

INFORMATION HANDOUT

For Contract No. 11-414704

At 11-SD-67-9.3/11.2

Identified by

Project ID 1112000191

MATERIALS INFORMATION

Geotechnical Design Report, Dated September 22, 2015

Memorandum

*Serious drought.
Help save water!*

To: Mr. Jose Robles
Project Engineer
District 11
Traffic Project Development

Date: September 22, 2015

File: 11-SR-67- 9.3/11.2
EA 11-41470
ID 1112000191

From: JEFF TESAR
Engineering Geologist
Office of Geotechnical Design-South 2, Branch-D

Subject: **Geotechnical Design Report for the Removal and Replacement of the Guardrail Barrier on State Route 67.**

General

Pursuant to your request, a limited geotechnical investigation has been conducted for seven guardrail replacement locations on the State Route 67 (SR-67), from Station 500+00 to about Station 600+00, as shown in the attached Figure 1, Project Location. The posts for the proposed Midwest Guardrail System will be embedded to the maximum depth of six feet below the ground surface. The geotechnical investigation included a review of the project related literature and archived reports, site reconnaissance, subsurface investigation, and the preparation of this memorandum. Photos depicting each location are attached to this memorandum.

Existing Facilities

SR-67, along the project alignment is a four lanes Asphalt Concrete (AC) paved winding rural highway. Both southbound and northbound lanes are bounded by approximately 8 foot wide AC paved shoulders. Existing facilities along the project area include cut and graded slopes, buried and overhead utilities, traffic signs structures, guardrail barriers, and drainage features.

Subsurface Investigation

The subsurface investigation that was conducted in August 2015 consisted of excavating seven hand augers to depths ranging from 0.5 to 4.0 feet below the ground surface. All hand augers were terminated at relatively shallow depths due to gravelly and/or rocky subsurface soil conditions. The subsurface soils encountered were logged and field index tested. No groundwater was encountered. Table 1 provides subsurface investigation data and description of the soil conditions pursuant to the Caltrans Soil and Rock Logging, Classification, and Presentation Manual of 2010. Hand auger locations are provided in Figure 4, Boring Locations Plan. They can also be found in Figure 3, Aerial Photo.

Site Geology

The project alignment is underlain by three geologic units: Pleistocene age Marine and Marine Terrace Deposits (Qm), Eocene age Nonmarine Deposits (Ec), and the Jura-Trias age Metavolcanic Rocks (JTrv) (O.P. Jenkins, 1993.)

In addition, several sections of the project alignment are underlain by embankment fill derived from the nearby cuts in native soils. A Geologic Map depicting the project location is presented in Figure 2.

Subsurface Soil Conditions

Location 1

From about Station 512+40 to 523+30, the existing guardrail is located west of western shoulder of SR-67. To the west of this guardrail, a descending west facing slope with an average inclination of 4:1 (horizontal to vertical) exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well.

Along this section the highway was constructed as a slope cut. Therefore, the location of the existing guardrail is underlain by native soils consisting of gravels with few cobbles within the sandy matrix. No groundwater was encountered during subsurface investigation.

Location 2

From about Station 529+90 to 540+12, the existing guardrail is located west of western shoulder of SR-67. To the west of this guardrail, a descending west facing slope with the inclination of 1.5:1 exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well. Along this section the highway was constructed as a road embankment built of fill materials. Therefore, the location of the existing guardrail is underlain by gravels, sands, and few cobbles. No ground water was encountered during the subsurface investigation.

Location 3

From about Station 559+22 to 572+29, the existing guardrail is located west of western shoulder of SR-67. To the west of this guardrail, a descending west facing slope with the inclination of 1.5:1 exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well. Along this section the highway was constructed as a road embankment built of fill materials. Therefore, the location of the existing guardrail is underlain by sands, gravels, and a few cobbles. No ground water was encountered during the subsurface investigation.

Location 4

From about Station 581+10 to 578+90, the existing guardrail is located east of eastern shoulder of SR-67. To the east of this guardrail, a descending east facing slope with the inclination of 1.5:1 exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well. Along this section the highway was constructed as a slope cut. Therefore, the location of the existing guardrail is underlain by a relatively shallow fill layer that in turn is underlain by sedimentary formation.

Both the fill layer and the underlying sedimentary deposit consist of sands and gravels. No ground water was encountered during the subsurface investigation.

Location 5

From about Station 583+77 to 586+65, the existing guardrail is located east of the edge of the eastern shoulder of the northbound lane of SR-67. To the east of this guardrail, a descending east facing slope with the inclination of about 1.5:1 exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well.

Along this section the highway was constructed as a slope cut. Therefore, the location of the existing guardrail is underlain by a relatively shallow fill layer that in turn is underlain by sedimentary formation. Both the fill layer and sedimentary formation consist of gravels, sands, and few cobbles. No ground water was encountered during the subsurface investigation.

Location 6

From about Station 589+34 to 592+84, the existing guardrail is located east of eastern shoulder of SR-67. To the east of this guardrail, a descending east facing slope with the inclination of 1.5:1 exists. No seepage or spring water was observed on the face of the slope. No evidence of distress was observed on the face of this slope. In addition, no adverse erosional features were observed on the slope face as well. Along this section the highway was constructed as a road embankment built of fill materials. Therefore, the location of the existing guardrail is underlain by sands, gravels, and a few cobbles. No ground water was encountered during the subsurface investigation.

Location 7

From about Station 596+32 to 598+22, the existing guardrail is located west of western of SR-67. To the west of this guardrail, a descending west facing slope with an average inclination of 1.5:1 horizontal to vertical exists.

Along this section the highway was constructed as a road embankment built of fill materials. Therefore, the location of the existing guardrail is underlain by a relatively shallow layer of fill materials consisting of gravels, sands and cobbles. This shallow fill layer is underlain by a layer of predominantly angular metavolcanic rocks, up to 4 feet in diameter. These rocks were placed during the grading operations associated with the construction of the highway. No groundwater was encountered during subsurface investigation.

Design Advisories

Most of the proposed guardrail will be placed at the hinge of steep fill slopes. The embankment fill may be considered to have a friction angle equal to 35 degrees. The project designer should consider whether additional post embedment is necessary to provide the required lateral resistance.

Construction Considerations

Due to the gravelly and rocky nature of the materials that underlay the project alignment, we anticipate hard drilling conditions at all locations. In addition, at Location 7 we anticipate these drilling conditions to be very hard. It is expected that gravels, cobbles, and boulder size rocks will be encountered in excavations impacting the rate of the progress of excavating or/and drilling. At Location 7 a layer of

September 22, 2015

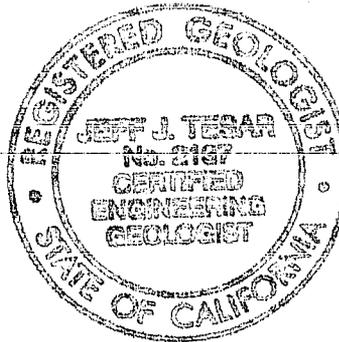
Memorandum
Roadway Improvements on SR 67: Subsurface soils Conditions
EA 11-41470
ID 1112000191

relatively fresh metavolcanic rocks will be encountered. Their occurrence could significantly affect the rate of progress of excavating or drilling.

If you have additional questions regarding this memorandum or require clarification please contact Jeff Tesar at 858-467-2716



Jeff Tesar
Engineering Geologist, CEG
Office of Geotechnical Design-South2, Branch-D



References

O.P. Jenkins, "Geologic Map of California, San Diego-El Centro Sheet" California Division of Mines and Geology, 1993.

