FOR CONTRACT NO.: 11-284604

INFORMATION HANDOUT

MATERIALS INFORMATION

GEOTECHNICAL DESIGN REPORT (GDR), CONCRETE MEDIAN AND RETAINING WALL LOCATED BETWEEN MISSION BAY DRIVE AND NOBEL DRIVE, DATED AUGUST 22, 2008.

HAZARDOUS WASTE REVIEW MEMORANDUM

STRUCTURAL SECTION RECOMMENDATIONS

WATER AVAILABILITY LETTER

ROUTE: 11-SD-8 PM 23.9/R28.2

INFORMATION HANDOUT
11-284604
11-SD-8 PM 23.9/R28.2

1. Geotechnical Design Report (GDR), Concrete Median and Retaining Wall Located Between Mission Bay Drive and Nobel Drive, dated August 22, 2008.
2. Hazardous Waste Review Memorandum
3. Structural Section Recommendations
4. Water Availability Letter

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: Manuel Reyes – 11
Traffic Project Development

Date: August 22, 2008

File: 11-SD-5
PM R23.9/R28.2
EA 284601

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design - South

Subject: Geotechnical Design Report (GDR), Concrete Median and Retaining Wall Located Between Mission Bay Drive and Nobel Drive.

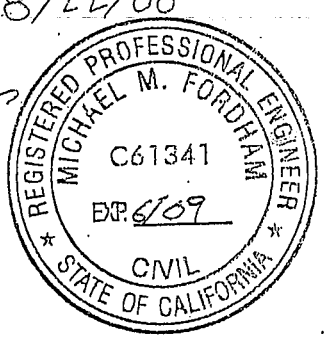
This Geotechnical Design Report presents the results of geotechnical evaluation of the project within the limits provided by District 11. The geotechnical evaluation consisted of field reconnaissance, review of archived information and analysis by the Caltrans Office of Geotechnical Design South (OGDS) II to provide design and construction recommendations relevant to the propose project. The proposed improvements would construct a concrete median barrier and retaining wall along interstate 5 between Mission Bay Drive and Nobel Drive.

Should you have any questions, please contact Mike Fordham (858) 467-3290

Prepared by: Date: 8/22/08

Mike Fordham

Mike Fordham, P.E.
Transportation Engineer
Geotechnical Branch D



cc: Abbas Abghari
Brian Hinman

CALIFORNIA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL DESIGN REPORT

MISSION BAY DRIVE OVERCROSSING TO NOBEL DRIVE OVERCROSSING

11-SD-5, PM R23.9 TO R28.2
11-284601

August 2008

Prepared for:

Caltrans
District 11

By: Office of Geotechnical Design South II, Branch D

Engineering Service Center
Division of Materials and Foundations
Roadway Geotechnical Engineering Design

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1. INTRODCUTION

1.1. General

Interstate 5 (I-5) through North San Diego County is one of the regions most significant transportation facilities. The I-5 Freeway is a vital link between San Diego, north county beach cites, Camp Pendleton, Los Angeles and beyond. The proposed project is part of the collision reduction program and is a 020-safety project that spans from Mission Bay Drive overcrossing (PM 23.9) to Nobel Drive overcrossing (PM 28.2) along I-5. The project features include replacing existing metal beam barrier with a concrete barrier (Type 60) and the construction of a 6-foot high retaining wall (station 1401+00.00 "SD" to station 1408+00.00 "SD") topped with a concrete barrier (Type 732A).

1.2. Purpose and Scope of Work

The purpose of this work is to review surface and subsurface geotechnical conditions, provide analyses of the anticipated site conditions as they pertain to the project, and to provide geotechnical recommendations for the design and construction of the proposed project features. Our scope of work included:

1. Review of existing data, including published maps, reports, as-built plans, aerial photographs, and other pertinent geotechnical information.
2. Site reconnaissance.
3. Engineering analyses based on archival data and assumed parameters
4. Preparation of this report.

2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS

2.1. Background

Interstate 5 is the major north-south interregional highway in San Diego County connecting to Orange County and Los Angeles County. It is the most western interstate highway and runs from the US-Mexico border to the US-Canadian border. The construction of the freeway within the proposed project area primarily occurred in the mid 1960's to early 1970's.

The analyses and recommendations provided in this report are based on the alignment, layouts and typical x-sections (figure 1, 2, 3) presented to OGDS II. The submittals to OGDS II are assumed to be the final design.

2.2. Existing Facilities

The project site is located in San Diego County on I-5. The proposed project is located within the City of San Diego. The existing facilities within the project limits include overcrossing, undercrossings, connector ramps between 5/52, numerous highway

drainage features and landscaped graded slopes. The area adjacent to I-5 consists mostly of light industrial/commercial developments and residential. I-5 within the project limits consists of eight PCC traffic lanes with AC shoulders and a landscaped median. Metal beam barrier is present along the inside shoulder in both the northbound and southbound directions. The project proposes to replace the existing metal beam barrier with a Caltrans standard Type 60 concrete barrier.

2.3. Proposed Improvements

The project consists of constructing a concrete barrier (Type 60) in the median of I-5. To accommodate the concrete median barrier between stations 1401+00.00 "SD" to 1408+00.00 "SD" a retaining wall is proposed. A Type 732A barrier is proposed to be constructed a top the retaining wall.

3. PERTINENT REPORTS AND INVESTIGATIONS

Caltrans, (July 1995), *Recommendations for Proposed Retaining Wall Foundation and Slope Repair,* 11-SD-5, PM R25.6/R26.6, 11-206601.

Caltrans, (August 2000), *Geotechnical Recommendations for Concrete Median Barrier,* 11-SD-5, PM R28.2/R29.5, 11- 24370K.

4. PHYSICAL SETTING

4.1. Climate

A review of 2002 climatic data for the general project area within San Diego County indicates the project traverses a semiarid region with mean temperatures ranging from approximately 70F° in September to approximately 55F° in January. Temperature data from the National Climatic Data Center indicate a mean annual temperature of 63F°. Precipitation data indicate a mean annual rainfall of approximately 12 inches per year. Rainfall primarily occurs during the months of November through March.

4.2. Topography & Drainage

In the project area, I-5 runs roughly parallel to the coast within just a few miles. The landforms traversed are comprised of a series of uplifted and incised wave cut terraces (mesas) that parallel the existing coastline. East-west trending river valleys and arroyos dissect these terraces.

4.3. Man-made and Natural Features of Engineering and construction Significance

The man-made and natural features of engineering and construction significance within the proposed project limits consist of cut slopes; fill slopes, highways drainage features, bridges, overcrossings, undercrossings and natural slopes.

4.4. Regional Geology and Seismicity

4.4.1. Geology

The project sites lies within the coastal plain section of the Peninsular Ranges Geomorphic Province of California. The coastal plain generally consists of subdued landforms underlain by Cenozoic sedimentary formations. North trending ridges and valleys, and several similarly trending faults in the region characterize the Peninsular Ranges Province.

The southern portion of the Peninsular Ranges Geomorphic Province is known as San Diego Embayment. The San Diego Embayment consists of thick sequences of marine and non-marine sediments. These sedimentary rocks form an eastward-thinning wedge of continental margin deposits extending from Oceanside, California southward to the US-Mexico border.

The general geologic units consist of Ardath Shale, Scripps and Bay Point Formation. The Pleistocene age terrace deposits and artificial fill overlie the Eocene Units. The terrace deposits are widespread and well exposed in areas adjacent to the present-day coastline.

The Ardath Shale generally consists of olive-gray, weakly fissile shale. Clay stone locally comprises up to 25 percent of the formation, and landslides are commonly associated with the clay stone beds (Kennedy and Peterson, 1975).

The Bay Point Formation consists of pale brown fine to medium grain sandstone that is considered poorly consolidated.

The Scripps Formation consists of pale yellowish brown medium-grained sandstone with local siltstone and cobble conglomerate interbeds.

Two principle rock units generally underlie the project area: a Mesozoic igneous and metamorphic rock basement with superjacent late Cretaceous, Eocene, Pliocene, Pleistocene, and Holocene sedimentary succession of strata. The basement is composed of Upper Jurassic Santiago Peak Volcanic and mid-Cretaceous granitic rocks of the Southern California Batholith. The post-batholith superjacent sedimentary succession includes Upper Cretacous Rosario Group, Eocene La Jolla and Poway Groups, Pliocne and Pleistocene San Diego, Lindavista and Bay Point Formations. Holocene sediment is represented by alluvium, slopewash, landslide, stream, terrace, and beach deposits. In addition artificially compacted fill was placed in some areas (Kennedy and Peterson, 1975).

Kennedy and Peterson CDMG (publication 200) mapped the San Diego geology at a scale of 1:24,000. The units observed and mapped (figure 4) along the proposed project are consistent with those presented by Kennedy. These units include: Artificial Fill;

Quaternary Stream Terrace Deposits; Quaternary Bay Point Formation; Ardath Shale; Mount Soledad Formation. These units are described below (after Kennedy and Weber).

Artificial Fill
Fills created from the activities of man derived from local materials and placed either consistent with current engineering practices or placed without regard to current engineering practices.

Quaternary Stream Terrace Deposits
Unconsolidated old sedimentary, igneous and metamorphic rock derived san and gravel.

Quaternary Bay Point Formation
Marine, and non-marine sediments comprised of moderate reddish-brown, ferruginous cemented, interbedded sandstone and conglomerate.

Ardath shale
Richly fossiliferous impermeable silty shale. Expandable claystone often composes up to 25% of this unit and landslides are commonly associated with these areas. Susceptible to bedding plane failures.

Tertiary Mount Soledad Formation
The formation consists of a marine cobble conglomerate with minor beds of sandstone. The conglomerate content of the formation is considered variable.

4.4.2 Seismicity

Tectonically San Diego County rides atop the eastern margin of the Pacific Plate, grinding along the edge of the North American Plate towards the northwest at an average annual rate of 1.0 inch per year. As a result, the region is characterized by complex systems of active northwest trending faults and associated seismicity (figure 5 and 6).

Major fault expressions near the project alignment include the San Andreas, San Jacinto, Elsinor, and Rose Canyon Fault Zones. Additionally, a complex system of northwest trending faults offshore from San Diego, which include the Coronado Banks and San Diego Trough Faults, are potential seismic sources that may cause minimal to moderate shaking at the proposed project site.

A list of all active faults (based on 1996 Caltrans Seismic Hazard Report) with in 50 miles of the site is provided in Table 1.

4.5. Soil Survey Mapping

For our study we reviewed the Soil Survey of San Diego Area, California prepared by U.S. Department of Agriculture, Soil Conservation Service and Forest Service (1973).

Our review of the Soil Survey Report indicates that there are six different soil units identified within the proposed project area. These units are classified in Table 2.

5. EXPLORATION

5.1. Drilling and Sampling

The limited time line given for the preparation of the Geotechnical Design Report (GDR) precluded OGDS II from performing a subsurface investigation. The availability of archival subsurface data within the proposed project area facilitated the geotechnical evaluation.

5.2. Geologic Mapping

Geologic maps of the areas surrounding the proposed project sites are presented in figure 4. The maps have been compared to the information obtained from the limited field review and data from archival materials for verification purposes.

5.3. Exploration Notes

Not applicable

6. GEOTECHNICAL TESTING

6.1. Insitu Testing

No additional in-situ testing was conducted. Archival in-situ test where utilized to provide an indication of the relative density and strength of a given soil. The density of the in-situ soil is considered loose to very dense, with the average being dense.

6.2. Laboratory Testing

No laboratory tests were performed.

7. GEOTECHNICAL CONDITIONS

7.1. Site Geology

The proposed project traverses terrain comprised of predominate and repetitive geologic features: 1) Cuts in relatively young stream terrace deposits, Bay Point Formation and Mount Soledad Formation 2) artificial fills.

Formation
The natural and cut slopes along the project alignment are primarily composed of Bay Point and Mount Soledad Formations. These formations are described in section 4.4.1

and 7.1.1. These units are generally capable of supporting stable cut slopes at a 1:2 (vertical to horizontal) inclination. These units may support much steeper temporary excavations.

Artificial Fill
Artificial fills present within the limits of the project consist of medium dense silty sand and are consistent with soil characteristics associated with locally derived fills. The artificial embankment fills within the project limits are constructed with a 1:2 (vertical to horizontal) slope.

7.1.1. Lithology

Fill Soil (Qf)
Primarily engineered freeway embankment fill

Bay Point Formation (Qbp)
Marine, and non-marine sediments comprised of moderate reddish-brown, ferruginous cemented, interbedded sandstone and conglomerate.

Mount Soledad Formation (Tmsc)
The formation consists of a marine cobble conglomerate with minor beds of sandstone. The conglomerate content of the formation is considered variable.

7.1.2. Structure

The visual review of existing cut slopes did not present any adverse bedding of the in place material.

7.1.3. Natural Slope Stability

Natural slopes within the project limits range from gentle to steep. No landslides were mapped within the project limits, though Mount Soledad located to the north and west of the project has experienced numerous landslides in recent geologic history. Steep slopes in the project area (1:2 and greater) exist naturally. The natural slopes within the project area are well-vegetated with only minor erosion.

7.2. Subsurface Soil Conditions

The subsurface conditions along the length of the project consist artificial fill generally composed of mostly medium dense, silty sand. The native material within the area consists of loose to dense sandy silt with gravel and cobbles. The artificial fill is assumed to been constructed to Caltrans specification for embankment fill (Caltrans Standard Specifications Section 19).

7.3. Water

7.3.1. Surface Water

Surface water within the project area is generally derived from highway landscape irrigation, though Rose Creek crosses underneath I-5 near the beginning of the proposed project and parallels the I-5 before turning eastward at State Route 52.

7.3.1.1. Erosion

Cut slopes in formational material as well as embankments constructed of artificial fill derived from local formational material with slopes of 1:2 (vertical to horizontal) are considered to be stable and are not considered highly erodable. Cut slopes and embankments composed of these materials when constructed steeper than 1:2 (vertical to horizontal) are considered highly erodable and require substantial erosion protection. Highway drainage should be managed in order to prevent concentrated flows on exposed slopes. Best management practices should be used in an effort to minimize slope erosion.

7.3.2. Ground Water

Based on archival subsurface data, the elevation of the groundwater surface appears to be approximately 80 feet above mean sea level. During the field review of the proposed project site no groundwater seepage was observed with in any of the existing cut slopes.

7.4. Project Site Seismicity

The project sites will be exposed to seismicity due to the relative proximity to active fault zones. The following sections further describe the seismic exposure of the project area.

7.4.1. Ground Motion

Ground shaking due to nearby and distant earthquakes should be anticipated during the life of the facility. The closest active major fault to the site is the Newport Inglewood/Rose Canyon East Fault, which runs through or very near to the proposed project site. The anticipated Maximum Credible Earthquake for the nearest fault would be magnitude 7.0 resulting in a peak ground acceleration of 0.6 g's at the proposed project site. A map of peak ground acceleration contours based on the maximum credible earthquake is presented in Figure 6. A summary of nearby faults is provided in Table 1. Selection of the design ground motion parameters is discussed in section 8.1.1.

7.4.2. Ground Surface Rupture

Ground surface rupture due to active faulting is considered possible within the project limits due to likelihood that an active fault trace of the Newport Inglewood/Rose Canyon East Fault crossing the facility or is located very near the facility. The potential for

cracking of the ground surface as a result of nearby or distant events is also considered possible. In general, seismic hazards might include strong ground motion, embankment spreading, slope failures and ground rupture.

8. Geotechnical Analyses and Design

8.1. Dynamic Analysis

The following sections describe the seismic parameter and Analysis performed for the proposed project.

8.1.1. Parameter Selection

The proximity of the project area to the Newport Inglewood /Rose Canyon East Fault establishes the potential for the project to be impacted by a significant seismic event. The Newport Inglewood /Rose Canyon East Fault displaces Holocene sediment and is therefore is considered active. The Maximum Credible Earthquake on this fault has been estimated to be of magnitude 7.0. The Peak Ground Acceleration at the project site could range up to 0.6g (from the California Seismic Hazard Map 1995 by Lalliana Mualchin and DMG OFR92-1)

The effective seismic horizontal coefficient, Kh, used in pseudo-static slope stability analysis is specified in Caltrans Guidelines for Foundation Investigation and Reports (Version 1.2) as 1/3 of the peak ground acceleration.

8.1.2. Analysis

A significant seismic event could cause lateral spreading, cracking and slumping, of both existing and proposed embankments. Embankment failures due to earthquakes are difficult to prevent. These failures are manifested as excessive total and differential settlement and damage to pavement structural section. The preexisting subsurface site conditions and the proposed geometry of the design slopes [1:2 (vertical to horizontal) or flatter] preclude the need for a pseudo static slope stability analysis for the proposed embankment improvements. A static and pseudo static stability analysis was conducted for the proposed retaining wall using GSTABLE; see section 8.4

8.2. Cuts and Excavations

8.2.1. Stability

Slope stability is a function of slope geometry, soil or rock strength characteristics, geologic structure, saturation and pore water pressure, and external loading. Additionally, slope faces are subject to consideration of surficial stability and erosion. Cut slopes inclined at 1:2 (vertical to horizontal) are generally considered stable and suitable as permanent slopes on freeway projects unless some geologically adverse

condition is present such as weak adversely oriented bedding, expansive clay or and ancient landslide.

The current project proposed cut slopes of 1:2 (vertical to horizontal) or flatter in medium dense to dense artificial fill and loose to medium dense silty sand. These areas currently displayed no adverse geologic conditions that would preclude the use of such a slope. A slope stability analysis was not conducted because the proposed slope is not greater than 1:2 (vertical to horizontal), are moderate in height and based on the information gathered during our archival subsurface data review appear to be in suitable material.

