

State Route 138 Widening

San Bernardino County, California

SBD-138-PM (0.0/R15.2)

Los Angeles County, California

LA-138-PM (69.3/74.9),

08-EA 3401U0

Initial Study [With proposed Mitigated Negative Declaration]/ Environmental Assessment



Prepared by the

State of California Department of Transportation

District 8

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



March 2010

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the County of San Bernardino and Los Angeles County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or compensation measures.

What you should do:

- Please read this Environmental Assessment/Initial Study.
- Additional copies of this document as well as the technical studies are available for review at the Caltrans, District 8 office, 464 West 4th Street, San Bernardino, CA 92401, and Phelan Public Library, 9898 Clovis Road, Phelan, CA 92371. An electronic copy is available at: <http://www.dot.ca.gov/dist8/projects>.
- Attend the Open Forum Public Hearing project on April 6, 2010 between 6:00 pm and 8:00 pm at Pinon Mesa Middle School, 9298 Sheep Creek Road Phelan, CA 92371.
- We welcome your comments. If you have any concerns regarding the proposed project, please attend the Open Forum Public Hearing and/or send your written comments by April 20, 2010.
- Submit comments via postal mail to:
Aaron Burton, Senior Environmental Planner
Attention: Maisoon Afaneh
Dept. of Transportation, Environmental Studies "B"
464 West 4th Street, 6th Floor, MS 1162
San Bernardino, CA 92401
- Submit comments via email to maisoon_afaneh@dot.ca.gov.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration, may (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

It should be noted that at a future date, the Department acting through FHWA may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that a final action has been taken on this project by the Department or another federal agency. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the federal agency action is allowed). If no notice is published, then the lawsuit or claim can be filed as long as the periods of time provided by other Federal laws that govern claims are met.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Public Affairs, 464 West 4th Street, San Bernardino, CA 92401; District 8 TTY (909) 383-6300 or (800) 735-2929 (TTY).

SCH# _____

SBD-138-PM (0.0/R15.2)
LA-138-PM (69.3/74.9),
EA 08-3401U0

Widen the existing State Route 138 from 2-lanes to 4-lanes with a 4-foot median buffer, and realign portions of the mainline from State Route 18 in Los Angeles County [PM 69.3/74.9] to Interstate 15 in San Bernardino County [PM 0.0/R15.2]

**Initial Study [with proposed Mitigated Negative Declaration]/
Environmental Assessment**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(c)

THE STATE OF CALIFORNIA
Department of Transportation

3/14/10
Date Of Approval


David Bricker
Deputy District Director
District Division of Environmental Planning
California Department of Transportation

PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The Department of Transportation (Department) proposes to widen State Route (SR) 138 from 2-lanes to 4-lanes with a 4-foot median buffer and realign portions of the mainline. The proposed project improvements will meet the transportation demands by increasing capacity and improving operational efficiency. The project limits begin in Los Angeles County at SR18, PM 69.4 to PM 74.9 and extend into San Bernardino County starting from PM 0.0, ending at Interstate 15 (I-15) PM R15.2.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is the Department's intent to adopt an MND for this project. This does not mean that the Department's decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

The Department has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on agricultural resources, land use and planning, growth, community character and cohesion, mineral resources, population and housing, public services, recreation, and transportation/traffic.

In addition, the proposed project would have no significant effect on air quality, cultural resources, geology and soil, hazard and hazardous material, hydrology and water quality, paleontology, noise, and utilities and services.

The proposed project would have no significantly adverse effect on aesthetics, and biological resources because the following mitigation measures would reduce potential effects to insignificance:

Aesthetics:

- Project construction shall retain the maximum amount of existing vegetation by minimizing the amount of clearing and earthwork. The restoration of vegetation shall include replanting of native vegetation on disturbed sites.
- A vista point shall be developed at the intersection of SR 138 and Lone Pine Canyon Road
- After cutting of rock outcroppings along the highway, the rock faces shall be provided with a similar surface as the Mormon Rocks formation, as possible.
- Slopes shall be designed at lower grades to reflect the natural terrain. Disturbed or manufactured slopes shall be landscaped with native vegetation.
- The bridge structures, signs and other highway appurtenances to be replaced shall be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance their compatibility with the rural community and mountain or desert landscape.
- Joshua trees that would be removed shall be replanted away from the proposed pavement areas. Transplantation standards shall follow best nursery practices.

Biological Resources:

- Project design shall include only widening of the bridges decks, and would not involve increase in size of bridge pilings. Impacts to riparian areas will be mitigated in coordination with ACOE, RWQCB, and CDFG during the aquatic permitting process.
- Protect any plants in place as possible. Follow appropriate process for the relocation of Short –Joint beavertail cacti, and Joshua trees in coordination with the CAFG.
- If burrowing owls are found on site during the pre-construction sweep, coordination with CDFG will be conducted to determine the appropriate measures required for the project. A Burrowing Owl Mitigation and Monitoring Plan would be submitted to CDFG for review and approval prior to passive relocation of owls. Any direct loss of occupied burrowing owl nesting and foraging habitat shall be compensated acquiring and permanently protecting known burrowing owl nesting and foraging habitat at a ratio to be determined by CDFG.
- Permanent impacts to Mohave ground squirrel habitat would be mitigated at a ratio of 3:1.