R.B. Findlay, "Mitigation of Rock Debris Hazard" CT Memorandum, 1984

Attachments

Figure 1: Project Location
Figure 2: Geologic Map
Figure 3: Aerial Photo
Figure 4: Boring Locations
Table 1: Subsurface Soil Conditions
Photos

CC:

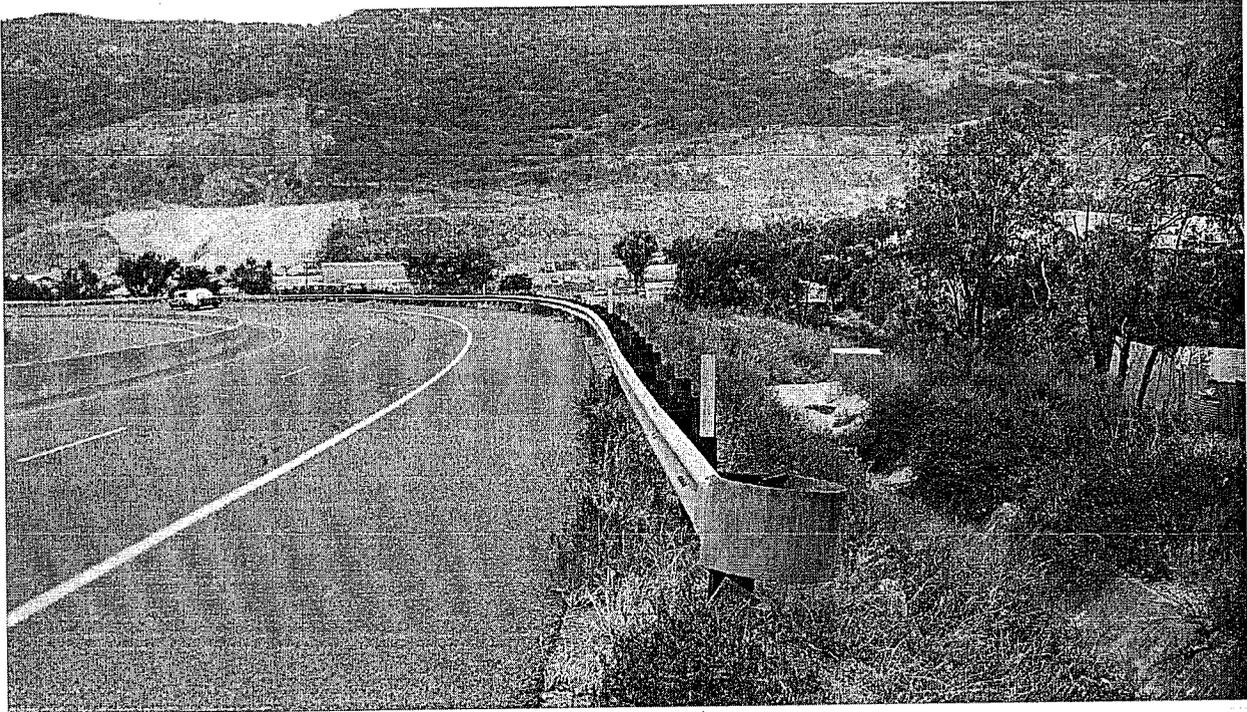
Richard Estrada
Alfonso Ochoa
Shawn Wei
Brian Hinman *BH*

Project Manager
District 11 Materials Engineer
Branch Chief, OGDS2 C and D
Senior Specialist, OGDS2

Geotechnical Archives

September 22, 2015

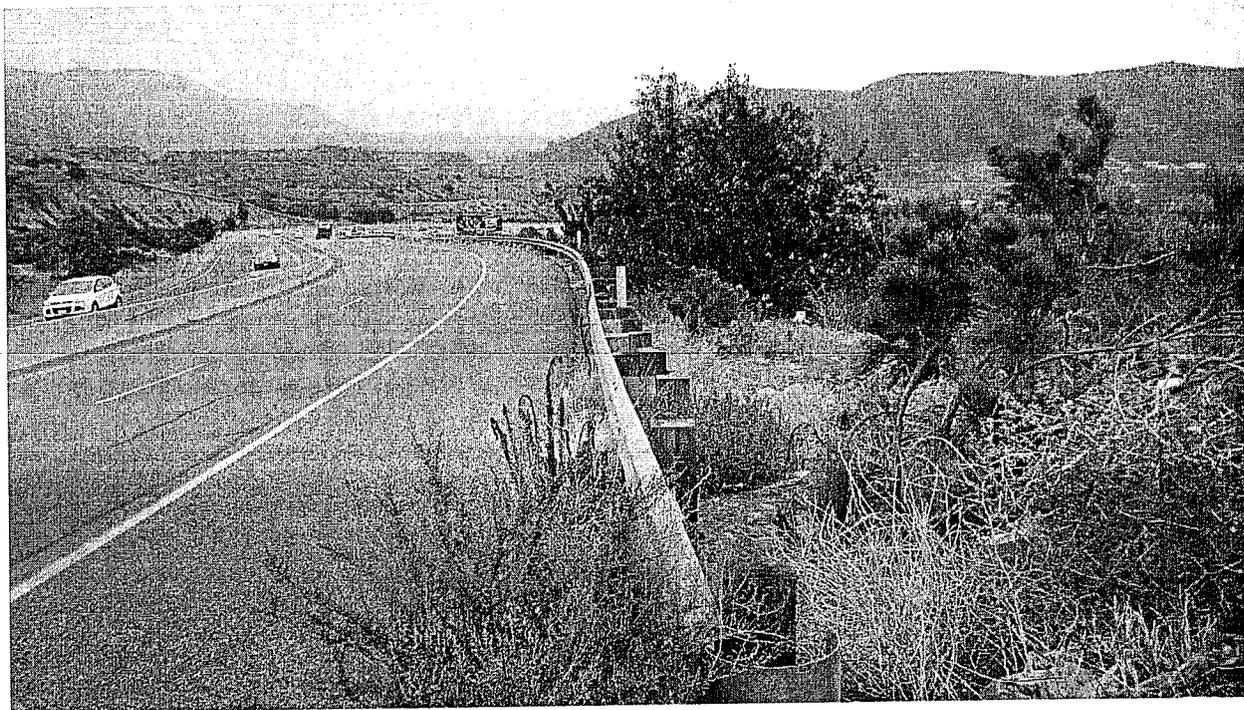
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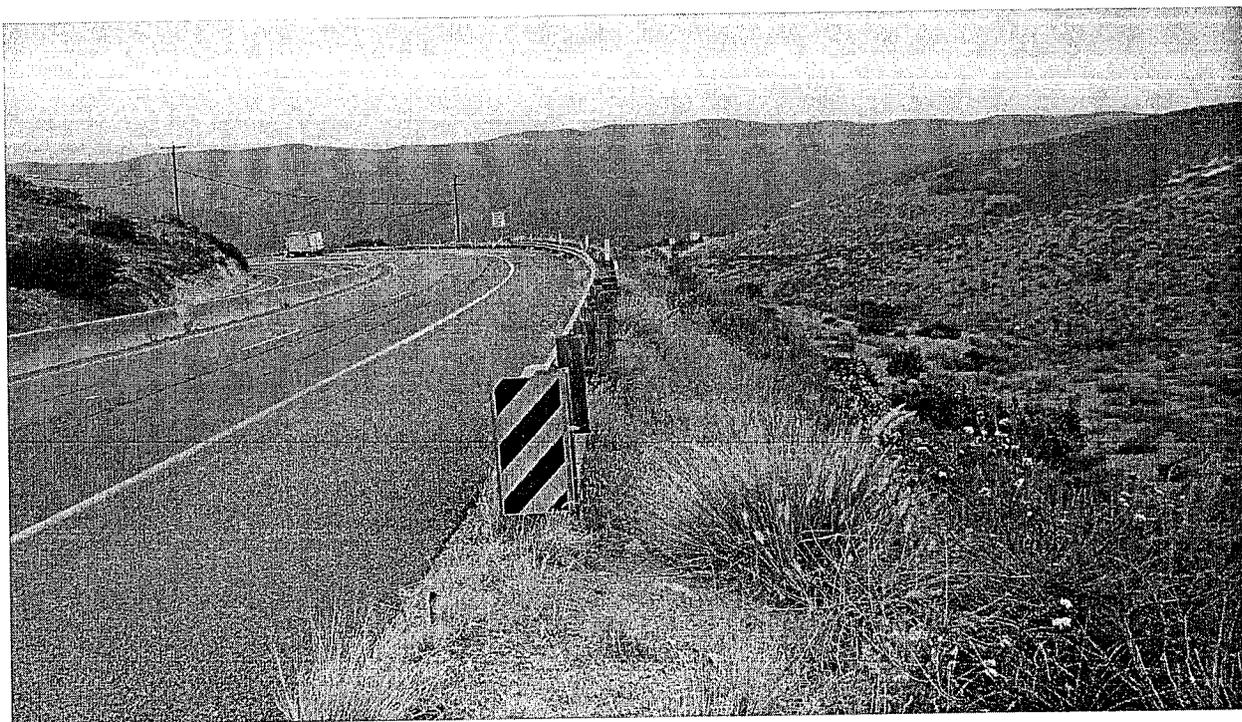
Location-1

September 22, 2015

Memorandum
Roadway Improvements on SR 67: Subsurface soils Conditions
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Location-2