8.2.2. Rippability

The project area is predominantly artificial fill and loose to medium dense silty sand with some gravel and cobbles. These materials are considered rippable by conventional heavy-duty grading equipment and are drillable by auger drill rigs.

8.2.3. Grading Factor

The cut areas are composed of stratified marine sediments and for the most part are sand or silty sands with some gravel and cobbles.

Earthwork factors relate the in-place volume of material to be excavated to the in-place volume of the material after placement as fill. The factors are defined as in-place volume of compacted fill divided by in-place volume of material to be excavated.

$$G_f = V_{fill}/V_{exc}$$

Archived data indicate that on average the soil locally derived from cut areas will shrink during recompaction. It is recommended that the following grading factors be applied to the project:

Sedimentary Formation

a) Placed at 90% relative compaction: $G_f = 0.96$
b) Placed at 95% relative compaction: $G_f = 0.94$

8.3. Embankments

As with cut slopes, embankment stability is a function of slope geometry, soil strength parameters, structure, saturation and pore water pressure, and external loading. Embankments stability is also a function of the stability of the underlying soil in response to the additional overburden presented by the fill. Fill slopes inclined at 1:2 (vertical to horizontal) are generally considered internally and surficially stable and suitable as permanent slopes on freeway projects.

The current project proposed embankment fills of 1:2 (vertical to horizontal) or flatter to be constructed atop medium dense to dense artificial fill and loose to medium dense silty sand. The existing artificial fill shows no evidence of adverse conditions that would preclude the construction of an additional engineered fill. The current available information on the insitu material also does not suggest that any adverse geologic conditions exist that would preclude the construction of a 1:2 (vertical to horizontal) or flatter embankment fill.

8.4. Earth Retaining Systems

A Caltrans standard Type 5 retaining wall is proposed for this project. The Retaining wall is to be located between station 1401+00 and station 1408+00 along the SD-5 line (figure 2). The proposed wall is approximately 700 feet in length. The retaining wall will vary in height form approximately 4 to 6.5 feet. Existing bridge structure borings were utilized for the design of the proposed retaining wall.

The project proposes to construct a Caltrans standard Type 5 retaining wall (Caltrans Standard Plan B3-7). The wall is to be constructed along the inside shoulder of ~~north~~bound I-5, using a spread footing that will be below the grade of the adjacent northbound lanes of I-5. The information obtained from the bridge log of test borings were utilized to determine global stability and bearing capacity of insitu soils. The calculated allowable bearing capacity of the insitu soil is sufficient to support the proposed Caltrans standard Type 5 retaining wall on a spread footing. Settlement was estimated to be within Caltrans allowable limits. The bearing capacity and settlement calculations are based on a Caltrans standard Type 5 retaining wall with a minimum height of 6 feet and a maximum height of 8 feet.

Slope stability analyses were performed using GSTABLE. The slope stability analyses included both static and pseudo static analyses. The overall global stability of the slope was evaluated using archival soil strength parameters (Unit Weight 120 pcf, Cohesion =50 psf and Friction Angle = 30 degrees). The proposed slope geometry was determined by the analysis to have a static factor of Safety (FOS) of >1.5 and a pseudo static FOS of >1.1, which meets Caltrans standards. A slope stability analysis was also performed for an assumed geometry for a temporary 1:1.5 (vertical to horizontal) cut slope required to construct the Type 5 retaining wall. The static FOS for this slope was >1.2 which meets Caltrans standards. The slope stability evaluation was based on a Caltans Standard Type 5 retaining wall 8 feet in height with 240 psf load located at the top of the wall.

8.5. Minor Structure Foundations

Based on the plans provide to OGDS II no minor structures are proposed for this project.

9. Material Sources

Material sources for the project will likely consist of locally excavated soil and rock materials, and possibly imported materials. Any imported borrow shall conform to Section 19-7 "Borrow Excavation" of the Caltrans Standard Specifications. No off site material sources have been identified for the project. On site excavations will consist mostly of artificial fill and alluvium. On average, the soil derived on-site will make suitable roadway embankment.

Materials used as structural backfill, should be tested to confirm they meet Caltrans standard specifications for structural backfill.

10. Material Disposal

The review of archival subsurface data for this project did not map the presence of material unsuitable for embankment subgrade or fill; such as non-engineered fill, organic mud, highly expansive clay, stockpiled trash, debris or contaminated material. Any material generated during construction that is considered unsuitable as roadway subgrade, embankment, backfill, or topsoil should be properly disposed of off site.

11. Construction Considerations

11.1. Construction Advisories

The fill material placed for the construction of the concrete median barrier should be keyed into the existing embankment. The contractor should be aware of the possibility of encountering cobbles within the excavation. A temporary 1:1.5 (vertical to horizontal) slope was determined to have a FOS that meets Caltrans standards. Space constraints may exist with regards to the construction of the retaining wall. A 1:1.5 temporary slope may not be feasible if such is the case the contractor should be aware that shoring may be necessary. The loose nature of the native soils requires minor remedial grading. The remedial grading should consist of excavating 2 feet below the footing bearing elevation and a width of 2 feet on either side of the proposed retaining wall footing, the excavated material should be replacing with structural backfill compacted to a minimum of 95 percent relative compaction.

11.2. Construction Considerations that Influence Design

Proposed fill slopes should be constructed following Caltrans Standard Specifications for construction of highway embankment (Caltrans Standard Specifications, Section 19). The proposed embankments and cut slopes should have slope geometry of 1:2 (vertical to horizontal) or flatter. The proposed fill material should be keyed into the existing highway embankment.

11.3. Hazardous Waste Considerations

No hazardous waste was observed during the course of this investigation. Formal hazardous wastes studies are conducted by Caltrans Environmental Department.

11.4. Differing Site Conditions

Differing site conditions consist of subsurface or latent physical conditions encountered at the site that differ materially from those indicated in the contract, and/or, unknown physical conditions of an unusual nature that are encountered and that are generally recognized inherent in the work provided for in the contract. The subsurface conditions "in the contract" are those defined by the Geotechnical Design Report (GDR). Emphasize the need for early communication between the residential engineer, the contractor and the Geotechnical Professionals as soon as conditions that differ from those established by the GDR are recognized by any of the parties.

12. Recommendations and Specifications

- Structures should be consulted if temporary cuts are to be near bridge foundations.
- Cut slopes should be 1:2 (vertical to horizontal) or flatter.
- Highway embankment slope geometry should be 1:2 (vertical to horizontal) or flatter. Additional highway embankment fill proposed by this project should be keyed into the existing highway embankment and should be constructed following all Caltrans specifications regarding the construction highway embankment fill.
- Remedial grading should consist of excavating 2 feet below the proposed retaining wall footing bearing elevation and a width of 2 feet on either side of the proposed retaining wall footing and replacing with structural backfill compacted to a minimum of 95 percent relative compaction.
- If adverse conditions are encountered during construction that differ from those stated in the report a representative from OGDS II should be contacted to evaluate the situation.

TABLES

TABLE 1

SUMMARY OF NEARBY FUALTS

Fault Name	Fualt Type	Approximate Closest Distance to site	Maximum Credible Earthquake Magnitude
		(miles)	
Newport-Inglewood-Rose Canyon East (NIE)	ST	0.62	7
Newport-Inglewood-Rose Canyon West (NIW)	ST	2.48	7
Point Loma (PTL)	XX	6.21	6.5
Palos Verdes Hills-Coronado Bank (PVC)	ST	15.53	7.75
San Diego Trough (SDT)	XX	31.06	7.5
Whittier Elsinor (WEE)	ST	62.14	7.5
San Clemente (SCE)	ST	62.14	7.25
Earthquake Valley (EQV)	ST	68.35	6.5

Notes:

1. Fault data is from Caltrans Seismic Hazard Map 1996.
2. Closest distance is scaled from Caltrans Seismic Hazard Map 1996.
3. Fault Type:

   ST = Strike - Slip

   XX = Not Known/Published

Table 2

SOIL SURVEY TABLE

Soil Symbol	Soil Name	Depth	Classification			Permeability	Reaction	Soil Description
		Inches	USDA texture	Unified	AASHTO	in/hr	pH	
AtF	Altamont clay, 30 to 50 percent slopes	0-36	Clay	CH	A-7	0.06-0.2	6.6-8.4	This soil is steep and is 20 to 30 inches deep over shale. Runoff is rapid, and the erosion hazard is high. The available water holding capacity is 3.5 to 5 inches. In other features.
		36	Clay	CH	A-7	0.06-0.2	6.6-8.4	
CfC	Chesterton fine sandy loam, 5 to 9 percent slopes	0-19	Sandy Loam	SM	A-4	2.0-6.3	5.6-6.0	This series consists of moderately well drained fine sandy loams that have a sandy clay sub soil. This soil is moderately sloping. It is on coastal ridges. Runoff is slow to medium, and the erosion hazard slight to moderate.
		19-34	Sandy Clay	CL	A-6	<0.06	5.1-6.0	
		34	Cemented Hardpan	na	na	<0.06	na	
HrE2	Huerhuero loam, 15 to 30 percent slopes, eroded	0-12	Loam	ML	A-4	0.63-2.0	5.1-6.0	Modertely well drained loams that have a clay subsoil. These soils developed in sandy marine sediments. This soil is moderately steep and, because of moderate sheet and rill erosion, has an effective rooting depth of 20 to 36 inches.
		12-55	Clay and Clay Loam	CL	A-6	<0.06	7.4-8.4	
		55-68	Loam	SM or SC	A-2 or A-4	0.63-2.0	6.6-7.8	
HuE	Huerhuero-Urban land complex, 2 to 9 percent slopes		Urdan Land	na	na	na	na	Modertely well drained loams that have a clay subsoil. These soils developed in sandy marine sediments. This complex occurs on marine terraces. The landscape has been altered through cut and fill operations and leveling for building sites. The material exposed in cuts consists of unconsolidated sandy marine sediments. The material in the fills is a mixture of loam and clay and sandy marine sediments.
Md	Made Land		Made Land	na	na	na	na	This consists of smooth, level areas that have been filled with excavated and transported soil material, paving material, and soil material dredged from lagoons, bays, and harbors.
TeF	Terrace Escarpments		Terrace Escarpment	na	na	na	na	This consists of a steep to very steep escarpments and escarpment-like landscapes. The terrace escarpments occur on the nearly even fronts of terrace or alluvial fans. The escarpment-like landscapes occur between narrow floodplains and adjoining uplands and the very steep sides of drainageways that are entrenched into fairly level uplands. 4 to 10 inches of loamy or gravelley sediments.

FIGURES

INDEX OF PLANS

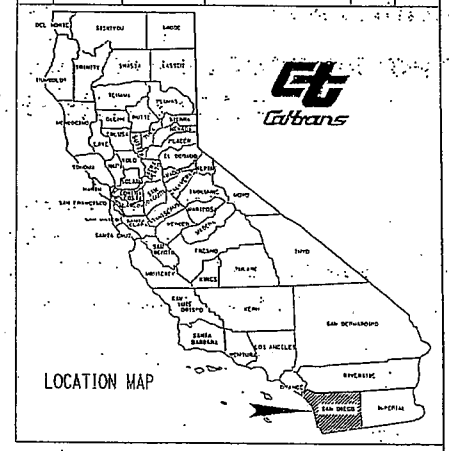
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

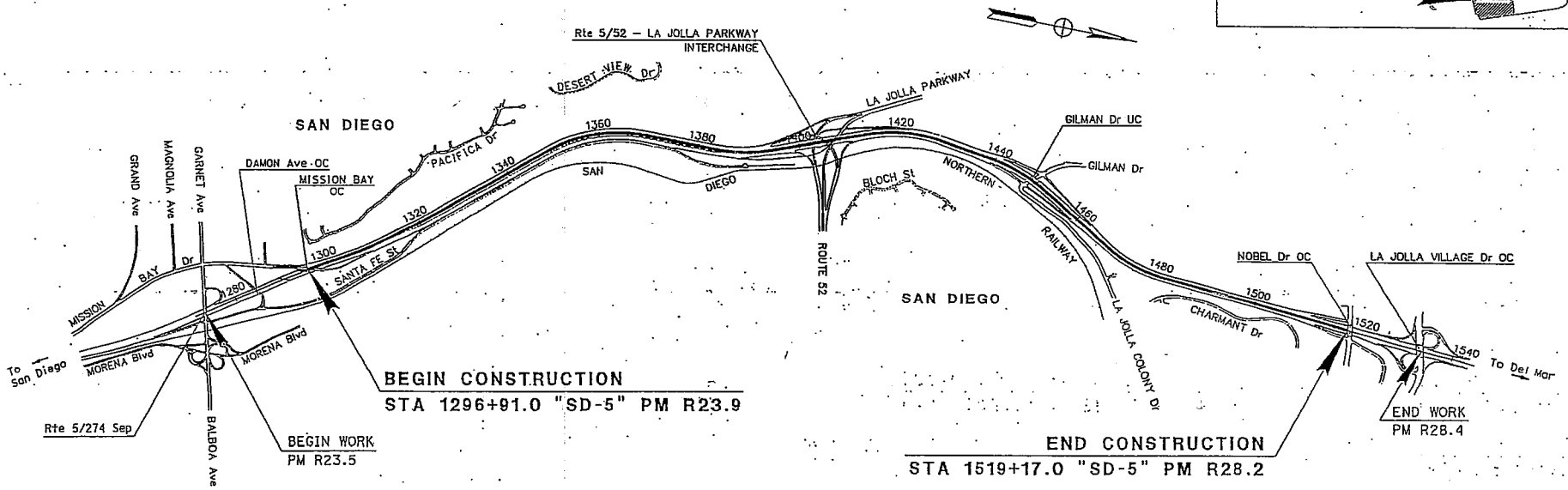
PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY

IN SAN DIEGO COUNTY
IN SAN DIEGO
FROM MISSION BAY DRIVE OVERCROSSING
TO NOBEL DRIVE OVERCROSSING

To be supplemented by Standard Plans dated May 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2	1	





DESIGN ENGINEER M. REYES
PROJECT MANAGER R. ESTRADA

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

PROJECT ENGINEER REGISTERED CIVIL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — M. REYES No. 58621 — CIVIL — STATE OF CALIFORNIA

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.

CONTRACT No. 11-284604

LAST REVISED 05-27-08 DATE PLOTTED => 21-MAY-2008 TIME PLOTTED => 09:51

FIG. 1

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

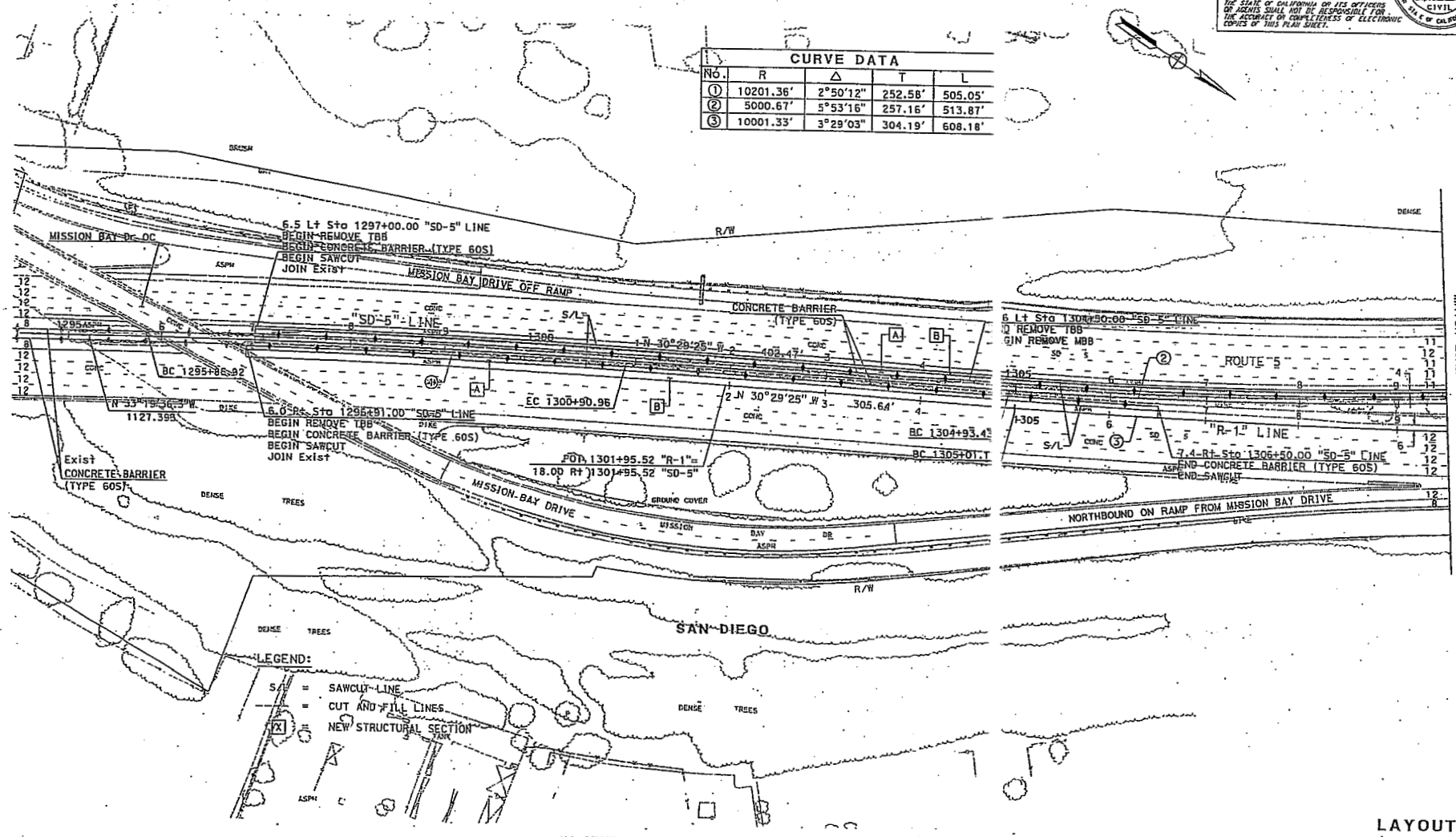
PLANS APPROVAL DATE

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. REYES No. 58621 Exp. 12-31-08 CIVIL STATE OF CALIFORNIA

