMPLE NO.	DESCRIPTION LOCATION ANALYSIS		VOLUME TIME WEIGHT
157247-1	See attached "asbestos bulk sample data sheet".			
2	Analyze all samples by standard polarized			
3	light microscopy.			
4				
5				
6				
7				
8				
9				
10				
11				

15 lines

(SF 6/07)

FOR EMS ONLY

- Laboratory No. 157247
- Received By Annette M
- Time 1026
- Date of Package Delivery 07.18.13
- Shipping Bill Retained: YES [X] NONE [ ]
- Condition of Package on Receipt OK
- Condition of Custody Seal None
- (NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact the project manager and the shipper.)
- No. of Samples 11
- Chain-of-Custody Signature
- Date of Acceptance into Sample Bank 07.18.13
- Misc. Info.
- Disposition of Samples EMS