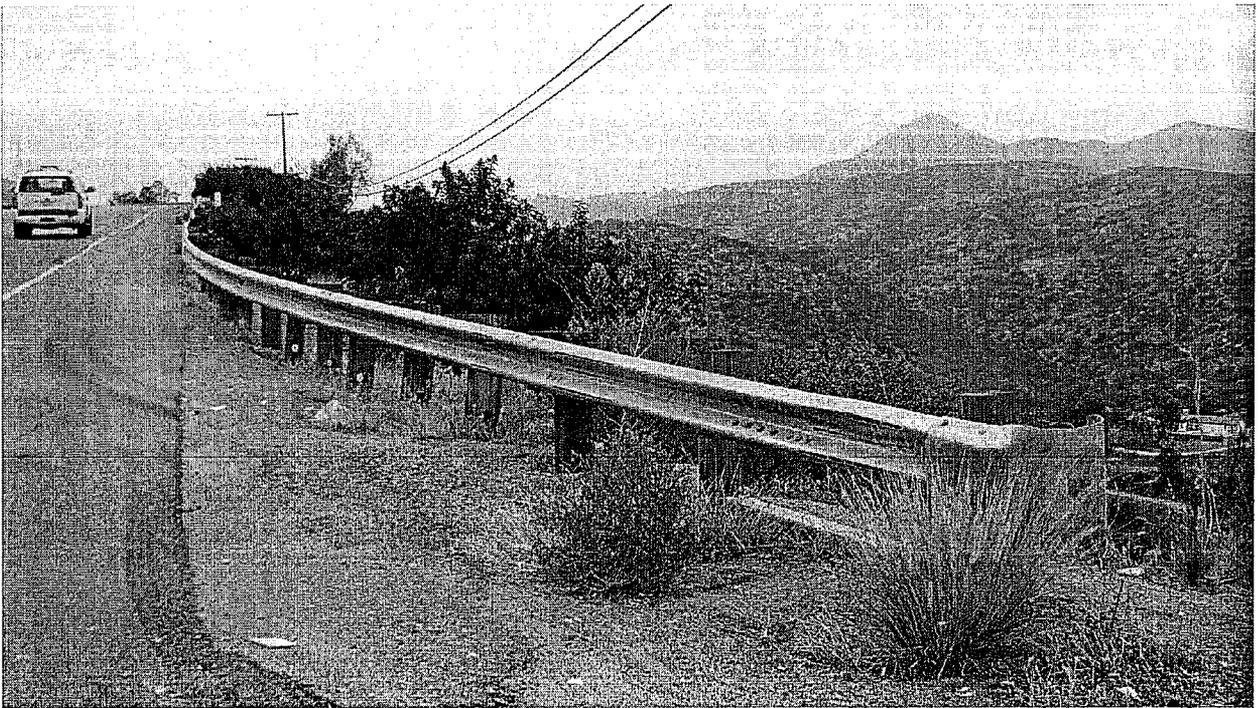


Location-3

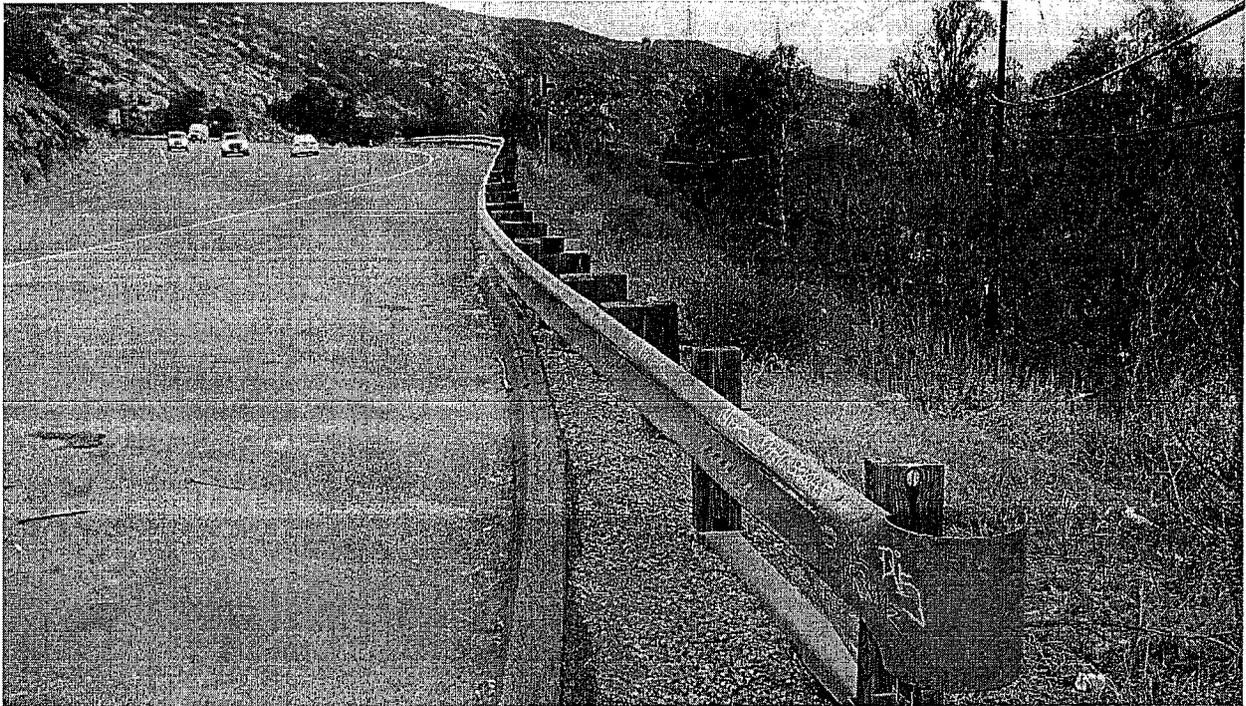
*“Provide a safe, sustainable, integrated and efficient transportation system
to enhance California’s economy and livability”*



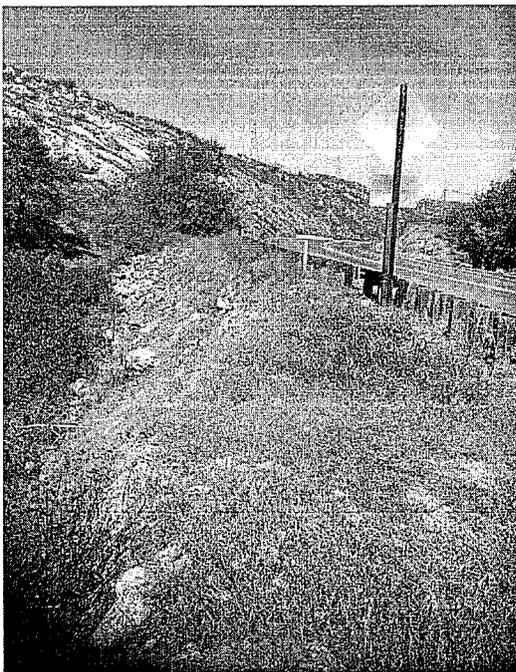
Location-4



Location-5



Location-6



Location-7

Table 1: Subsurface Soil Conditions

BORING NO.	LOCATION/ STATION	SUBSURFACE SOIL CONDITIONS
HA-15-001	517+79 "11-SD-67" LINE 47.0 ft Lt	0-2.5': Poorly-graded SAND with GRAVEL (SP): brown; dry to moist; medium SAND; coarse and fine GRAVEL, (rounded and subrounded GRAVEL); few COBBLES, (up to 10" in diameter).
HA-15-002	537+37 "11-SD-67" LINE 53 ft Lt	0.0-3.0': Poorly-graded GRAVEL with SAND (GP): brown; dry; coarse and fine GRAVEL; medium SAND; rounded and subrounded GRAVEL; few COBBLES, (up to 12" in diameter).
HA-15-003	569+97 "11-SD-67" LINE 47 ft Lt	0.0-1.5': Poorly-graded SAND with GRAVEL (SP): brown; dry; coarse to medium SAND; fine GRAVEL; trace coarse GRAVEL); (FILL). 1.5-2.5': Poorly-graded SAND with GRAVEL (SP): brown; moist; medium SAND; coarse and fine GRAVEL; few COBBLES (up to 10" in diameter).
HA-15-004	579+55 "11-SD-67" LINE 50 ft Rt	0.0-2.0': Poorly-graded SAND with GRAVEL (SP): brown; dry; medium SAND; fine GRAVEL: (FILL). 2.0-4.0': Poorly-graded GRAVEL with SAND (GP): brown; moist; coarse and fine GRAVEL; medium SAND.
HA-15-005	585+24 "11-SD-67" LINE 45 ft Rt	0.0-3.0': Poorly-graded GRAVEL with SAND (GP): brown; dry to moist; coarse and fine GRAVEL; medium SAND; few COBBLES, (up to 10" diameter); (FILL). 3.0-3.5': Poorly-graded GRAVEL with SAND (GP): brown; moist; coarse and fine GRAVEL; medium SAND; few COBBLES; (residual soil composed of angular metavolcanics rocks within sandy matrix).
HA-15-006	590+37 "11-SD-67" LINE 47 ft Rt	0.0-3.0': Poorly-graded SAND (SP): brown; dry; medium; few fine GRAVEL; (FILL) 3.0-3.5': Poorly-graded SAND with GRAVEL (SP): brown; moist; medium SAND; coarse and fine GRAVEL; few COBBLES, (up to 12" in diameter); BOULDERS, (up to 3' diameter at the slope surface); (FILL).
HA-15-007	597+47 "11-SD-67" LINE 45 ft Rt	0.0-0.5': Poorly-graded GRAVEL with SAND (GP): brown; dry; coarse GRAVEL; medium SAND; little COBBLES. 0.0-0.5': Refusal to hand augering and potholing. (rubble of angular metavolcanic rocks up to 4' in diameter observed on the surface of the slope).