CURVE DATA

No.	R	Δ	T	L
①	10201.36'	2°50'12"	252.58'	505.05'
②	5000.67'	5°53'16"	257.16'	513.87'
③	10001.33'	3°29'03"	304.19'	608.18'



LEGEND:

S/C = SAWCUT LINE

= CUT AND FILL LINES

[X] = NEW STRUCTURAL SECTION

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-1

FIG. 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC
PROJECT DEVELOPMENT

REVISED BY	DATE REVISED
MAI DO	

CALCULATED-DESIGNED BY
CHECKED BY
FUNCTIONAL SUPERVISOR
RICHARD ESTRADA

USER NAME = DATE PLOTTED = 27-MAY-2008
05-27-08 TIME PLOTTED = 09:07

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

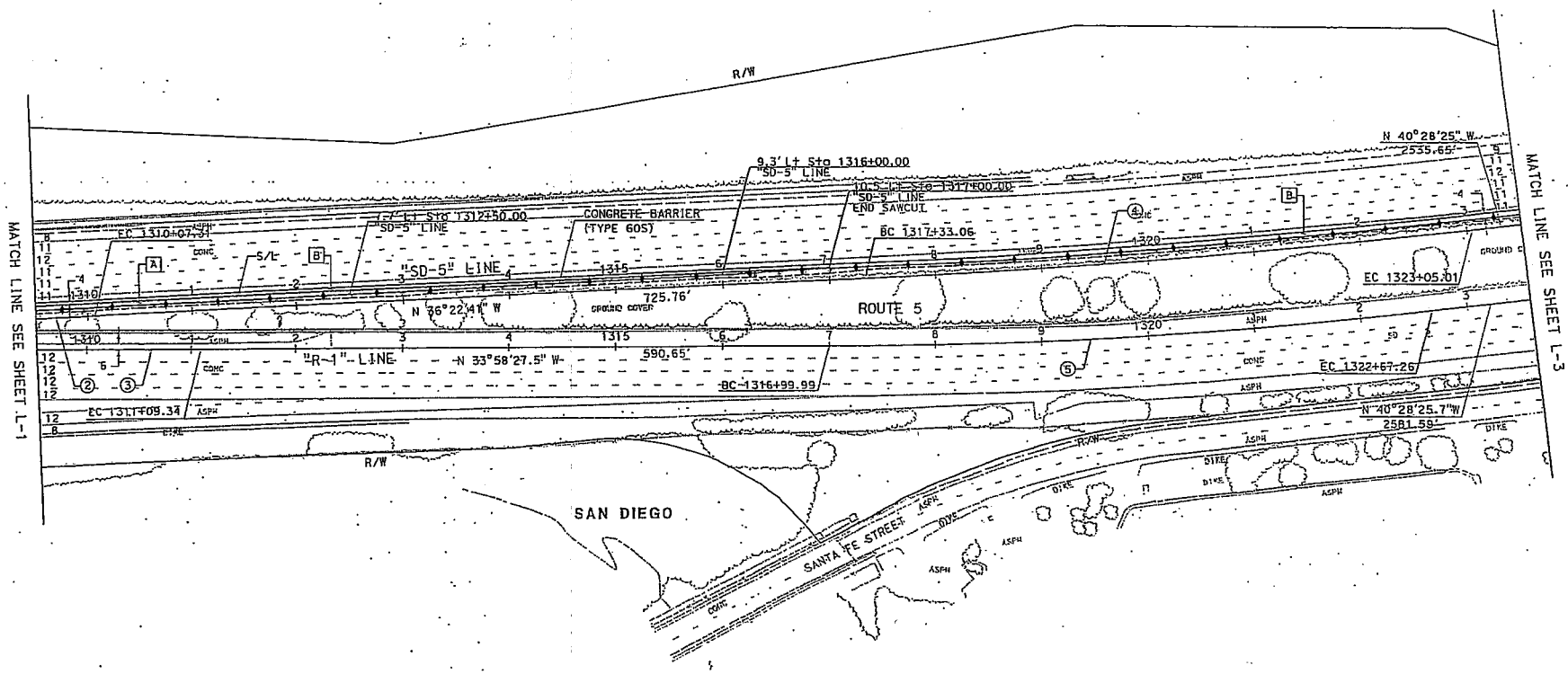
REGISTERED CIVIL ENGINEER DATE

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. REYES — No. 58621 — Exp. 12-31-08 — CIVIL — STATE OF CALIFORNIA

CURVE DATA				
No.	R	Δ	T	L
②	5000.67'	5°53'16"	257.16'	513.87'
③	10001.33'	3°29'03"	304.19'	608.18'
④	8001.07'	4°05'45"	286.09'	571.94'
⑤	5000.67'	6°29'58"	283.94'	567.26'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-2

SCALE 1"=50'

STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC
PROJECT DEVELOPMENT
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY
CHECKED BY
MAI DO
REVISED BY
DATE REVISED

LAST REVISED: 05-27-08 | DATE PLOTTED => 27-MAY-2008 | TIME PLOTTED => 09:07

FIG. 2

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

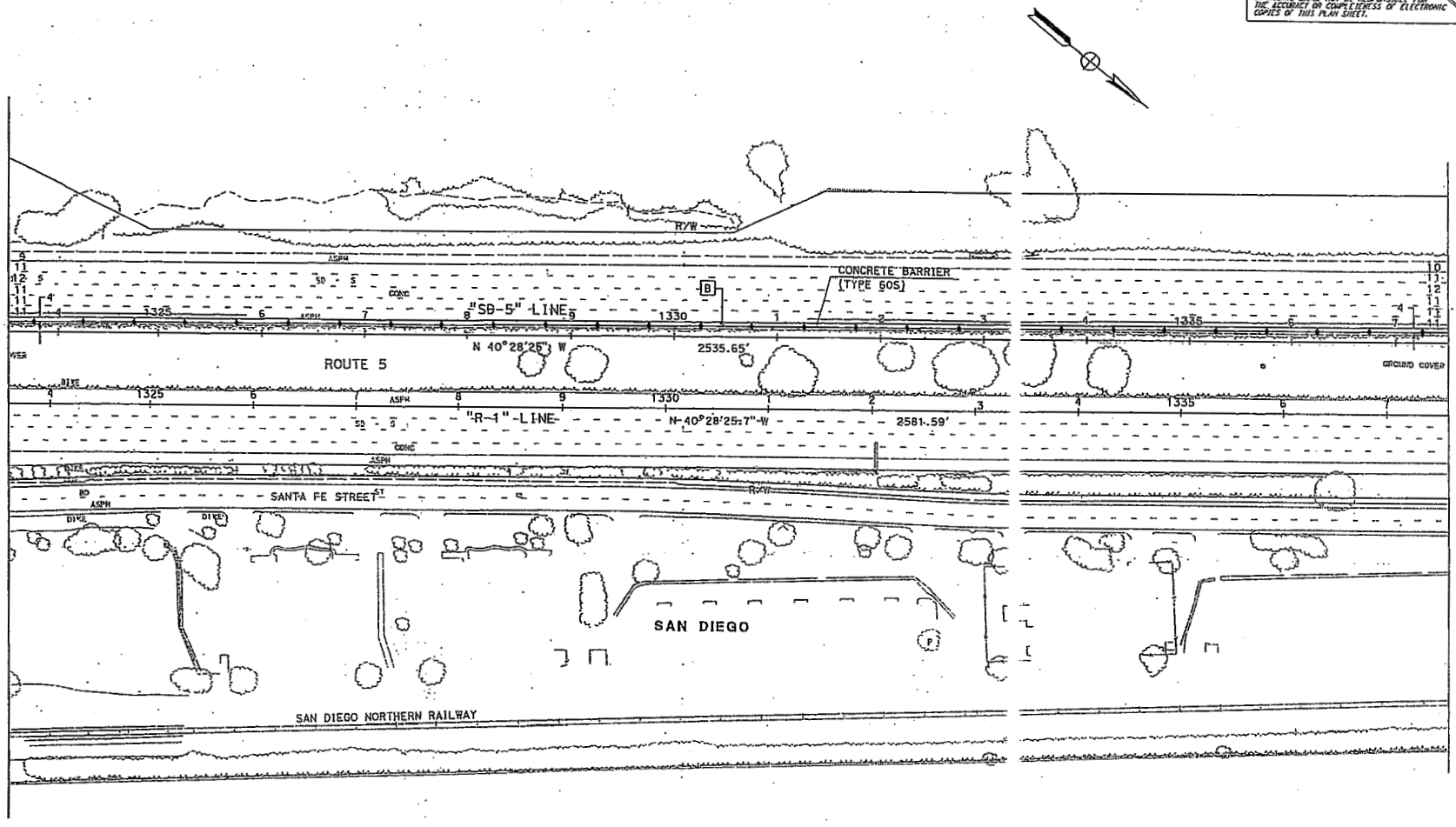
REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

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.



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-3

FIG. 2

STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC
PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA

CALCULATED-DESIGNED BY: MAI DO

CHECKED BY:

REVISED BY

DATE REVISED

LAST REVISION 05-27-08 DATE PLOTTED => 27-MAY-2008 TIME PLOTTED => 09:07

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

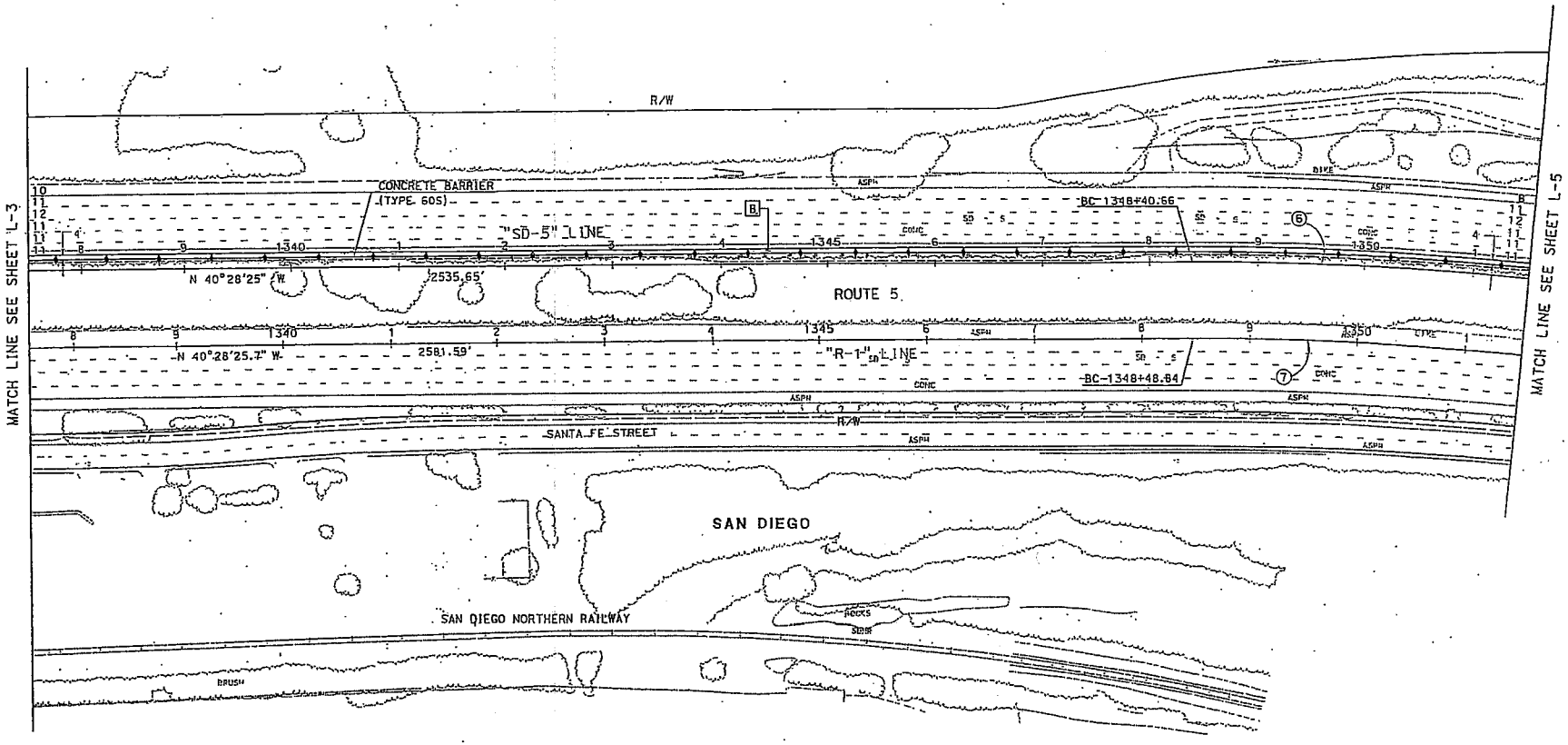
REGISTERED CIVIL ENGINEER DATE

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. REYES No. 58621 Exp. 12-31-08 CIVIL STATE OF CALIFORNIA

CURVE DATA				
No.	R	Δ	T	L
⑥	3000.04'	40°38'10"	1110.82'	2127.73'
⑦	2930.04'	40°38'11"	1084.91'	2078.09'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-4

FIG 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	MAT DO CHECKED BY	DATE REVISED

LAST REVISION 05-27-08 DATE PLOTTED => 27-MAY-2008 TIME PLOTTED => 09:01

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

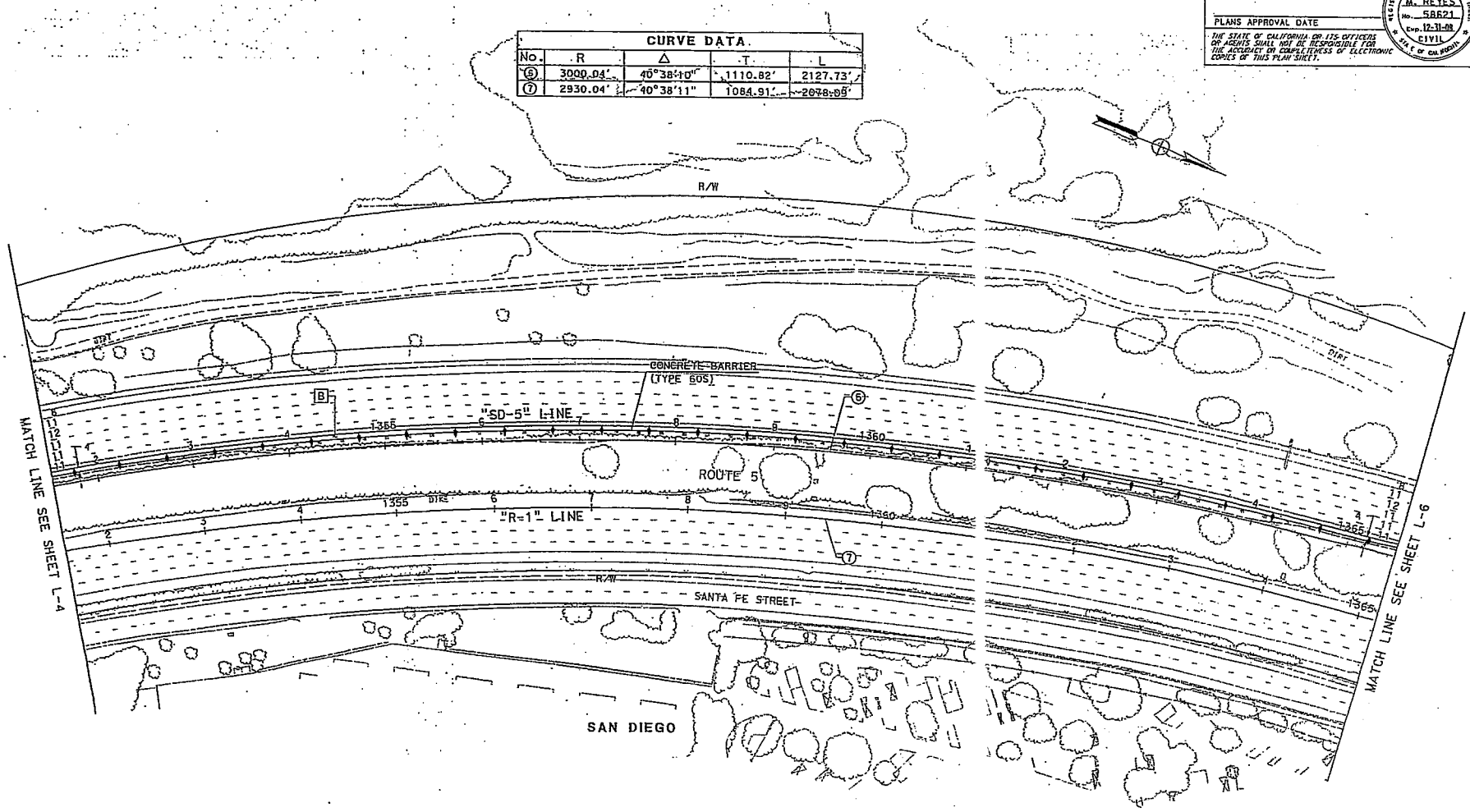
REGISTERED CIVIL ENGINEER DATE

M. REYES
No. 58621
Exp. 12-31-08
CIVIL
STATE OF CALIFORNIA

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.