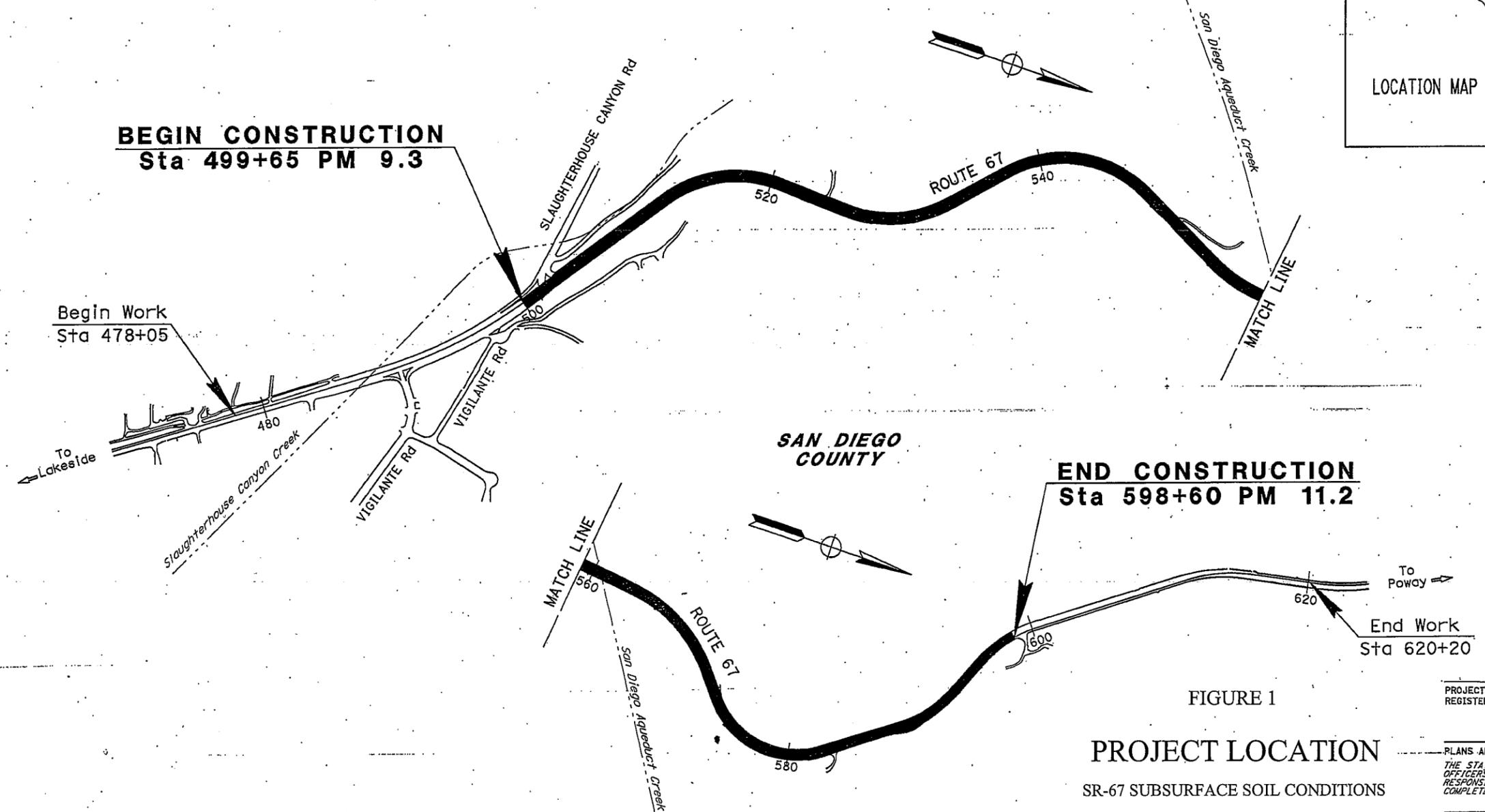
INDEX OF PLANS

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 PROJECT PLANS FOR CONSTRUCTION ON
 STATE HIGHWAY
 IN SAN DIEGO COUNTY NEAR POWAY
 FROM SLAUGHTERHOUSE CANYON Rd TO
 1.9 MILES NORTH OF SLAUGHTERHOUSE CANYON Rd

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	67	9.3/11.2		

LOCATION MAP

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



PROJECT MANAGER
 RICHARD ESTRADA

DESIGN ENGINEER
 JOSE LUIS ROBLES

FIGURE 1

PROJECT LOCATION
 SR-67 SUBSURFACE SOIL CONDITIONS

PROJECT ENGINEER DATE
 REGISTERED CIVIL ENGINEER

JOSE L. ROBLES
 No. C 64402
 Exp. 06-30-17
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL-DATE-

CONTRACT No. 11-414704
 PROJECT ID 1112000191

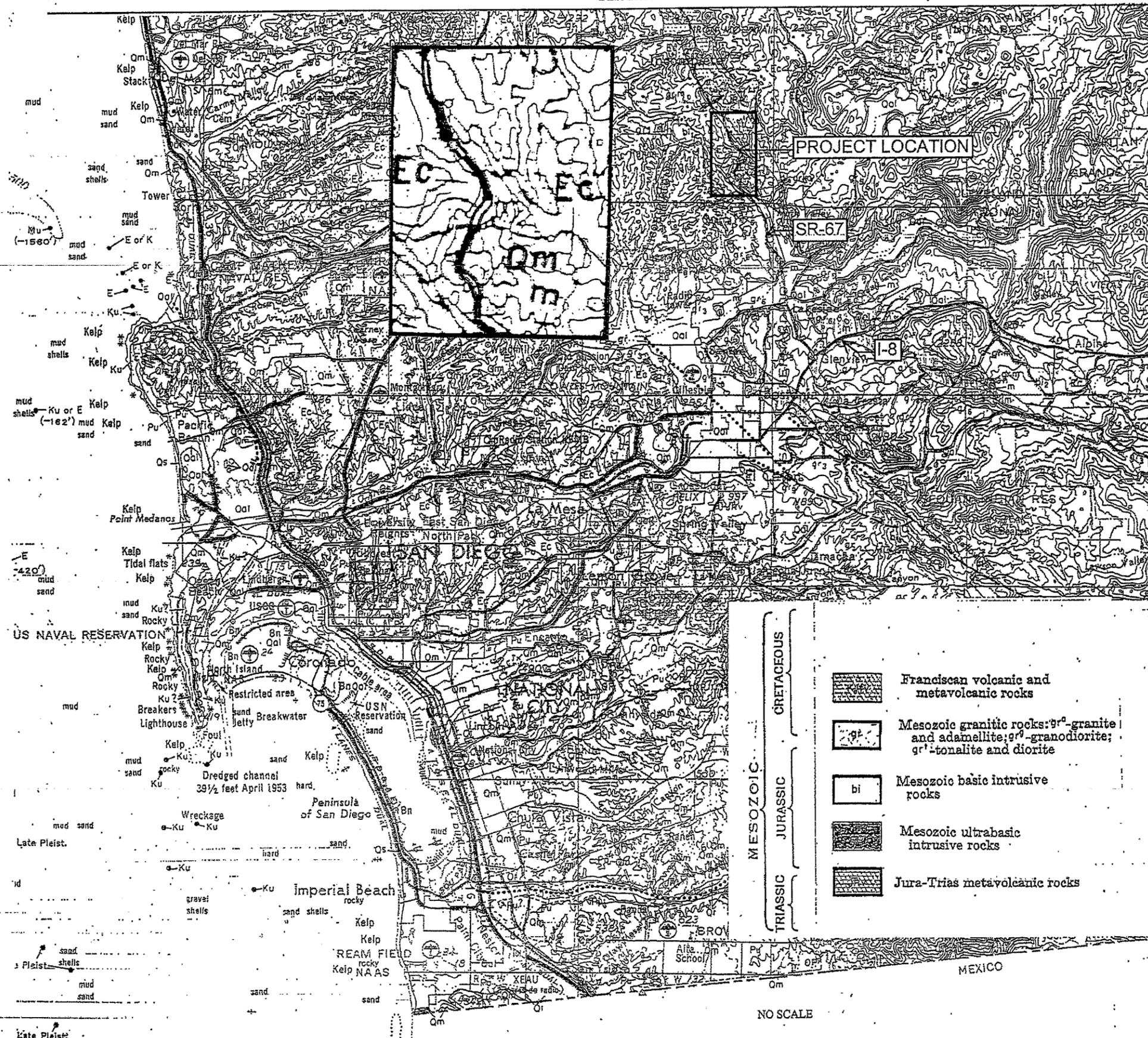
THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

11 1200 0191

JTESAR 2015

DATE PLOTTED => 27-JUL-2015
 TIME PLOTTED => 12:14
 LAST REVISION 06-26-15



- MESOZOIC**
- CRETACEOUS**
 - JURASSIC**
 - TRIASSIC**
- Franciscan volcanic and metavolcanic rocks
 - Mesozoic granitic rocks: 9^a -granite and adamellite; 9^d -granodiorite; 9^t -tonalite and diorite
 - Mesozoic basic intrusive rocks
 - Mesozoic ultrabasic intrusive rocks
 - Jura-Trias metavolcanic rocks

EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS. IGNEOUS AND META-IGNEOUS ROCKS.