CURVE DATA				
No.	R	Δ	T	L
⑥	3000.04'	40°38'10"	1110.82'	2127.73'
⑦	2930.04'	40°38'11"	1084.91'	2078.09'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-5

FIG. 2.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	MAT DO	REVISED BY	
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	CHECKED BY		DATE REVISED	

LAST REVISED DATE PLOTTED => 27-MAY-2008
05-27-08 TIME PLOTTED => 09:08

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
⑥	3000.04'	40°38'10"	1110.82'	2127.73'
⑦	2930.04'	40°38'11"	1084.49'	2078.09'

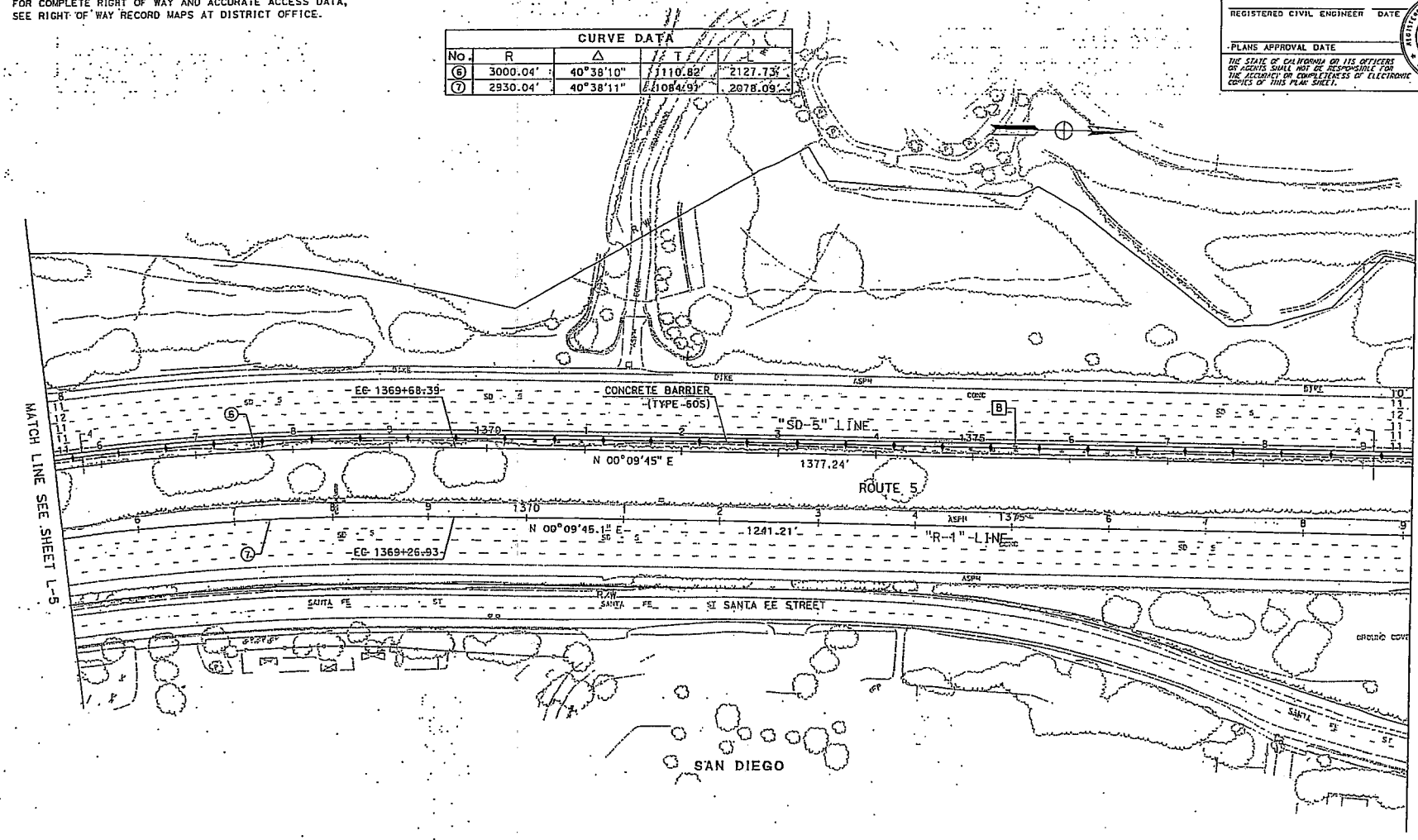
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

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.



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-6

SCALE 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	MAI DO	REVISED BY	
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	CHECKED BY		DATE REVISED	

1ST REVISED	DATE PLOTTED => 27-MAY-2008
05-27-08	TIME PLOTTED => 09:08

FIG. 2

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

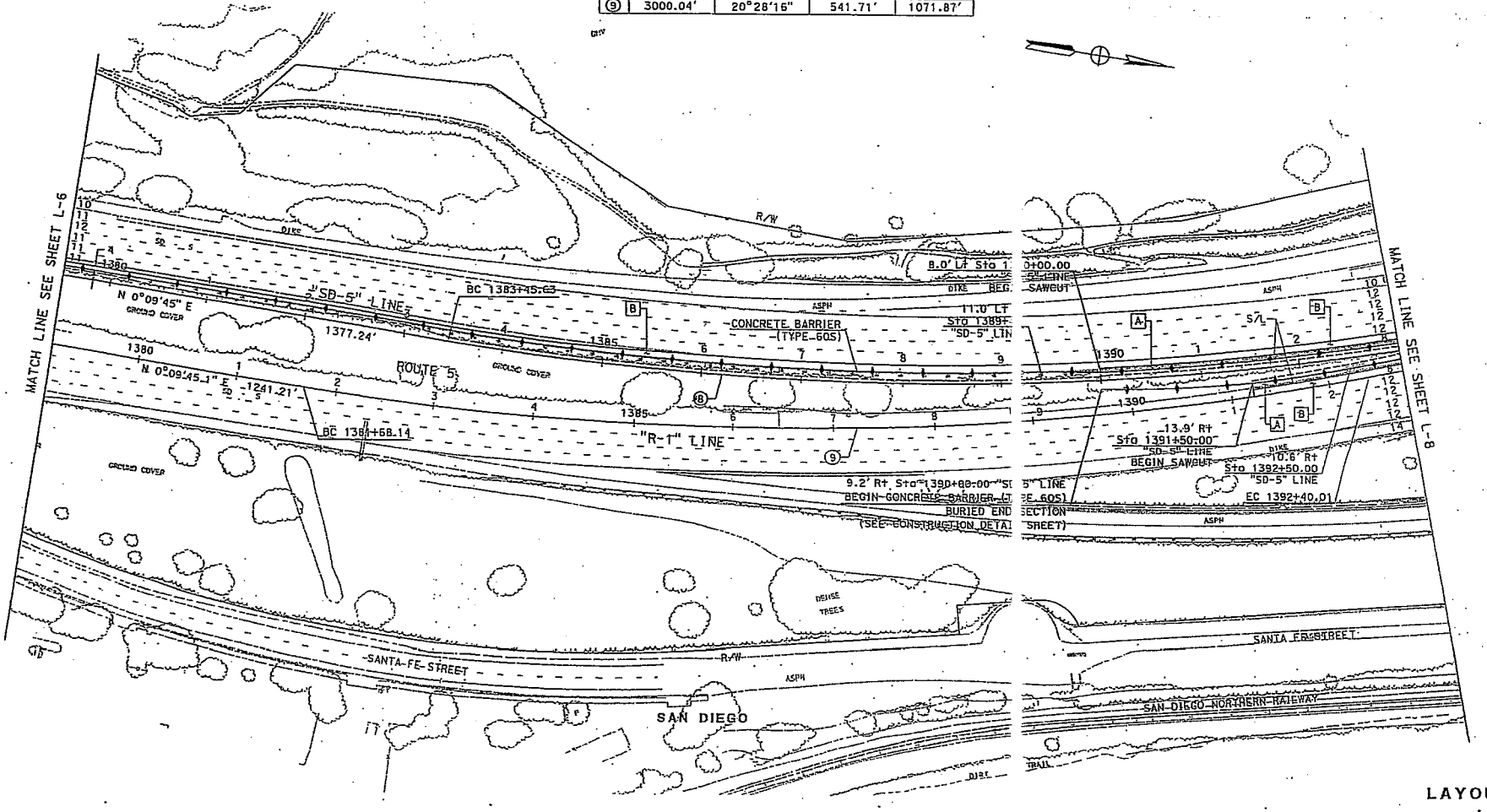
M. REYES
No. 58621
EXP. 12-31-08
CIVIL

REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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.

CURVE DATA				
No.	R	Δ	T	L
(8)	3000.04'	20°28'16"	541.71'	1071.87'
(9)	3000.04'	20°28'16"	541.71'	1071.87'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-7

SCALE 1"=50'

FIG. 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY:
CHECKED BY:
MAI DO
REVISED BY
DATE REVISED

USER NAME= DATE PLOTTED => 27-JAN-2008
05-27-08 TIME PLOTTED => 09:08

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
(8)	3000.04'	20°28'16"	541.71'	1071.87'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER M. REYES No. 58621 Exp. 12-31-08 CIVIL STATE OF CALIFORNIA

MATCH LINE SEE SHEET L-7

MATCH LINE SEE SHEET L-9

Rte 52 WEST TO Rte 5 SOUTH

Rte 5 SOUTH TO Rte 52 EAST

ROUTE 5

EG 1394+17.50

"SD-5" LINE

8.0' Lt Sta 1401+00.00 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60S)
BEGIN RETAINING WALL (TYPE 5)
BEGIN CONCRETE BARRIER (TYPE 732)

Sta 1400+99.00 "SD-5" LINE
BEGIN REMOVE-MBB

CONCRETE BARRIER (TYPE 732)

S5-E52 CONNECTOR OC

W52-S5 CONNECTOR OC

Rte 5/52 LA JOLLA PKWY INTERCHANGE

N 20°18'30" W 1968.13'

POT 1393+91.93 "R-1"
78.0' Rt 1394+17.50 "SD-5"

8.0' Rt Sta 1400+61.00 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60S)
BEGIN CONCRETE BARRIER (TYPE 60S Mod)

CONCRETE BARRIER (TYPE 60S)

Rte 5 NORTH TO Rte 52 EAST

N 20°18'30.4" W 151.92'

8.0' Rt Sta 1401+01.00 "SD-5" LINE

8.0' Rt Sta 1401+11.00 "SD-5" LINE

6.0' Rt Sta 1401+51.00 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60S Mod)
BEGIN CONCRETE BARRIER (TYPE 60S)

LA JOLLA PARKWAY VIAUCT

R-7

SAN DIEGO

N5-E52 CONNECTOR OH

S5-E52 CONNECTOR OH

ARFOUR OVERHEAD CONNECTOR

SANTA FE STREET R/W SANTA FE ST

SAN DIEGO NORTHERN RAILWAY

R2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-8

SCALE 1"=50'

FIG. 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
TRAFFIC
PROJECT DEVELOPMENT
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: MAI DO
CHECKED BY:
REVISED BY
DATE REVISED

LAST REVISED DATE PLOTTED => 27-MAY-2008
05-27-08 TIME PLOTTED => 09:08

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

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.

CURVE DATA				
No.	R	Δ	T	L
⑩	2999.98'	28°16'04"	755.43'	1480.08'

8.0' Lt Sta 1408+00.00 "SD-5" LINE
END RETAINING WALL (TYPE S)
END CONCRETE BARRIER (TYPE 732)
BEGIN CONCRETE BARRIER (TYPE 60SC)

8.0' Lt Sta 1408+50.00 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60SC)
BEGIN CONCRETE BARRIER (TYPE 60S)

8.0' Lt Sta 1408+97.47 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60S)
BEGIN CONCRETE BARRIER (TYPE 60S Mod)

8.0' Lt Sta 1409+07.47
"SD-5" LINE

8.0' Lt Sta 1409+17.47
"SD-5" LINE

8.0' Lt Sta 1409+27.47 "SD-5" LINE
END CONCRETE BARRIER (TYPE 60S Mod)
BEGIN CONCRETE BARRIER (TYPE 60S)

7.3' Rt Sta 1412+00.00 "SD-5" LINE
END REMOVE MBB

JOLLA PKWY

Rte 5 SOUTH TO Rte 52 EAST

CONCRETE BARRIER (TYPE 60S)

"SD-5" LINE

ROUTE 5

N 20°18'30" W 1968.13'

BC 1413+85.63

Rte 52 WEST TO Rte 5 NORTH

SAN DIEGO

SAN DIEGO NORTHERN RAILWAY

R/W

MATCH LINE SEE SHEET L-8

MATCH LINE SEE SHEET L-10

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-9

FIG 7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY: MAI DO
DATE REVISED

LAST REVISION DATE PLOTTED => 27-MAY-2008
TIME PLOTTED => 09:08
05-27-08

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

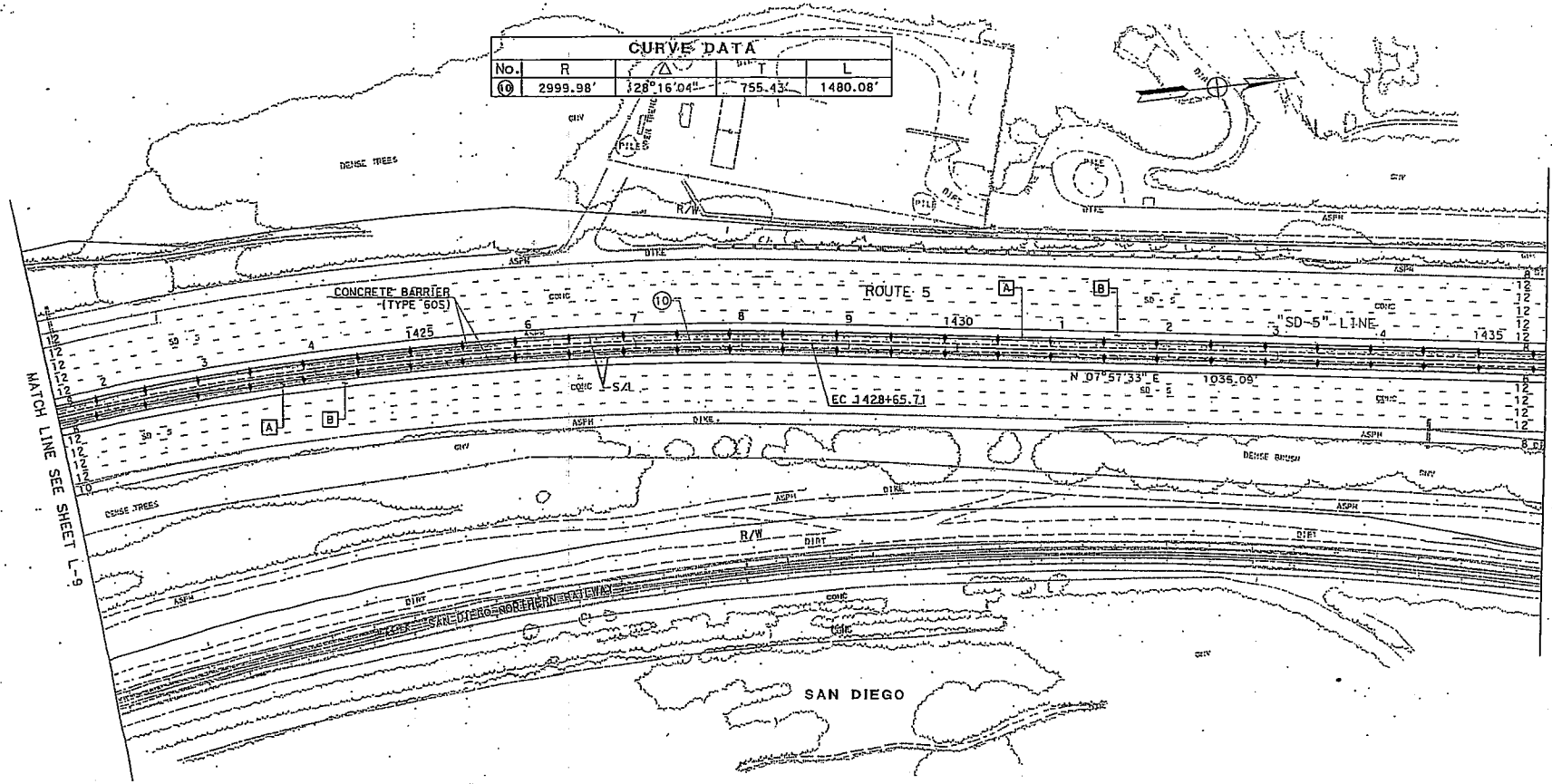
REGISTERED CIVIL ENGINEER DATE

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. REYES — No. 58621 — Exp. 12-31-08 — CIVIL — STATE OF CALIFORNIA

CURVE DATA				
No.	R	Δ	T	L
10	2999.98'	28°16'04"	755.43'	1480.08'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-10

SCALE 1"=50'

FIG. 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: MAI DO
CHECKED BY:
REVISED BY
DATE REVISED

LAST REVISED: DATE PLOTTED => 21-MAY-2008
05-27-08 TIME PLOTTED => 09:08

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

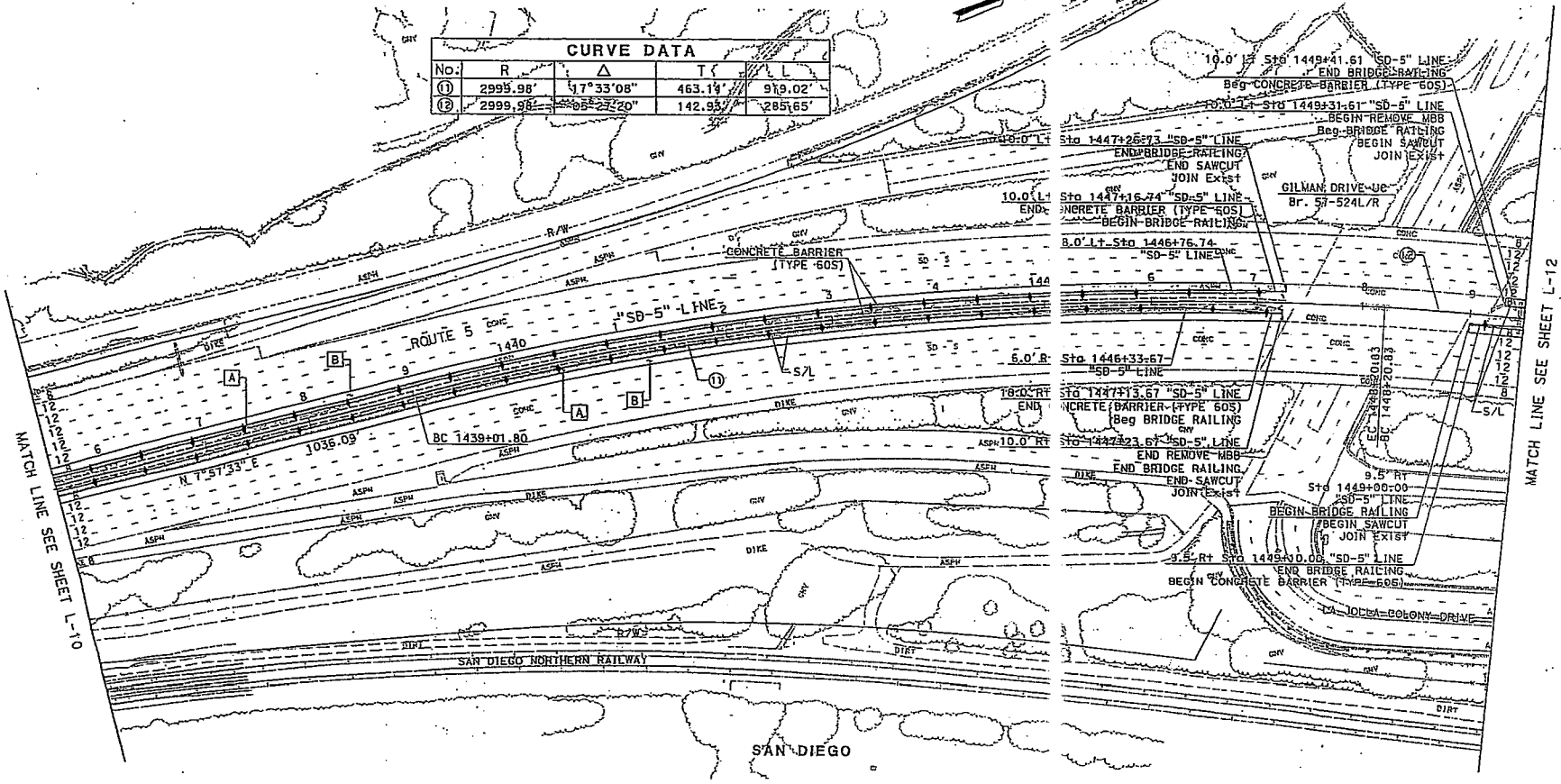
REGISTERED CIVIL ENGINEER DATE

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. REYES — No. 58621 — Exp. 12-31-08 — CIVIL — STATE OF CALIFORNIA

CURVE DATA				
No:	R	Δ	T	L
⑪	2999.98'	17°33'08"	463.14'	919.02'
⑫	2999.98'	05°27'20"	142.95'	285.65'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-11

SCALE 1"=50'

FIG. 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY
CHECKED BY
MAI DO
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 27-MAY-2008
05-27-08 TIME PLOTTED => 08:05

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

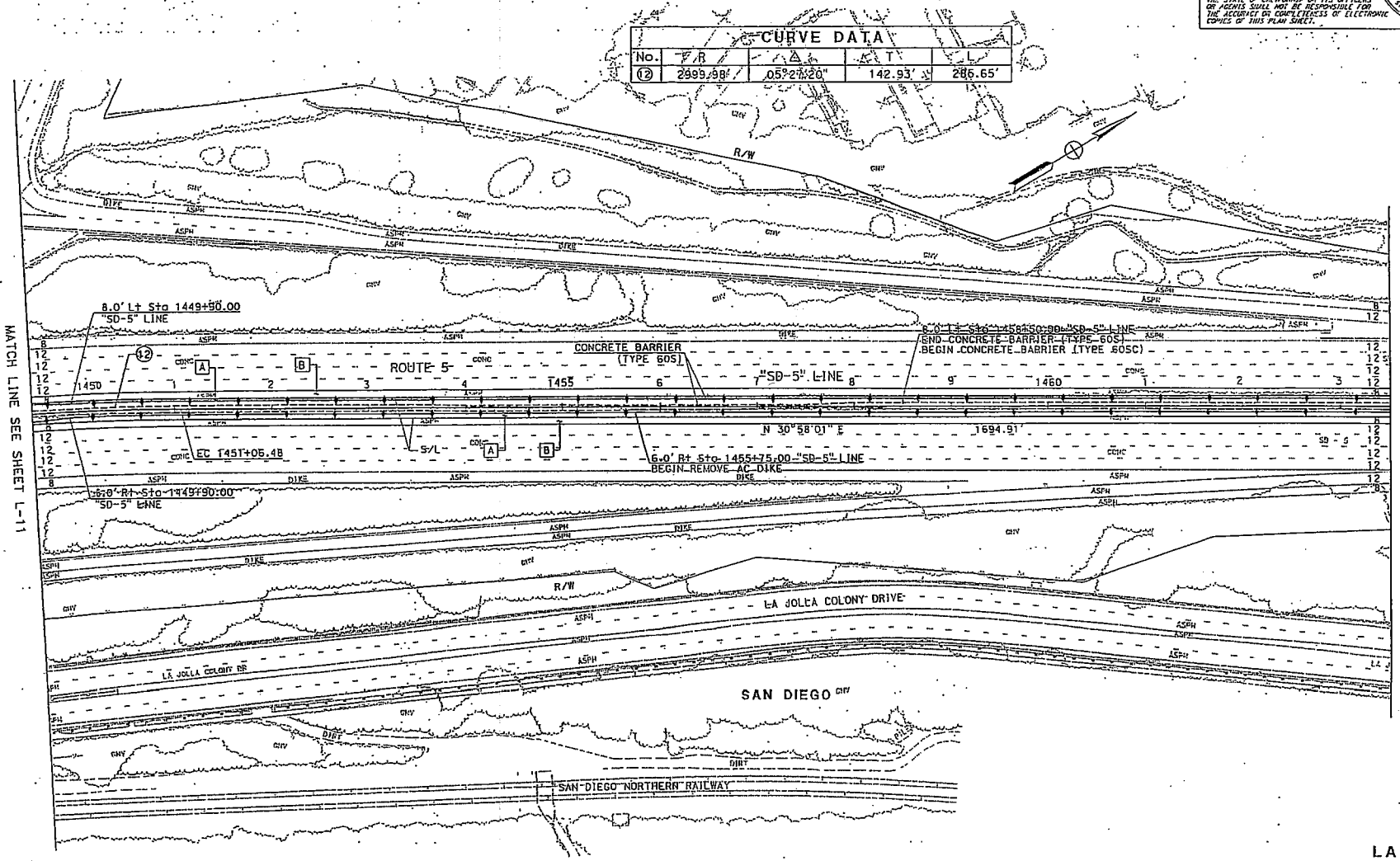
PLANS APPROVAL DATE

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.

M. REYES No. 58621 Exp. 12-31-08 CIVIL STATE OF CALIFORNIA

CURVE DATA

No.	R	Δ	T	L
(12)	2999.98'	05°27'20"	142.93'	285.65'



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	CHECKED BY	DATE REVISED

LAST REVISION	DATE PLOTTED
05-27-08	TIME PLOTTED

FIG. 2

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

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.

CURVE DATA				
NO.	R	Δ	T=	L=
13	2999.98'	25°45'01"	685.71'	1348.26'

MATCH LINE SEE SHEET L-12

MATCH LINE SEES HEET L-14

ROUTE 5

BC 1468+01.39

N 30°58'01" E 1694.91'

CONCRETE BARRIER (TYPE 60S)

R/W

SAN DIEGO

LA JOLLA COLONY DR

LA JOLLA COLONY DRIVE

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT
L-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA

CALCULATED/DESIGNED BY: MAJ DO

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISED 05-27-08 DATE PLOTTED => 27-MAY-2008 TIME PLOTTED => 09:09

FIG. 2

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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.

CURVE DATA				
No.	R	Δ	T	L
(13)	12999.98'	25°45'01"	685.71'	1348.26'

MATCH LINE SEE SHEET L-13

MATCH LINE SEE SHEET L-15

VIA SORRENTO

R/W

ASPH

CONC

DIKE

EC 1481+49.65

ROUTE 5

8.0' Lt Sta 1483+50.00 "SD-5" LINE END CONCRETE BARRIER (TYPE 60SC) BEGIN CONCRETE BARRIER (TYPE 60S)

7"SD-5"-LINE

1480

1485

1490

N 5°13'01" E

12655.93'

S/L

CONCRETE BARRIER (TYPE 60S)

SAN DIEGO

CHARMANT DRIVE

CHARMANT DR

DENSE TREES

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	CHECKED BY	DATE REVISED

MAI DO

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

SCALE 1"=50'

LAYOUT

L-14

LAST REVISION DATE PLOTTED => 27-MAY-2008 05-27-08 TIME PLOTTED => 09:09

FIG. 2

NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

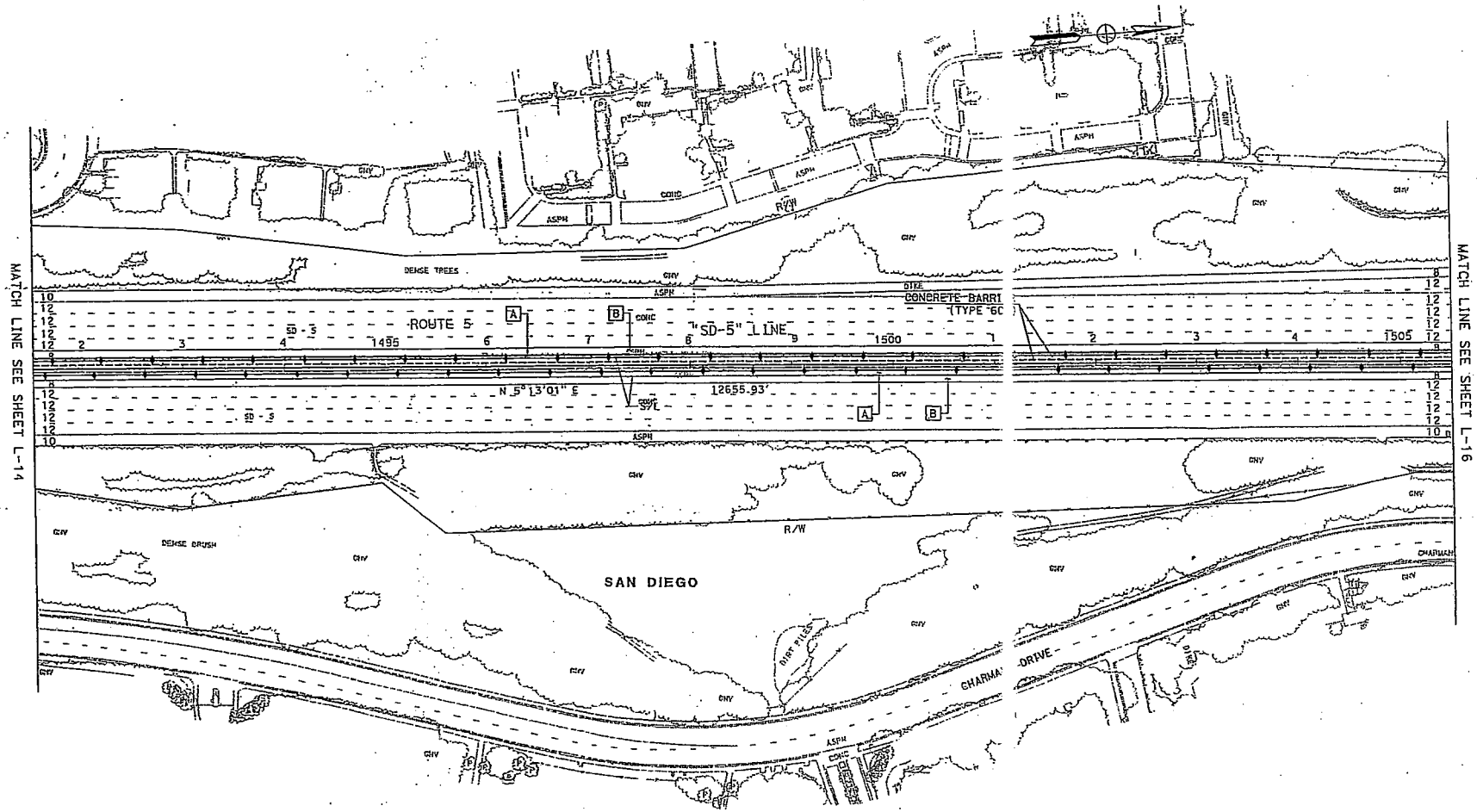
REGISTERED CIVIL ENGINEER DATE

H. REYES No. 58621 Exp. 12-31-08 CIVIL

REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

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.



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-15

SCALE 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	MAJ DO	REVISED BY	
Caltrans TRAFFIC PROJECT DEVELOPMENT	RICHARD ESTRADA	CHECKED BY		DATE REVISED	

LAST REVISION 05-27-08 | DATE PLOTTED => 21-MAY-2008 | TIME PLOTTED => 08:00

FIG-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

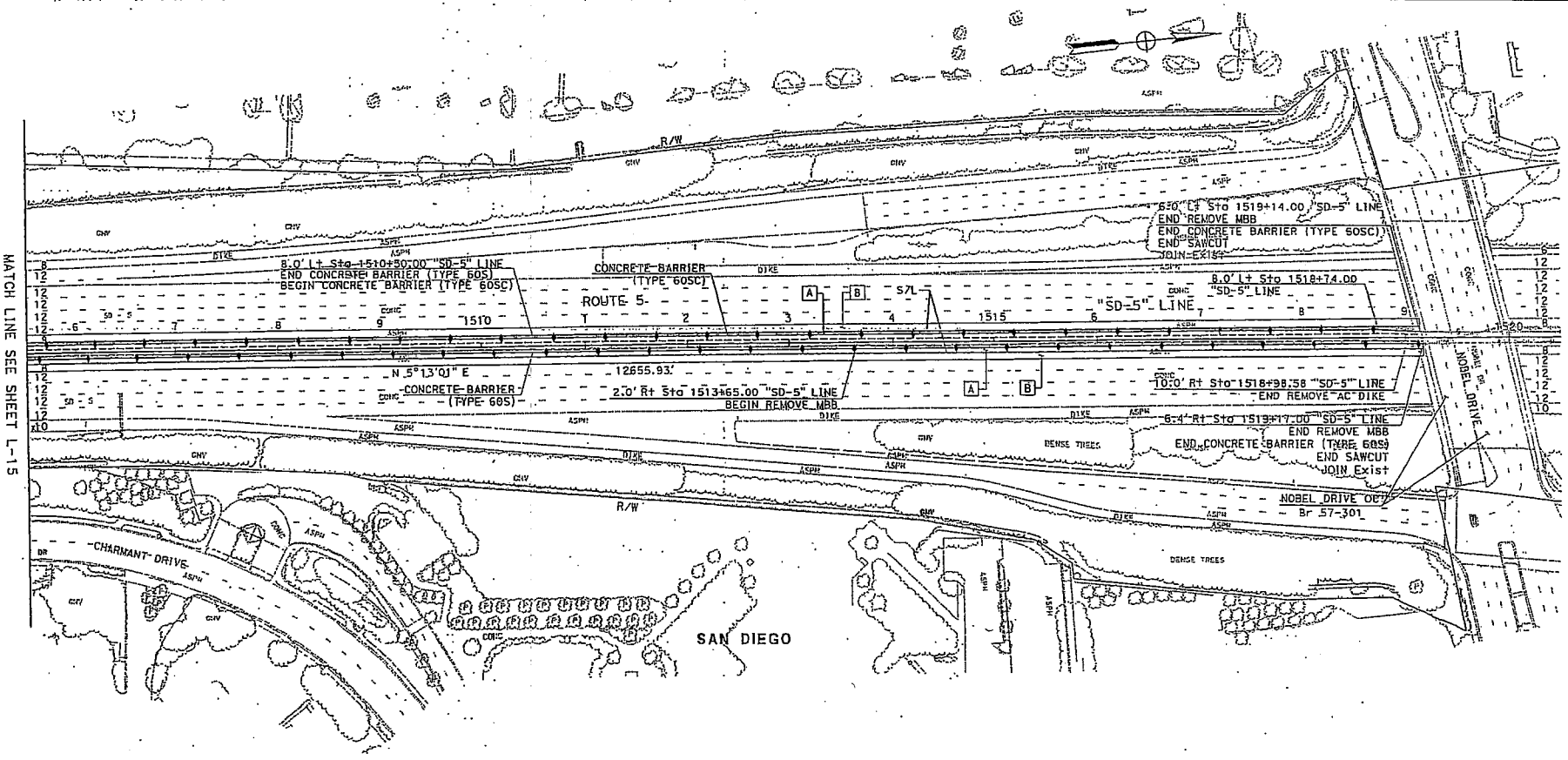
PLANS APPROVAL DATE

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. REYES No. 58621 Exp. 12-31-08 CIVIL STATE OF CALIFORNIA