- QUATERNARY**
- Recent**
 - Dune sand
 - Alluvium
 - Stream-channel deposits
 - Fan deposits
 - Basin deposits
 - Salt deposits
 - Quaternary lake deposits
 - Glacial deposits
 - Quaternary nonmarine terrace deposits
 - Pleistocene marine and marine terrace deposits
 - Pleistocene nonmarine
 - Plio-Pleistocene nonmarine
 - Undivided Pliocene nonmarine
 - Upper Pliocene nonmarine
 - Upper Pliocene marine
 - Middle and/or lower Pliocene nonmarine
 - Middle and/or lower Pliocene marine
- PLIOCENE**
- Undivided Miocene nonmarine
 - Upper Miocene nonmarine
 - Upper Miocene marine
 - Middle Miocene nonmarine
 - Middle Miocene marine
 - Lower Miocene marine
- OLIGOCENE**
- Oligocene nonmarine
 - Oligocene marine
- Eocene**
- Eocene nonmarine
 - Eocene marine
- PALEOCENE**
- Paleocene nonmarine
 - Paleocene marine
- IGNEOUS AND META-IGNEOUS ROCKS**
- Recent volcanic: Qv^d -rhyolite; Qv^a -andesite; Qv^b -basalt; Qv^p -pyroclastic rocks
 - Pleistocene volcanic: Qp^v -rhyolite; Qp^a -andesite; Qp^b -basalt; Qp^p -pyroclastic rocks
 - Quaternary and/or Pliocene cinder cones
 - Pliocene volcanic: Pp^v -rhyolite; Pp^a -andesite; Pp^b -basalt; Pp^p -pyroclastic rocks
 - Miocene volcanic: Mv^v -rhyolite; Mv^a -andesite; Mv^b -basalt; Mv^p -pyroclastic rocks
 - Eocene volcanic: E^v -rhyolite; E^a -andesite; E^b -basalt; E^p -pyroclastic rocks

FIGURE 2
GEOLOGIC MAP
SR-67-SUBSURFACE SOIL CONDITIONS



TO POWAY

LOCATION 2

HA-15-002

HA-15-001

LOCATION 1

SLAUGHTERHOUSE CANYON RD

VIGILANTE RD



LEGEND:

Boring Location

FIGURE 3

AERIAL PHOTO

SR-67 SUBSURFACE SOIL CONDITIONS

ID: 11 1200 0191

2015

Google earth

© 2015 Google
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1764 ft

Imagery Date: 4/14/2015 1994

32°54'38.38" N 116°56'37.39" W elev 617 ft

Eye alt 8651 ft



TO POWAY

LOCATION 7
HA-15-007

HA-15-006
LOCATION 6

HA-15-005
LOCATION 5

HA-15-004
LOCATION 4

HA-15-003
LOCATION 3



LEGEND:
BORING LOCATION

FIGURE 3

AERIAL PHOTO

SR-67 SUBSURFACE SOIL CONDITIONS

ID: 11.1200.0191

JTESAR 2015

© 2015 Google
© 2015 INEGI

Google earth

Imagery Date: 4/14/2015 1994

TO SANTEE 32°55'23.58" N 116°56'51.01" W elev 946 ft

Eye alt 8651 ft

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	67	9.3/11.2		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

JOSE L. ROBLES
No. C 64402
Exp. 06-30-17
CIVIL
STATE OF CALIFORNIA

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- NOTES:**
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
 - ALL DRIVEWAYS TO REMAIN OPEN AT ALL TIMES.
 - FOR TYPICAL PLACEMENT OF HFST SEE TYPICAL CROSS SECTIONS.

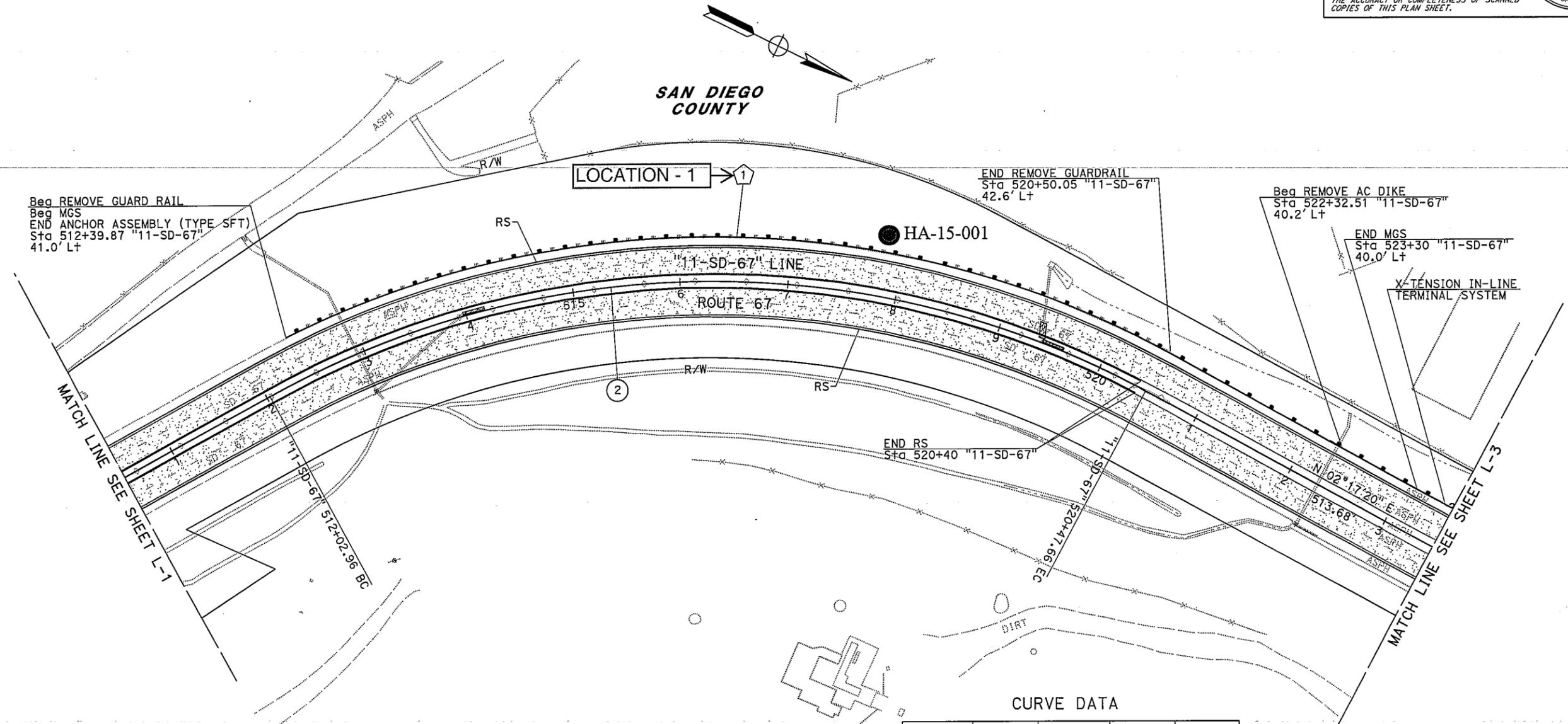
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR
 RICHARD ESTRADA

CALCULATED-DESIGNED BY
 CHECKED BY

KENNY T. NGUYEN
 JOSE LUIS ROBLES

REVISED BY
 DATE REVISED



CURVE DATA

Nº.	R	Δ	T	L
②	850'	56°56'19"	460.92'	844.70'

LEGEND:
 BORING LOCATION

FIGURE 4
BORING LOCATIONS
 SR-67 SUBSURFACE SOIL CONDITIONS

ID: 11 1200 0191
 JTesar 2015

SCALE: 1" = 50'

LAST REVISION: DATE PLOTTED => 11-SEP-2015
 09-02-15 TIME PLOTTED => 14:07

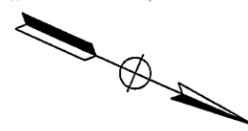
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	67	9.3/11.2		

REGISTERED CIVIL ENGINEER	DATE
JOSE L. ROBLES	
No. C 64402	
Exp 06-30-17	
CIVIL	

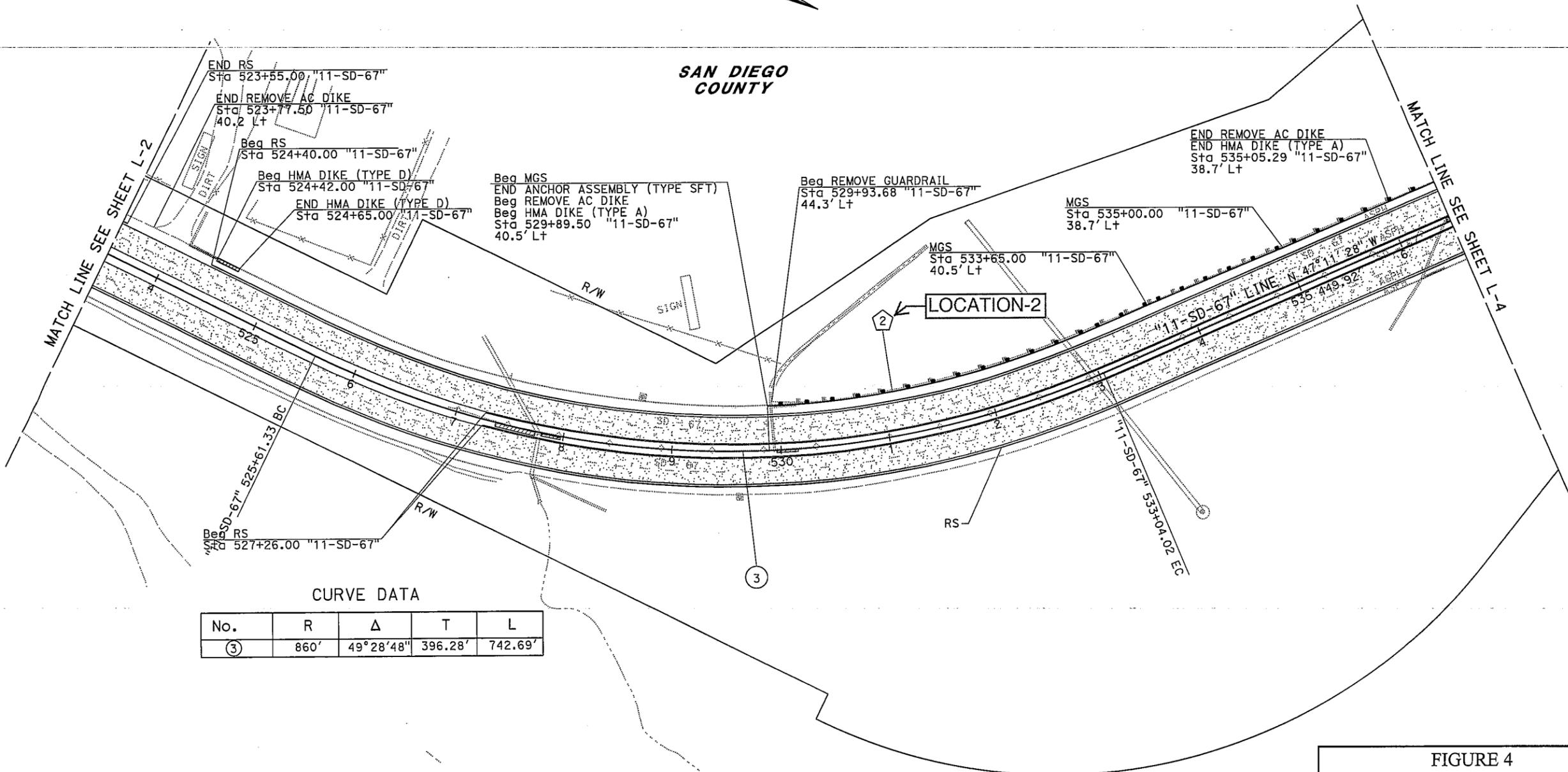
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SAN DIEGO COUNTY



CURVE DATA

No.	R	Δ	T	L
③	860'	49°28'48"	396.28'	742.69'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISED BY: []
 DATE REVISED: []

FIGURE 4
BORING LOCATION
 SR-67 SUBSURFACE SOIL CONDITIONS

SCALE: 1" = 50'
 ID: 11 1200 0191
 JTesar 2015

LAST REVISION DATE PLOTTED => 11-SEP-2015
 09-02-15 TIME PLOTTED => 14:06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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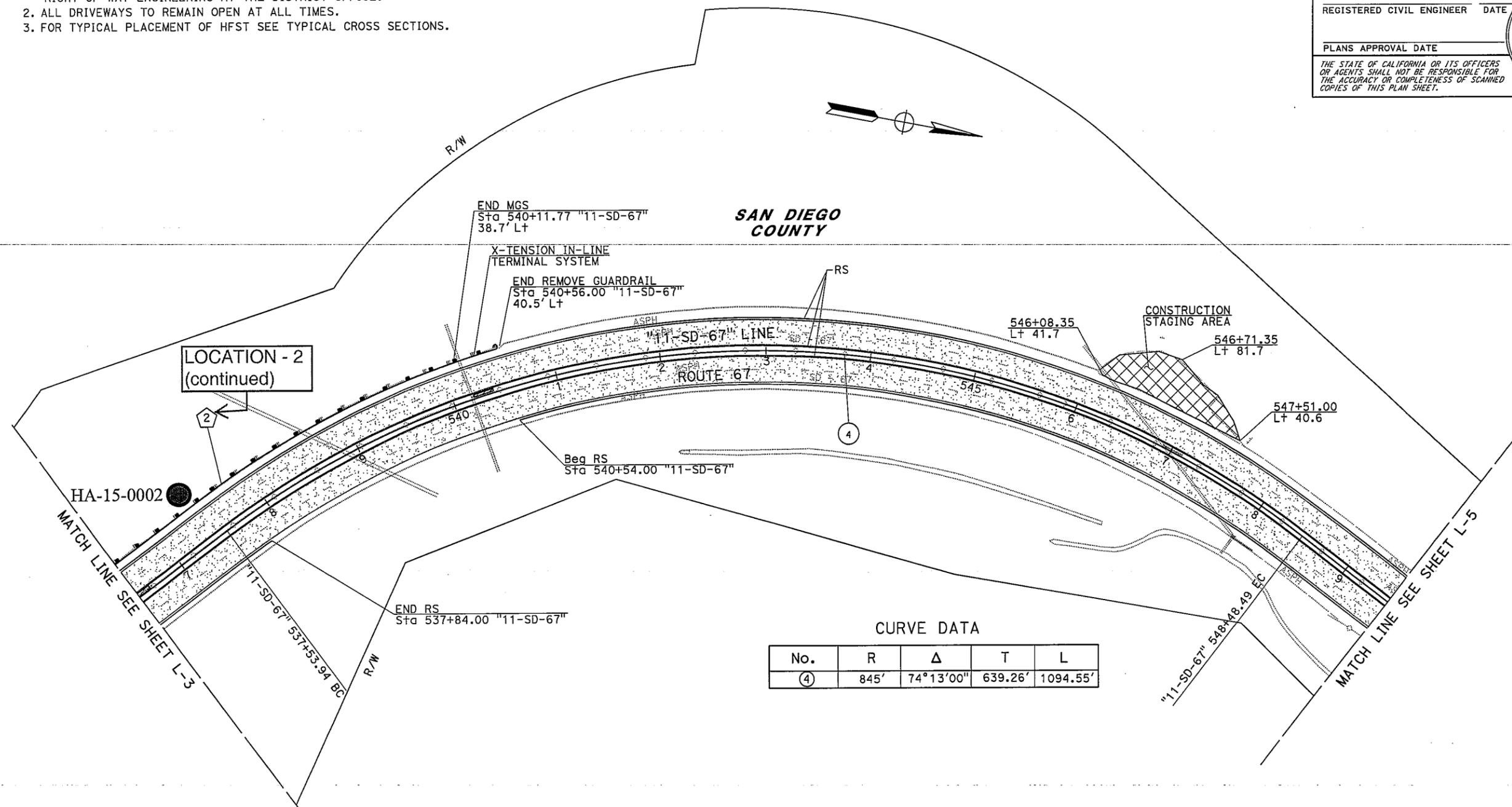
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REGISTERED PROFESSIONAL ENGINEER
 JOSE L. ROBLES
 No. C 64402
 Exp. 06-30-17
 CIVIL
 STATE OF CALIFORNIA