NOTE:

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



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

LAYOUT
L-16

SCALE 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: HAI DO
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISED: DATE PLOTTED = 27-MAY-2008
05-27-08 TIME PLOTTED = 09:11

FIG. 2

NOTE:

1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
3. FOG SEAL SHALL BE APPLIED TO ALL AC SURFACES EXCEPT TRAVELLED WAY.
4. FOR CONCRETE BARRIER TYPE AND LOCATION, SEE LAYOUTS AND SUMMARY OF QUANTITIES SHEET.
5. FOR RETAINING WALL (TYPE 5) HEIGHT AND LOCATION, SEE RETAINING WALL PLAN AND LAYOUTS.
6. * - MATCH EXISTING CROSS SLOPE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

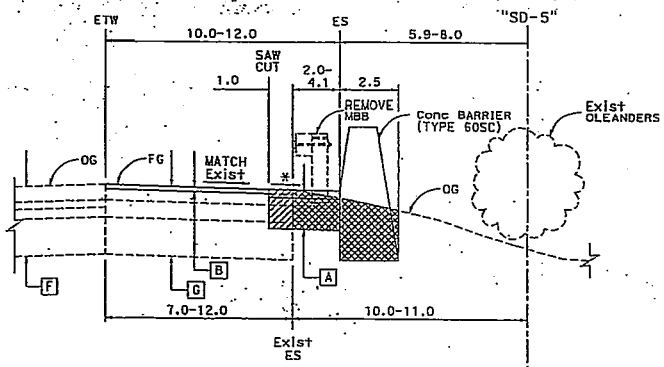
REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

REGISTERED PROFESSIONAL ENGINEER

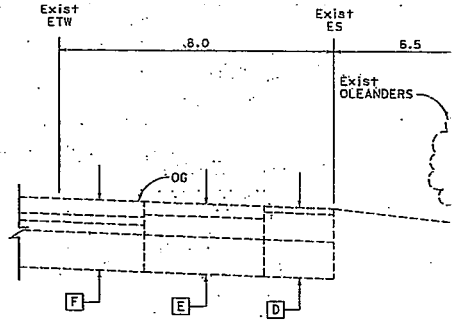
PLANS APPROVAL DATE

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

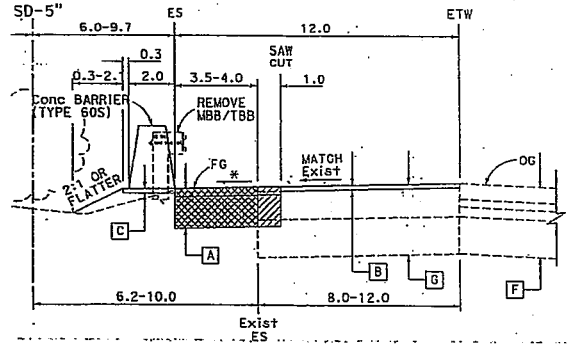


SOUTHBOUND

Sta 1390+50.00 TO Sta 1401+00.00
Sta 1408+00.00 TO Sta 1408+50.00
Sta 1458+50.00 TO Sta 1483+00.00
Sta 1510+50.00 TO Sta 1519+14.00

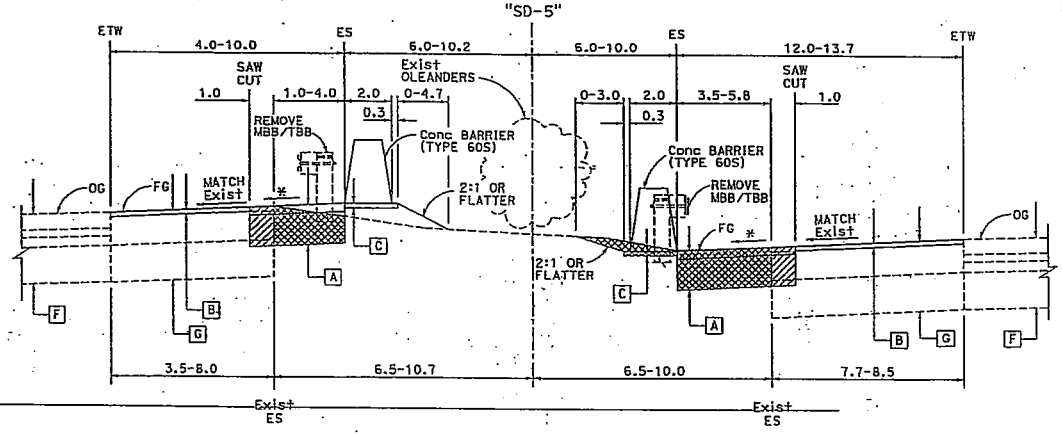


SOUTHBOUND



NORTHBOUND

Sta 1296+91.( ) TO Sta 1296+97.00
Sta 1449+00.) TO Sta 1449+31.61
Sta 1519+14.( ) TO Sta 1519+17.00



SOUTHBOUND

NORTHBOUND

Sta 1296+97.00 TO Sta 1306+50.00
Sta 1390+00.00 TO Sta 1401+00.00
Sta 1408+00.00 TO Sta 1447+26.73
Sta 1449+31.61 TO Sta 1519+14.00

ROUTE 5

LEGEND

- A: 0.35' AC (TYPE A) / 1.35 CLASS 2 AB
- B: COLD PLANE AC Pvmt (0.20' Max) / 0.20' AC (TYPE A)
- C: 0.20' AB
- D: Exist 0.25' AC / 1.17' AB / 1.58' AS
- E: Exist 0.55' AC / 0.87' AB / 1.58' AS
- F: Exist 0.67' PCC / 0.33' CTB / 0.42' AB / 1.58' AS
- G: Exist 0.20' AC (TYPE B) Var CLASS 2 AB / 1.60' CLASS 5 AS

ROADWAY EXCAVATION

ROADWAY EXCAVATION (TYPE Z-2) (AERIALLY DEPOSITED LEAD)

TYPICAL CROSS SECTIONS

X-1

NO SCALE

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC

REVISED BY	DATE REVISED
DONI DECASTRO	VAN CALLANTA

CALCULATED-DESIGNED BY
CHECKED BY
FUNCTIONAL SUPERVISOR
RICHARD ESTRADA

LAST REVISION 05-27-08 DATE PLOTTED = 21-JUL-2008 TIME PLOTTED = 09:28

RIG.3

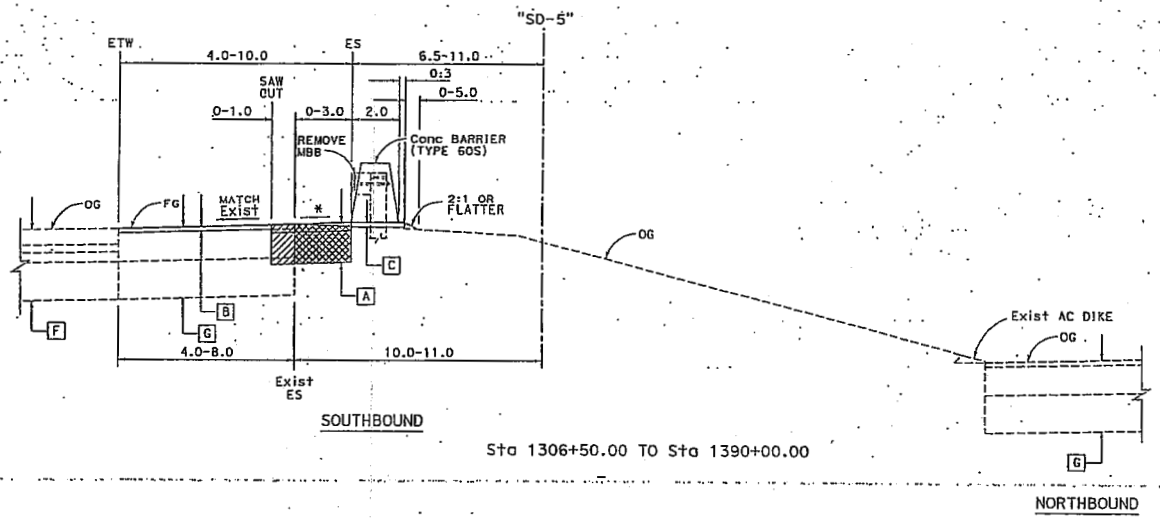
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R23.9/R28.2		

REGISTERED CIVIL ENGINEER DATE

M. REYES No. 58621 Exp. 12-31-08 CIVIL

PLANS APPROVAL DATE

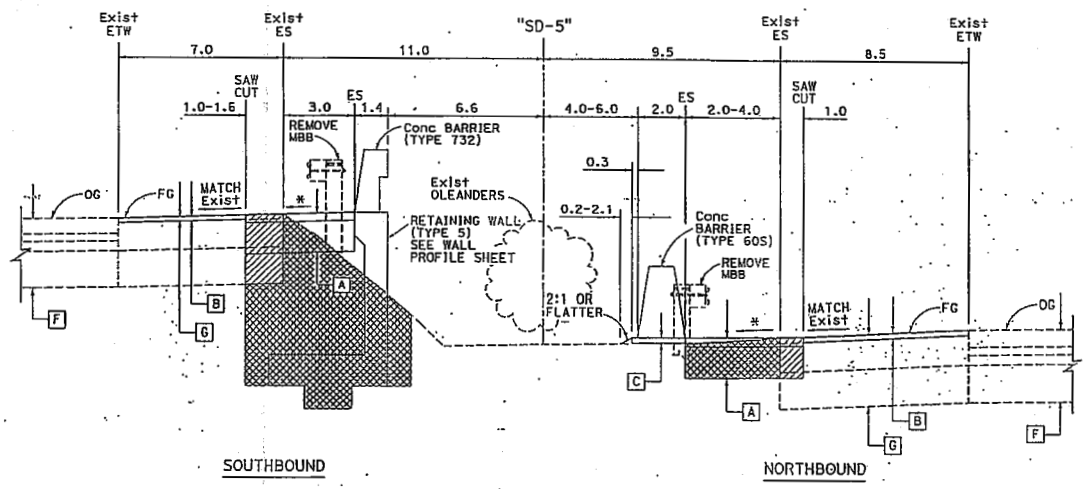
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.



SOUTHBOUND

Sta 1306+50.00 TO Sta 1390+00.00

NORTHBOUND



SOUTHBOUND

NORTHBOUND

Sta 1401+00.00 TO Sta 1408+00.00

ROUTE 5

TYPICAL CROSS SECTIONS

X-2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

NO SCALE

FIG 3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
TRAFFIC
FUNCTIONAL SUPERVISOR: RICHARD ESTRADA
CALCULATED-DESIGNED BY: DONI DECASTRO
CHECKED BY: VAN CALLANTA
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED => 27-MAY-2008
05-27-08 TIME PLOTTED => 09:28

CALIFORNIA GEOLOGICAL SURVEY
MICHAEL S. REICHLE, ACTING STATE GEOLOGIST

STATE OF CALIFORNIA - ARNOLD SCHWARZENEGGER, GOVERNOR
THE RESOURCES AGENCY - MICHAEL CHRISMAN, SECRETARY
DEPARTMENT OF CONSERVATION - DEBBIE SAREERAM, INTERIM DIRECTOR

DEPARTMENT OF CONSERVATION

Scale 1:100,000

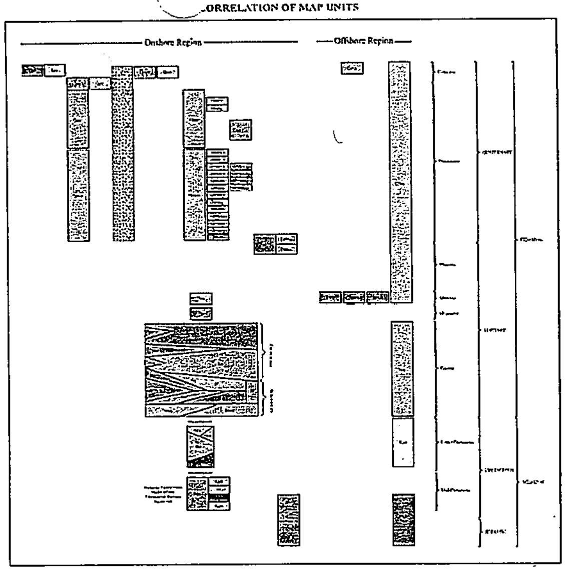
Contour Interval 50m

USGS

GEOLOGIC MAP OF THE SAN DIEGO 30' X 60' QUADRANGLE, CALIFORNIA

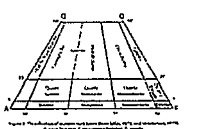
Compiled by
Michael P. Kennedy and Siang S. Tan
2005
Digital Preparation by
Kelly R. Bovard[1], Anne G. Garcia[1] and Diane Burns[1]
1. U.S. Geological Survey, Department of Earth Sciences, University of California, Riverside