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CURVE DATA

No.	R	Δ	T	L
④	845'	74°13'00"	639.26'	1094.55'

LEGEND:
 BORING LOCATION

FIGURE 4
BORING LOCATIONS
 SR-67 SUBSURFACE SOIL CONDITIONS

SCALE: 1" = 50' D: 11 1200 0191 JTESAR 2015

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 TRAFFIC PROJECT DEVELOPMENT
 FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISED BY: _____ DATE: _____
 REVISIONS: _____

LAST REVISION: _____ DATE PLOTTED => 11-SEP-2015 09-02-15 TIME PLOTTED => 14:09

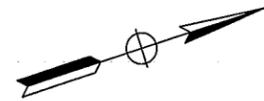
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REGISTERED CIVIL ENGINEER DATE _____
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 STATE OF CALIFORNIA

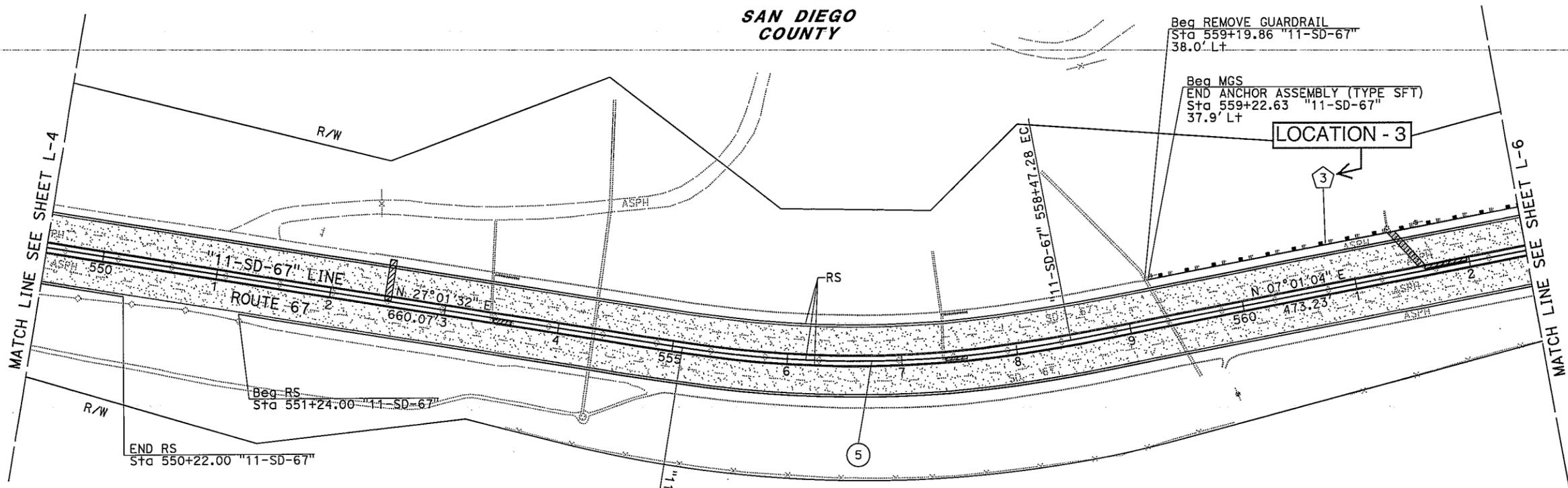
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SAN DIEGO COUNTY



CURVE DATA

No.	R	Δ	T	L
⑤	970'	20°00'28"	171.11'	338.73'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 TRAFFIC PROJECT DEVELOPMENT
 FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISIONS: REVISOR: DATE
 REVISOR: DATE

FIGURE 4
BORING LOCATIONS
 SR-67 SUBSURFACE SOIL CONDITIONS

SCALE: 1" = 50' ID: 11 1200 0191 JTESAR 2015

LAST REVISION | DATE PLOTTED => 11-SEP-2015
 09-02-15 TIME PLOTTED => 14:10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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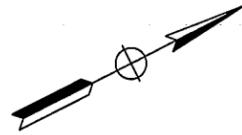
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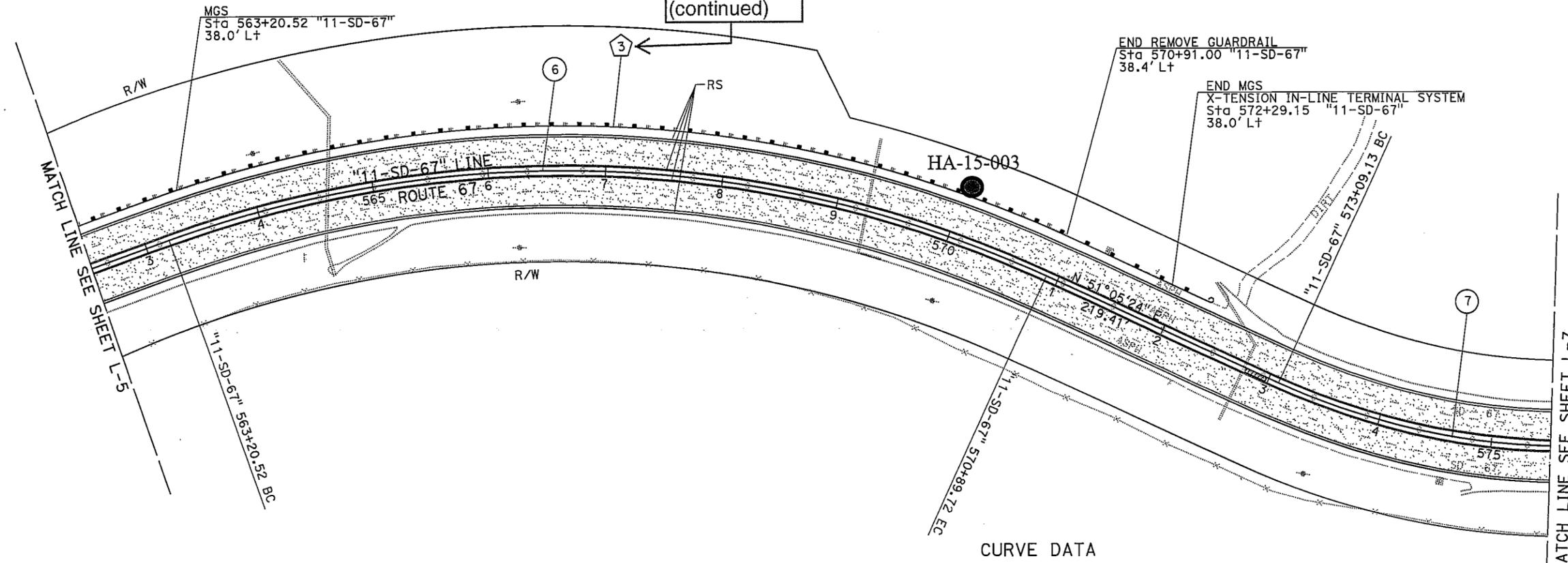
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SAN DIEGO COUNTY



LOCATION -3
(continued)



CURVE DATA

No.	R	Δ	T	L
⑥	1000'	44° 04' 20"	404.76'	769.21'
⑦	600'	86° 35' 36"	565.35'	906.80'

LEGEND:

● BORING LOCATION

FIGURE 4

BORING LOCATION

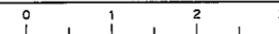
SR-67 SUBSURFACE SOIL CONDITIONS

ID: 11 1200 0191

JTESAR 2015

SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT
 FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISIONS: REVISOR, DATE, REVISIONS, DATE REVISIONS



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	67	9.3/11.2		

REGISTERED CIVIL ENGINEER	DATE
JOSE L. ROBLES	
No. C 64402	
Exp 06-30-17	
CIVIL	

PLANS APPROVAL DATE _____

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.

- NOTES:**
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
 - ALL DRIVEWAYS TO REMAIN OPEN AT ALL TIMES.
 - FOR TYPICAL PLACEMENT OF HFST SEE TYPICAL CROSS SECTIONS.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISED BY: _____
 DATE REVISED: _____

CURVE DATA

No.	R	Δ	T	L
⑦	600'	86°35'36"	565.35'	906.80'
⑧	5000'	00°54'25"	39.57'	79.14'



SAN DIEGO COUNTY

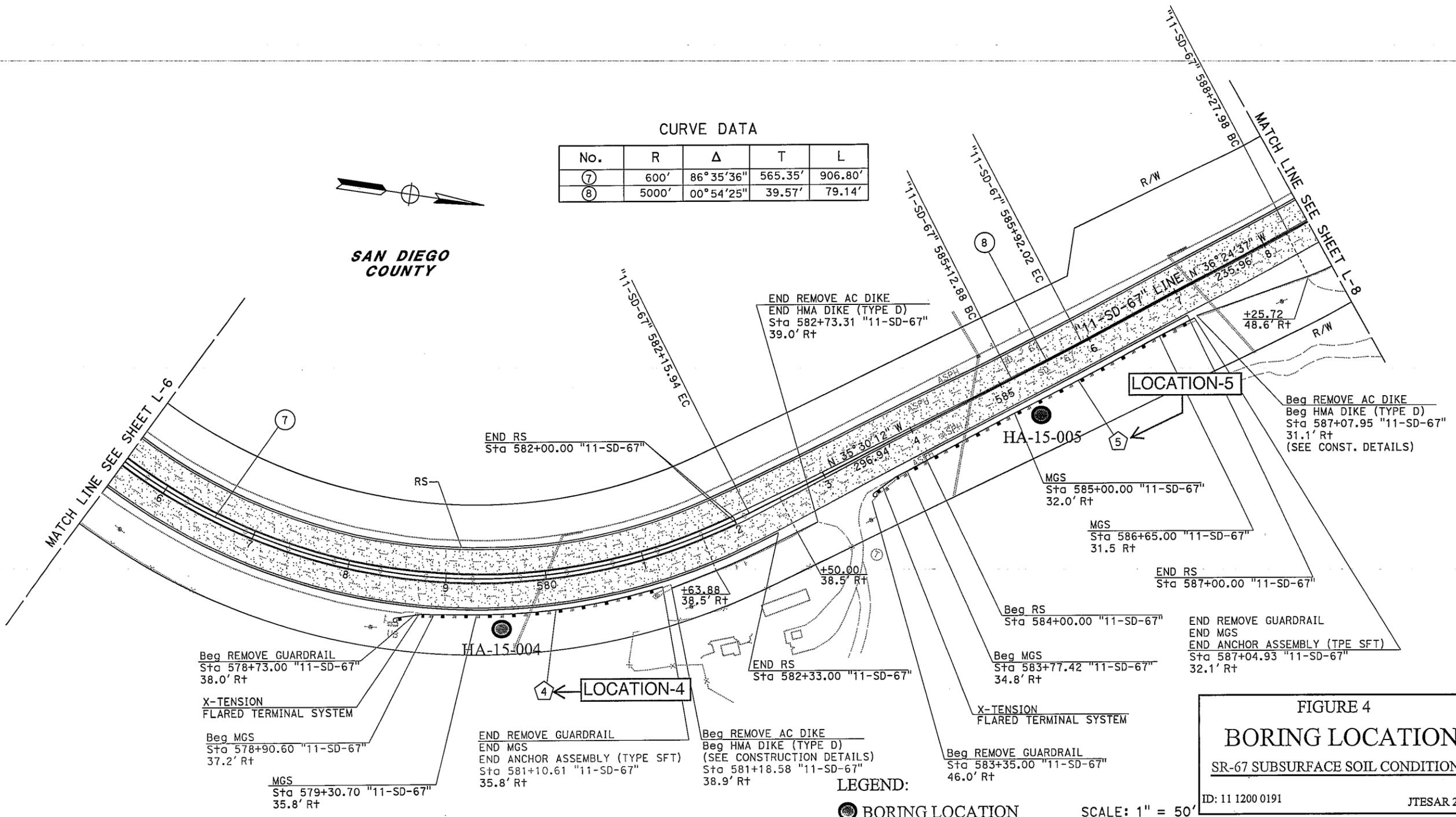


FIGURE 4
BORING LOCATION
 SR-67 SUBSURFACE SOIL CONDITIONS

ID: 11 1200 0191
 JT SAR 2015

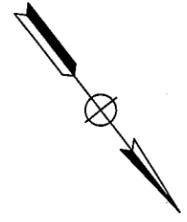
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	67	9.3/11.2		

REGISTERED CIVIL ENGINEER	DATE
JOSE L. ROBLES	
No. C 64402	
Exp 06-30-17	

PLANS APPROVAL DATE _____

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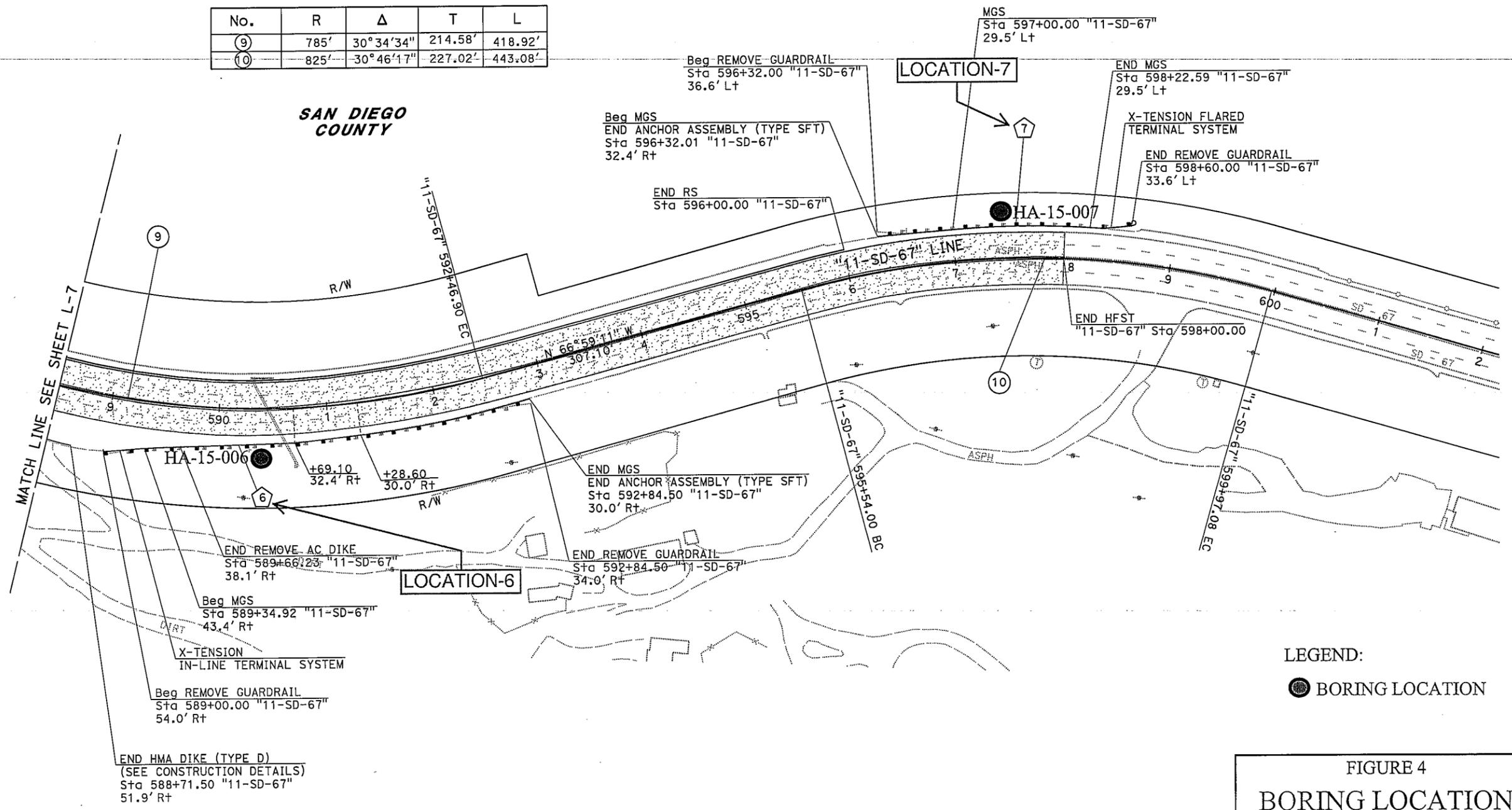
- NOTES:**
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CURVE DATA

No.	R	Δ	T	L
9	785'	30°34'34"	214.58'	418.92'
10	825'	30°46'17"	227.02'	443.08'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
EtG **Giltrans**
 FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
 CALCULATED/DESIGNED BY: KENNY T. NGUYEN
 CHECKED BY: JOSE LUIS ROBLES
 REVISIONS: REVISOR, DATE, REVISIONS, DATE, REVISIONS



SAN DIEGO COUNTY

LEGEND:
 BORING LOCATION

FIGURE 4
BORING LOCATION
 SR-67 SUBSURFACE SOIL CONDITIONS
 ID: 11 1200 0191 JTESAR 2015

SCALE: 1" = 50'

LAST REVISION DATE PLOTTED => 11-SEP-2015
 09-02-15 TIME PLOTTED => 14:26