CORRELATION OF MAP UNITS



ONSHORE MAP SYMBOLS

OFFSHORE MAP SYMBOLS



Correlation of Map Units and Description of Map Units for the

Geologic Map of the San Diego 30' X 60' Quadrangle, California

Compiled by
Michael P. Kennedy and Siang S. Tan

2005

Digital Preparation by
Kelly R. Bovard, Anne G. Garcia and Diane Burns

DESCRIPTION OF MAP UNITS

MODERN SURFICIAL DEPOSITS

YOUNG SURFICIAL DEPOSITS

OLD SURFICIAL DEPOSITS

VERY OLD SURFICIAL UNITS

SEDIMENTARY AND VOLCANIC BEDROCK UNITS

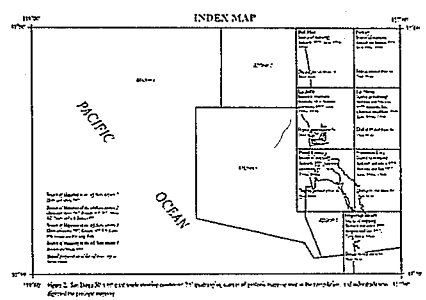
CRETACEOUS ROCKS OF THE PENINSULAR RANGES BATHOLITH

JURASSIC AND CRETACEOUS METAMORPHOSED AND UNMETAMORPHOSED VOLCANIC AND SEDIMENTARY ROCKS

GEOLOGIC SUMMARY

REFERENCES

INDEX MAP



CHRONOLOGY OF MARINE TERRACES AND THEIR DEPOSITS

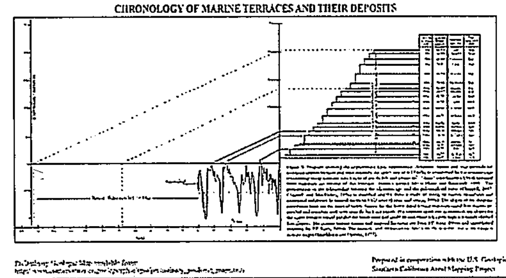


FIG. 4

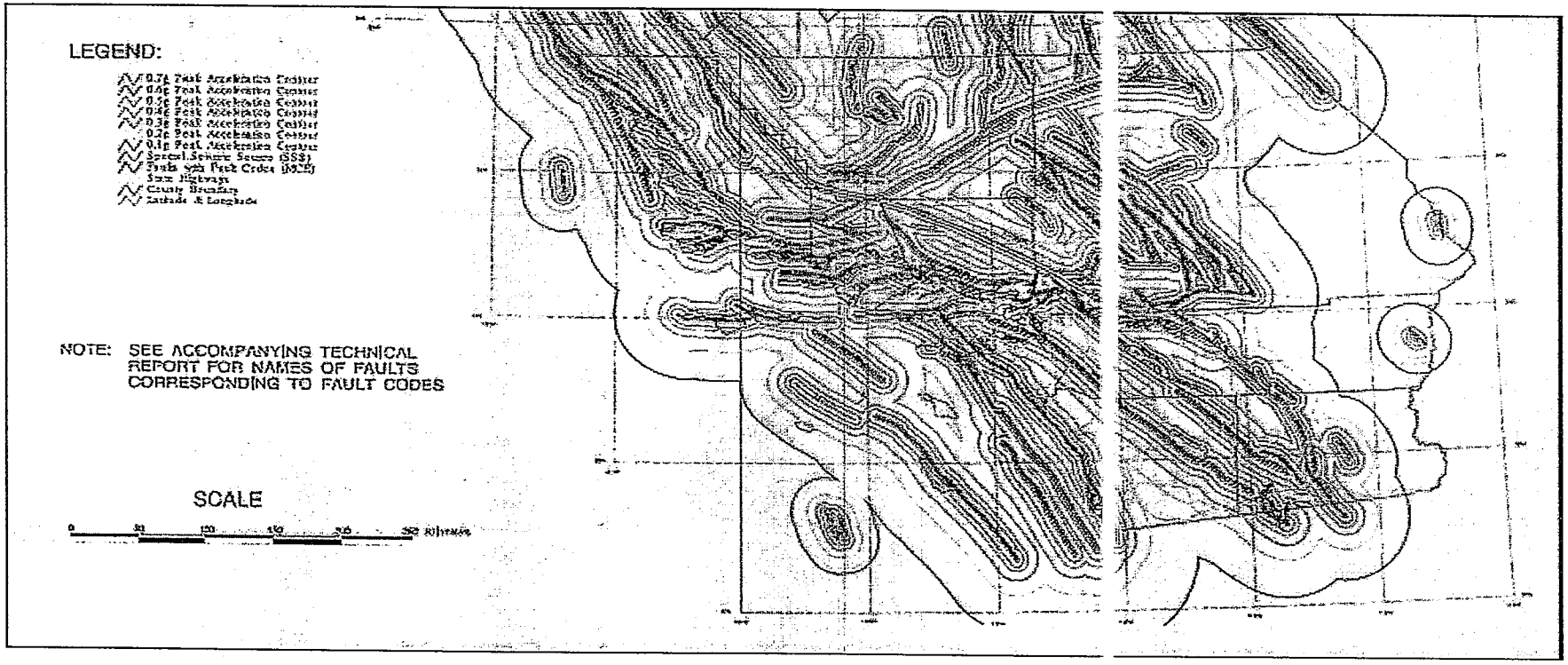

LEGEND:
NOTE: SEE ACCOMPANYING TECHNICAL REPORT FOR NAMES OF FAULTS CORRESPONDING TO FAULT CODES
SCALE

FIG. 5

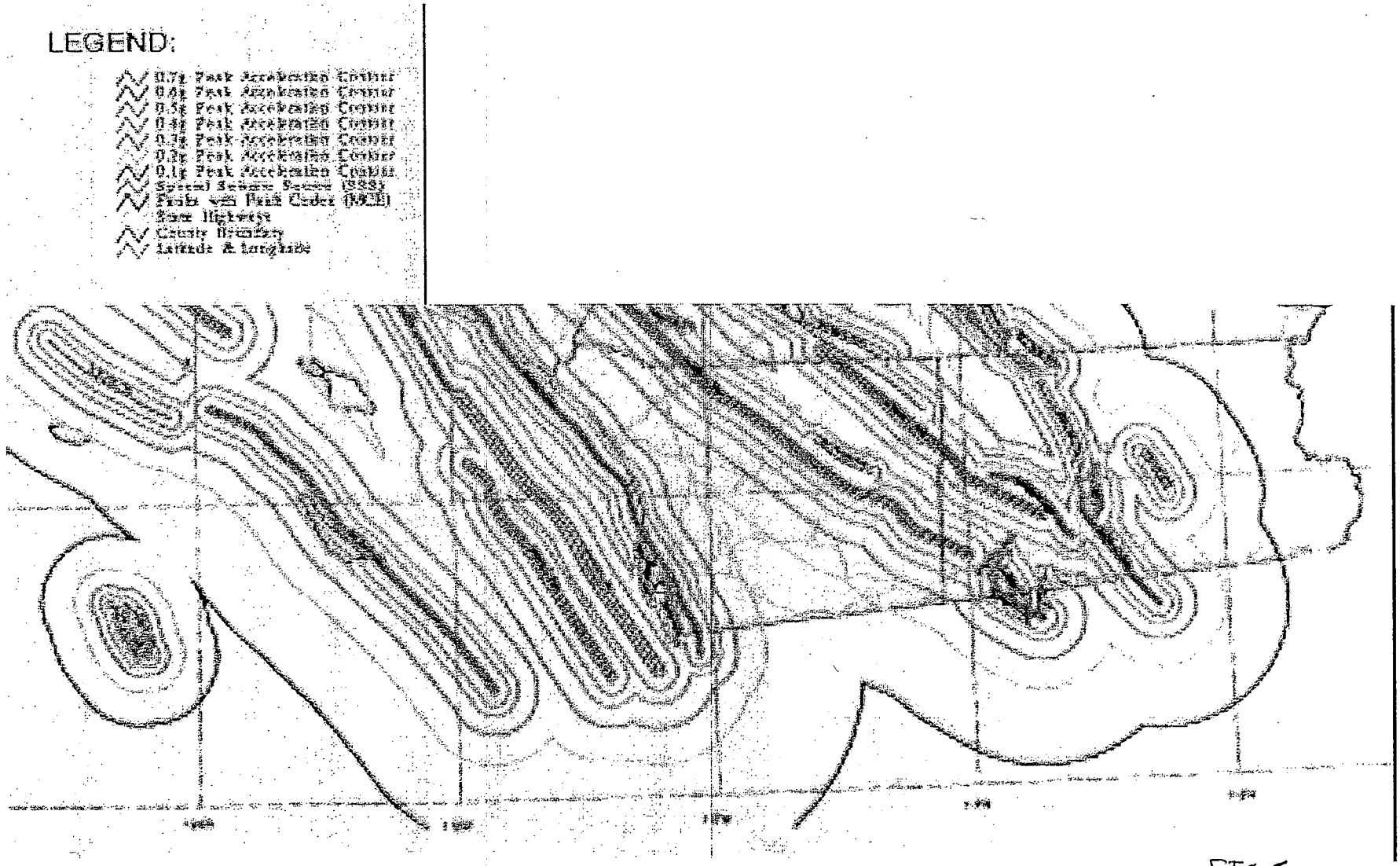
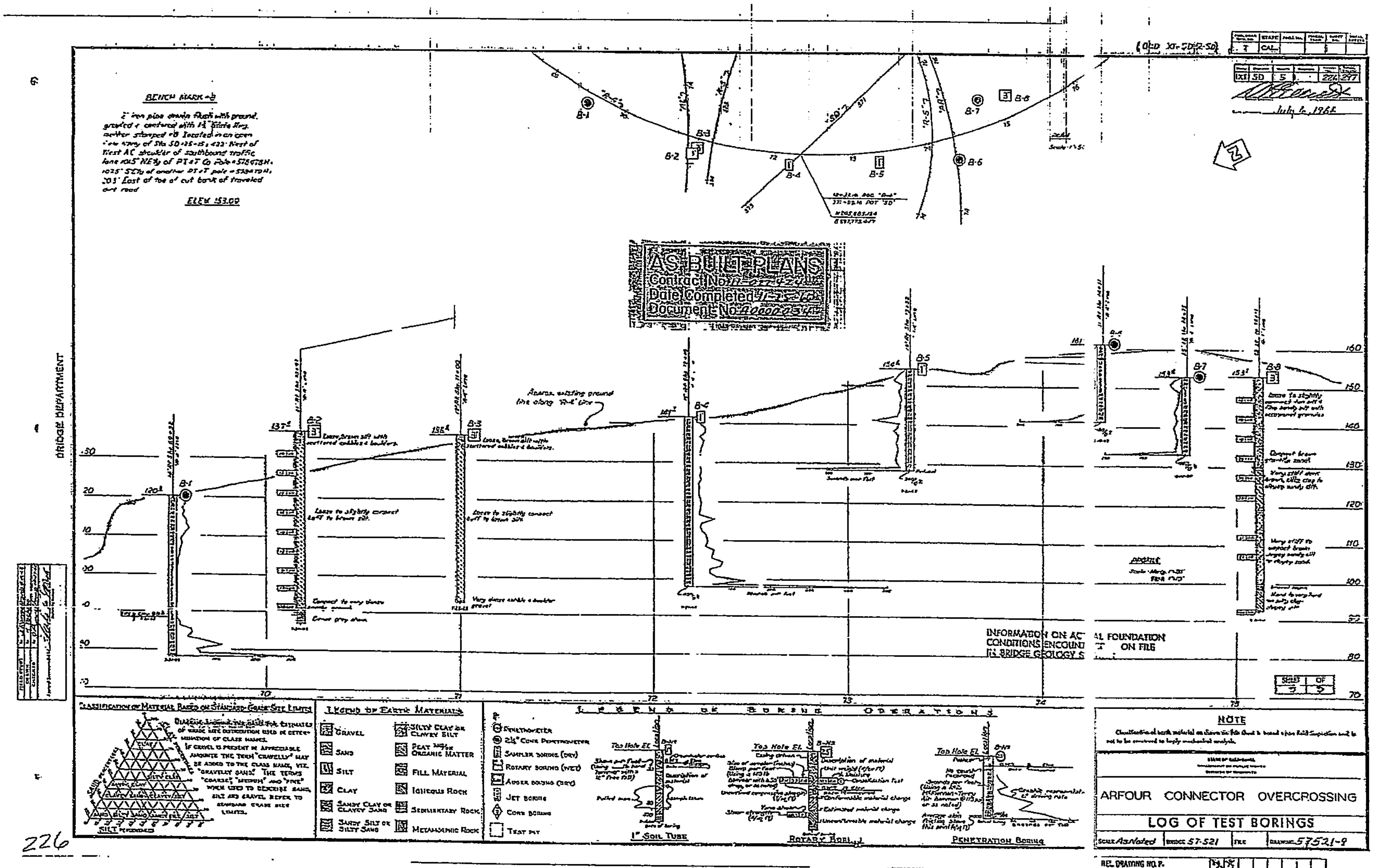

LEGEND:
0.7g Peak Acceleration Contour
0.6g Peak Acceleration Contour
0.5g Peak Acceleration Contour
0.4g Peak Acceleration Contour
0.3g Peak Acceleration Contour
0.2g Peak Acceleration Contour
0.1g Peak Acceleration Contour
Fault with Fault Code (USGS)
State Highways
County Boundary
Latitude & Longitude

FIG. 6

13. APPENDIX

APPENDIX 13.1

ARCHIVAL BRIDGE LOG OF TEST BORING



BENCH MARK
ELEV 153.09
AS-BUILT PLANS
Contract No.
Date Completed
Document No.
BRIDGE DEPARTMENT
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
Approx. existing ground line along "R-4" line
Loose to slightly compact soft to brown silt.
Compact to very dense
INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED ON FILE IN BRIDGE GEOLOGY S
PROFILE
CLASSIFICATION OF MATERIAL BASED ON STANDARD GRAIN SIZE LIMITS
LEGEND OF EARTH MATERIALS
Gravel
Sand
Silt
Clay
Sandy Clay or Clayey Sand
Sandy Silt or Silty Sand
Silty Clay or Clayey Silt
Peat and/or Organic Matter
Fill Material
Igneous Rock
Sedimentary Rock
Metamorphic Rock
LEGEND OF BORING OPERATIONS
Penetrometer
2½" Cone Penetrometer
Sampler Boring (Dry)
Rotary Boring (Wet)
Auger Boring (Dry)
Jet Boring
Cone Boring
Test Pit
1" Soil Tube
Rotary Boring
Penetration Boring
NOTE
STATE OF CALIFORNIA
ARFOUR CONNECTOR OVERCROSSING
LOG OF TEST BORINGS
SCALE As Noted
BRIDGE 57-521
DRAWING 57521-9
REL. DRAWING NO. P.
SHEET 9 OF 9

226

APPENDIX 13.2

STABILITY ANALYSIS/CALCULATIONS

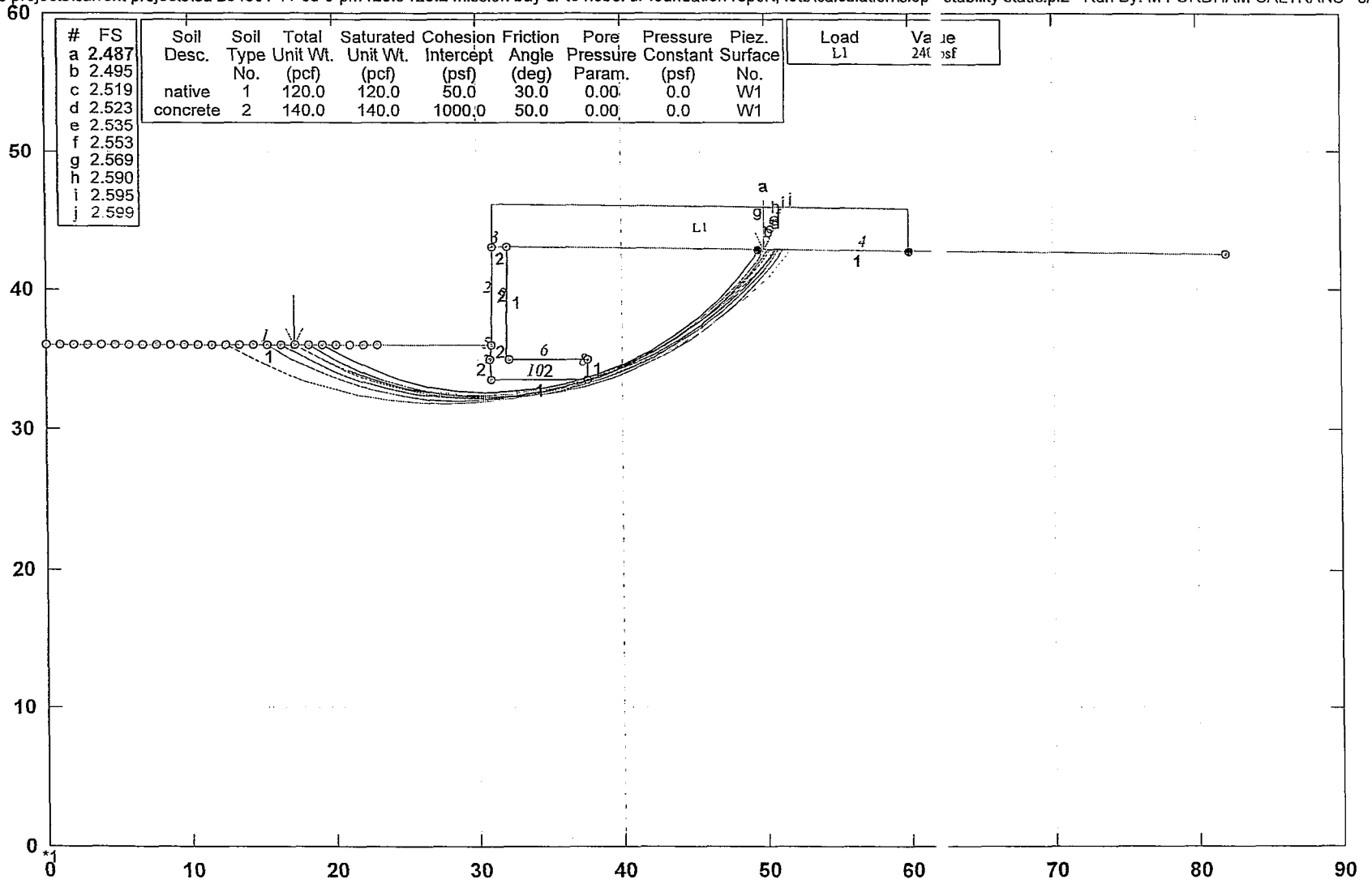
11-sd-5 284601 mission to nobel i-5 type 5 ret wall 8' + 240lb/sf load

d:\userdata\mike's projects\current projects\ea 284601 11-sd-5-pm r23.9-r28.2 mission bay dr to nobel dr foundation report, lotb\calculation\slop stability static.pl2 Run By: M FORDHAM CALTRANS 8/12/2008 01:

#	FS
a	2.487
b	2.495
c	2.519
d	2.523
e	2.535
f	2.553
g	2.569
h	2.590
i	2.595
j	2.599

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
native	1	120.0	120.0	50.0	30.0	0.00	0.0	W1
concrete	2	140.0	140.0	1000.0	50.0	0.00	0.0	W1

Load	Va ue
L1	240 psf



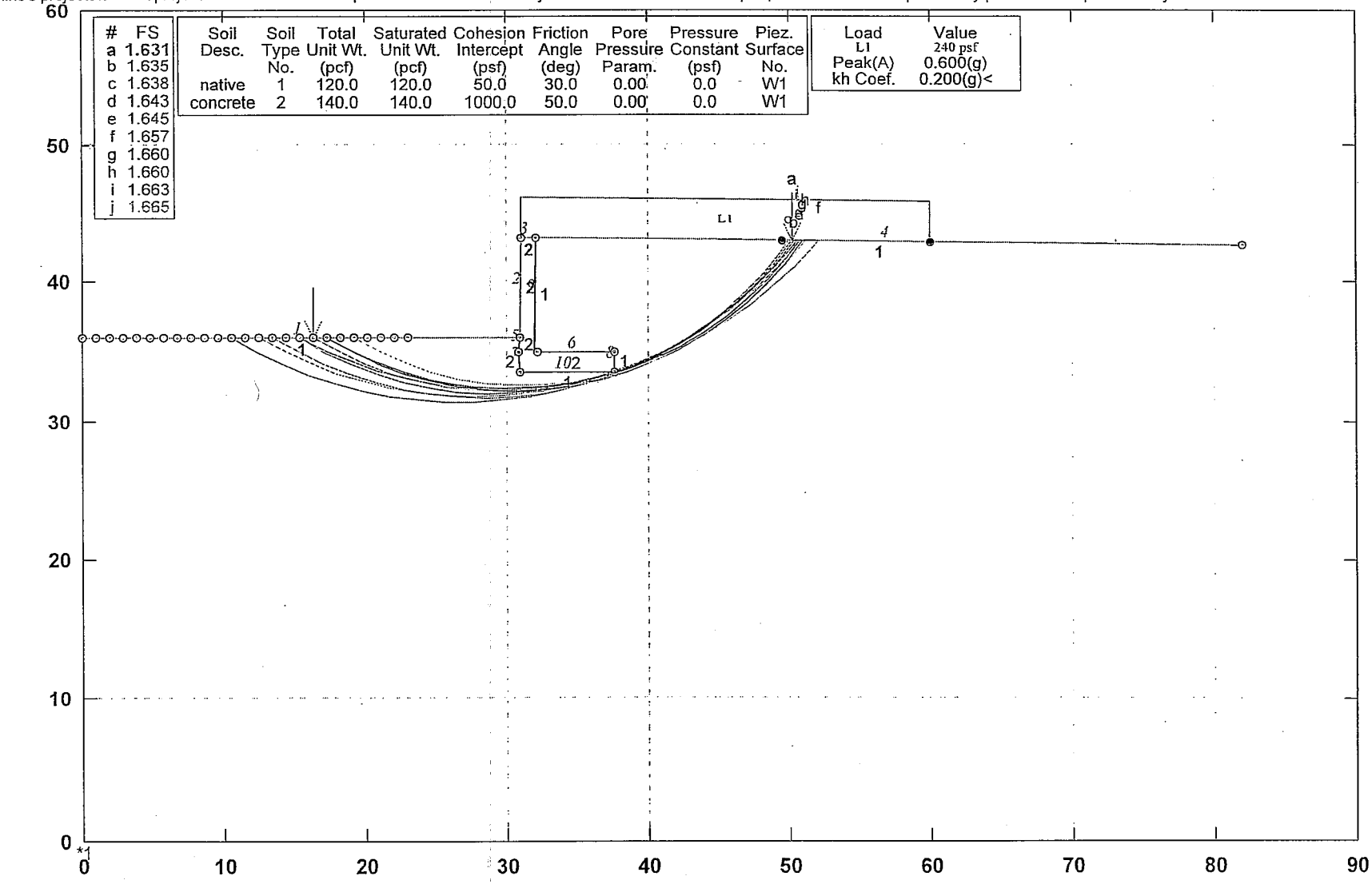
GSTABL7 v.2 FSmin=2.487

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

11-sd-5 284601 mission to nobel i-5 type 5 ret wall 8' + 240lb/sf load+seis

d:\userdata\mike's projects\current projects\ea 284601 11-sd-5-pm r23.9-r28.2 mission bay dr to nobel dr foundation report, lotb\calculation\slope stability psuedo static.pl2 Run By: M FORDHAM CALTRANS 8/12/2008 01



GSTABL7 v.2 FSmin=1.631

Safety Factors Are Calculated By The Modified Bishop Method

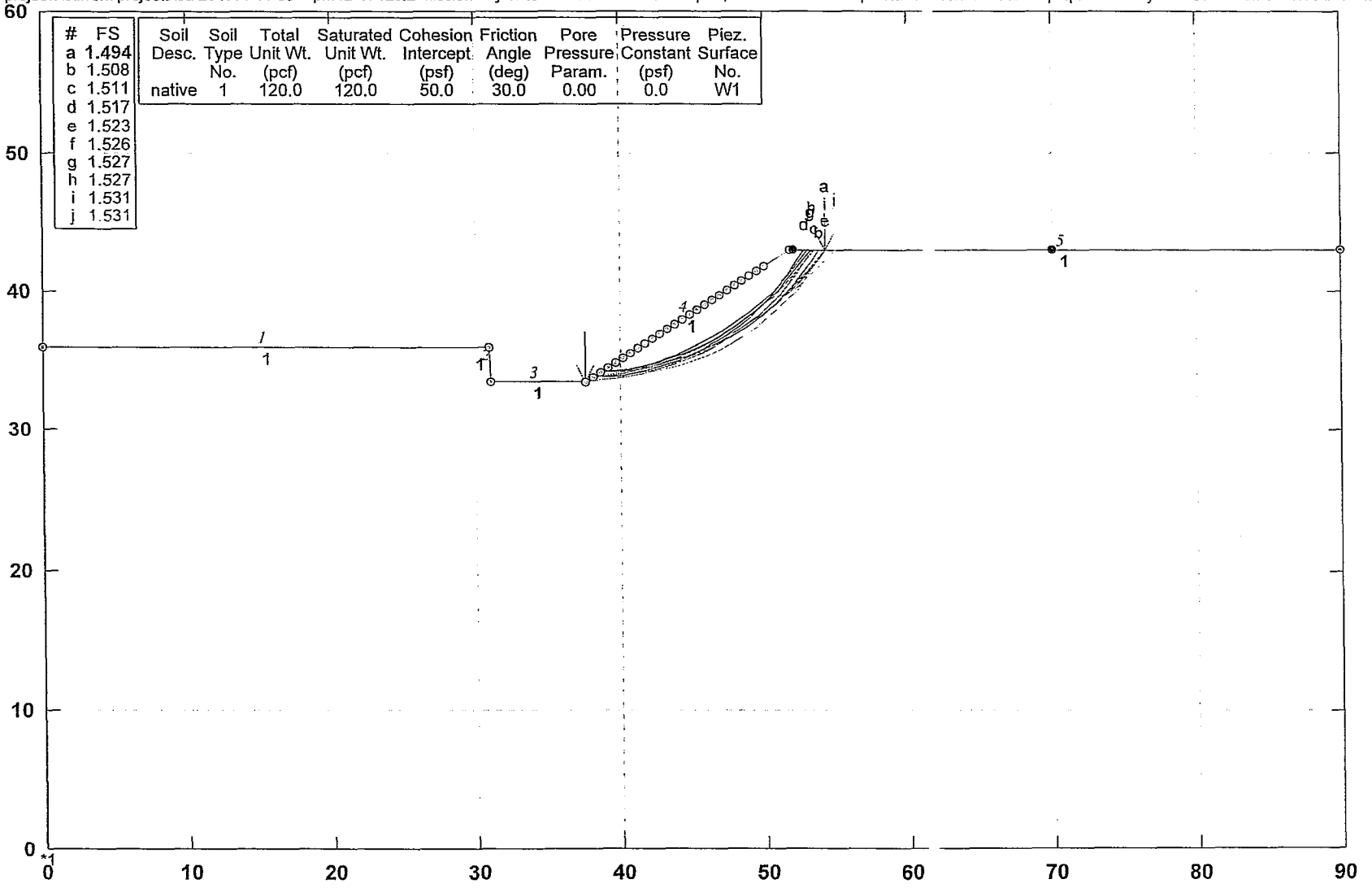
GSTABL7

11-sd-5 284601 mission to nobel i-5 type 5 ret w ll temp cut

d:\userdata\mike's projects\current projects\ea 284601 11-sd-5-pm r23.9-r28.2 mission bay dr to nobel dr foundation report, lotb\calculation\slope stabili · construction slope.pl2 Run By: M FORDHAM CALTRANS 8/12/2008 02:

#	FS
a	1.494
b	1.508
c	1.511
d	1.517
e	1.523
f	1.526
g	1.527
h	1.527
i	1.531
j	1.531

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
native	1	120.0	120.0	50.0	30.0	0.00	0.0	W1



GSTABL7 v.2 FSmin=1.494

Safety Factors Are Calculated By The Modified Bishop Method

GSTABL7

APPENDIX 13.3

REFERENCES

REFERENCES

Mualch, L., (1995), *California Seismic Hazard Map, Based on Maximum Credible Earthquake.*

USDA, Soil Conservation Service and Forest Service, (1973), *Soil Survey, San Diego Area, California.*

S.S. Tan and M.P. Kennedy, (1996), *Geologic Map of Northwestern part of San Diego County.*

S.S. Tan and M.P. Kennedy, (1996), *Geologic Map of Oceanside, San Luis Rey and San Marcos part of San Diego County, (Plate 1, DMG Open File Report 96-02).*

S.S. Tan and M.P. Kennedy, (1996), *Geologic Map of Enicnitas and Rancho Santa Fe part of San Diego County, (Plate 2, DMG Open File Report 96-02).*

M.P. Kennedy, (1975), *Geology of the Del Mar Quadrangle San Diego County, California.*

F. Harlod Weber Jr., (1963), *Geology and Mineral Resources of San Diego County, California, Country Report 3,* California Division of Mines and Geology.

E. Johnston, W. Adent, A. Terry, (1974), *GEOLOGY Coastal Geology and Geological Hazards of San Diego Coast,* San Diego Coast Regional Commission.

Department of Transportation, State of California, (2006), *Standard Plans*, Customary Units.

State of California Business, Transportation and Housing Agency

Memorandum

To: **Luke Serna**
Environmental Planner
Environmental Analysis

Date: February 23, 2007, Rev. June 24, 2008
File: 11-SD-5/8
PM: R23.9-R28.2/7.0-8.5
EA: 28460K

From: **Joel Kloth**
Engineering Geologist
Environmental Engineering

Subject: *Hazardous Waste Review for Upgrading Median Metal Beam Guardrail to Concrete Barrier, Widen Inside Shoulder, and Construct Drainage Improvements, Route 5, Mission Bay Drive Overcrossing to the Nobel Drive Overcrossing, and Route 8 From the Waring Road Undercrossing to 0.3 Miles East of College Avenue*

The project will involve upgrading median metal beam guardrail to concrete barrier, widening the inside shoulder on Route 5 only, and constructing drainage improvements on Route 5 between the Mission Bay Drive Overcrossing to the Nobel Drive Overcrossing and on Route 8 *from the Waring Road undercrossing to 0.3 miles east of College Avenue*.

Investigative information regarding aerially deposited lead (ADL) is presented in reports entitled *"Limited Aerially Deposited Lead Assessment, Interstate 5 and Gilman Drive, San Diego, California"* dated December 2002 by Ninyo and Moore, *"Site Investigation Report, State Route 5 Between the San Diego River Bridge and 0.2 KM North of the Mission Bay Drive Overcrossing in San Diego, California"* dated April 1999 by Geocon Consultants, Inc. (Geocon), *"Site Investigation Report, Route 5 from Mission Bay Drive to Route 52, San Diego, California"* dated November 1999 by Geocon, *"Site Assessment for Lead, Route 5, Nobel Drive Overcrossing to Genesee Avenue Overcrossing, KP R45.4/R47.4, PM R28.22/R29.46, San Diego, California"* dated October 2000 by Geocon, *"Lead Investigation on Route 8 from the 8/15 Separation to 0.6 KM West of College Avenue Overcrossing in San Diego, California*" dated March 1999 by Geocon, and *"Aerial Lead Investigation, Median Barrier Replacement on I-8, San Diego County, California"* dated February 22, 1999 by APEX. Hazardous concentrations of aerially deposited lead were detected in soil samples collected from the subject areas.

Total lead concentrations along Route 5 ranged from not detected above the laboratory detection limit of 5.0 milligrams per kilogram (mg/kg), to 4,460 mg/kg with an average 95% Upper Confidence Level concentration of 127.18 mg/kg in the upper 1.5 feet. Toxicity Characteristic Leaching Potential (TCLP) results for lead averaged 0.37 milligrams per liter (mg/l), well below the regulatory standard of 5.0 mg/l. Hazardous concentrations of ADL are present in exposed soil within 30 feet of the shoulder and in the median and shoulders of Route 5 from station 1294+93.92 to 1519+14.2. Hazardous concentrations of ADL are not present in the Route 5 median along the northbound side right of the centerline from station 1294+93.92 to 1306+27.00 since ADL was remediated by a previous project.

Total lead concentrations along Route 8 ranged from less than the laboratory detection limit to 2,430 milligrams per kilogram (mg/kg), with an average 95% Upper Confidence Level concentration of 442.97 in the upper 1-foot. Hazardous concentrations of ADL are present in exposed soil within 30 feet of the median of Route 8 from post mile 7.0 to 8.5.

Excavation along Route 5 and Route 8 will invoke the Department of Toxic Substances Control (DTSC) lead variance, standard specification (SSP) 19-900 will apply. According to SSP 19-900, a site specific Health and Safety Plan should be prepared to include measures that limit exposure of lead affected soil to persons working onsite, and use of proper Personal Protective Equipment. Persons working with the soil containing hazardous concentrations of lead should have training in accordance with Title 8 of the CCR 1532.1(e)(2)(B). These Title 8 CCR criteria are found in the office engineers' standard specifications. For work on Route 5, type Y-1 or type Z-2 material will apply in SSP 19-900, the excavated soil may be reused onsite by being placed beneath pavement or beneath 1 foot of clean fill material, at least 5 feet above the maximum groundwater level. Using type Z-2 material, if the soil excavated is relinquished to a contractor, the excavated soil must be disposed as a hazardous waste at a Class I landfill. For work on Route 8, type Z-2 material will apply in SSP 19-900. Using type Z-2 material, the excavated soil is relinquished to a contractor, and the excavated soil must be disposed as a hazardous waste at a Class I landfill.

The DTSC must be notified in writing by the Project Engineer at least 30 days before excavation of soil containing ADL begins, and should included in the RE book. A copy of the DTSC notification shall be sent to Environmental Engineering (Attention: Joel Kloth, 4050 Taylor Street, San Diego, CA 92110, MS-242).

Relocated ADL soil must be shown on the project as-built plans. The Project Engineer must also have NPDES/Stormwater Compliance notify the Regional Water Quality Control Board of the field activities in writing at least 30 days prior to initiating field activities.

As the project scope develops, handling procedures of excavated soil containing lead may be modified. Please keep Environmental Engineering informed of scope changes. If you have questions call (619) 688-3146.

Joel Kloth, PG
Environmental Geologist
Environmental Engineering

cc: Jayne Dowda

Memorandum

To : Manuel Reyes (MS 230)
Project Engineer
Traffic

Date: July 6, 2007

File: 11-SD-5, 8
PM R23.9/R28.2
PM 7.0/8.0
EA 11-28460K

From : **DEPARTMENT OF TRANSPORTATION - DISTRICT 11**
PAVEMENT ENGINEERING SECTION

Subject: **STRUCTURAL SECTION RECOMMENDATIONS - Addendum**

In accordance with your request, the following structural section recommendations have been combined into a single memo with English units. The recommendations were presented originally in structural section recommendations dated November 27, 2006 and June 25, 2007.

The calculations are based on a Traffic Index (TI) of 12.5 for the EB-8 inside lane and a TI of 6.5 for the inside median shoulder. A TI of 7.5 for the inside shoulder of I-5. The basement soil R-value of 10 has been obtained from other projects constructed in the vicinity of this project.

Within the vicinity of the College Ave interchange, the EB #1 lane shifts onto the original inside median AC shoulder. The AC portion of the #1 lane is severely distressed and will be replaced where this project coincides the poor pavement condition. The existing AC structural section in this area is 0.33' AC over 0.25' AB – Class 2.

EB 8 #1 lane

(TI = 12.5, R-value = 10)

Alternate 1	Alternate 2
1.65' AC (Type A)	0.65' AC (Type A)
	2.35' AB – Class 2

EB 8 inside shoulder

(TI = 6.5, R-value = 10)

Alternate 1	Alternate 2
0.80' AC (Type A)	0.30' AC (Type A)
	1.15' AB – Class 2

EXHIBIT 10

I-5 inside shoulder
(TI = 7.5, R-value = 10)

Alternate 1	Alternate 2	Alternate 3
0.35' AC (Type A)	0.35' AC (Type A)	0.95' AC (Type A)
0.90' AB – Class 2	1.35' AB – Class 2	
0.50' AS – Class 4		

Design Notes

1. The recommended aggregate grading for AC (Type A) is dense graded, ¾" maximum, coarse.

2. The recommended PG Grade for the asphalt is PG 64-10.

3. The existing shoulder structural section does not meet the structural adequacy requirements for use as a traveled way. The shoulder structural section shall be removed where the where the #1 lane encroaches upon it.

If you have questions with regards to this memorandum, please contact me at 858-467-4056 or FAX at 858-467-4063.

David Evans
District Pavement Engineer
District 11 Materials Lab

cc: A Padilla (DME)
G Vettese (MS 330)
R Estrada (MS 230)
8.28560K.ss3.doc

EXHIBIT 10

THE CITY OF SAN DIEGO

November 2, 2009

Manuel Reyes
Caltrans, District 11
4050 Taylor Street
San Diego, CA 92110

Dear Mr. Reyes,

Subject: Caltrans Will Serve Letter – I-5, Balboa Avenue / Nobel Drive, 11-SD-5, PM R23.9/R28.2, EA 284601, Project upgrade median barrier from metal to concrete with median shoulder widening and drainage work.

The project is located within the City of San Diego water service area. City water mains are located in the fronting City streets (West and East of I-5). The water mains are complete and will provide adequate potable water service for normal use during construction.

Note: the City of San Diego is at this time at a 'Level 2 Drought Alert Condition'. San Diego's water customers are encouraged to use water efficiently and not to waste it or use it unreasonably. The City of San Diego will be able to provide adequate potable water for this project, which begins in October of 2010 and will last for approximately 9 months. The project requires approximately 7.7 million gallons / 5000 gallons per day (GPD). All service connections (Fire Hydrant Meters) are to be installed by the City at City fire hydrants.

Water service connections are available. These connections are requested per required demand. All services are governed by City ordinances and regulations concerning connections, construction, capacity charges, permit fees and matters pertaining thereto.

If further information is required, please contact Rudy Benitez at (619) 533-5146.

Sincerely,

Paul Buehler
Associate Civil Engineer

cc: Bobbi Salvini, Senior Civil Engineer, Public Utilities Department
Rudy Benitez, Assistant Civil Engineer, Public Utilities Department