David Bricker
Deputy District Director
District 8
California Department of Transportation

Date

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- Historic Property Survey Report (HPSR)
- Hydraulics/ Floodplain Analysis Report
- Noise Study Report
- Noise Abatement Decision Report
- Visual Impact Analysis
- Geotechnical Study Report
- Traffic Analysis Report
- Natural Environment Study
- Hazardous Waste Evaluation
- Aerially Deposited Lead Investigation Report
- Asbestos Containing Materials and Lead-Based Paint Survey Report
- Soil Survey Report (Pesticides)
- Storm Water Data Report-Long Form
- Paleontology Study

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- Paleontology Study

1 PROPOSED PROJECT

1.1 Introduction

The Department of Transportation (Department) proposes to widen State Route (SR) 138 from 2-lanes to 4-lanes with a 4-foot median buffer, realign portions of the mainline. The proposed improvements will meet transportation demands by increasing capacity and improving operational efficiency. The project limits begin in Los Angeles County at SR 18, PM 69.3 to PM 74.9 and extend into San Bernardino County starting from PM 0.0, ending at Interstate 15 (I-15) PM R15.2. Figure 1-1 and Figure 1-2 show the project location and vicinity maps respectively.

This IS/EA examines the potential environmental impacts for the entire area of the project. However, due to funding availability, this 20-mile project will be constructed in two phases. Phase 1 will construct the segment that begins in San Bernardino County from Phelan Road (PM 2.9) and ends at I-15. Phase 2 includes the segment that begins in Los Angeles County at SR 18 and extends into San Bernardino County where it ends at Phelan Road.

Phase I, near Wrightwood from Phelan Road to I-15 widen from 2 to 4 lanes, of the proposed project is fully funded and is in the 2008 Regional Transportation Plan and in Amendments 1 and 2 which was found to conform by SCAG on May 8, 2008, December 4, 2008 and December 3, 2009 respectively, and FHWA and FTA adopted the air quality conformity finding on June 5, 2008 and January 14, 2009 and January 23, 2010 respectively. The project is also included in SCAG's financially constrained 2008 Regional Transportation Improvement Program and Amendment #08-01, page 14. The SCAG Regional Transportation Improvement Program was found to conform by FHWA and FTA on November 17, 2008. The design concept and scope of Phase 1 is consistent with the project description in the 2008 RTP, the 2008 RTIP and the assumptions in the SCAG's regional emissions analysis with an open to traffic completion year of 2014. The estimated cost for Phase 1 is \$69,640,000 including a \$3,568,700 right-of-way cost. Phase 1 of this Interregional Transportation Improvement Program (ITIP) project was programmed in the 2008 State Transportation Improvement Program (STIP) for funding in the 2010/2011 Fiscal Year. It is expected that this project will be funded under the HE13 - Lane Addition Improvement Program as part of the Interregional Road System (IRRS). Construction of Phase 1 is currently scheduled to begin in the year 2012.

Phase II, widen from 2 to 4 lanes from SR18 to Phelan Road, of the proposed project is not yet fully funded for construction. However it is in the 2008 Regional Transportation Plan and in Amendments 1 and 2, which were found to conform by SCAG on May 8, 2008, December 4, 2008 and December 3, 2009 respectively, and FHWA and FTA adopted the air quality conformity finding on June 5, 2008, January 14, 2009 and January 22, 2010 respectively. Per SCAG on February 24, 2010 the project is modeled in SCAG's financially constrained 2008 Regional Transportation Improvement Program and Amendment 3, but it is not currently programmed. The design concept and scope is consistent with the project description in the RTP and the assumptions in the SCAG's regional emissions analysis with an open to traffic/construction completion year of 2018.

As stated, improvements to be constructed in Phase 2 are not currently fully funded for construction, however the Department is committed to securing the necessary funds for the

construction of phase 2. It is anticipated that funding may be obtained from the State Transportation Improvement Program (STIP) and may also include funding from the Interregional Improvement Program (IIP). The estimated cost for Phase 2 is 50,960,000 including \$3,219,100 right-of-way cost.

1.1.1 Background

SR 138 is a link between State economic centers and rapidly developing mountain and high desert communities in both Los Angeles and San Bernardino Counties. The total length of SR 138 is approximately 100 miles. It begins at I-5 near Gorman Community in Los Angeles County and terminates at SR 18 near Crestline in San Bernardino County. The District 8 portion of SR 138 begins at the Los Angeles/San Bernardino County line (approximately 5.5 miles east of SR 18) and ends at SR 18 near Crestline.

SR138 is a 2-lane undivided highway through San Bernardino County with the exception of a 7-mile 4-lane segment in the Lake Silverwood vicinity. Within the project limits, the route traverses mostly through mountain and desert terrain. It passes through primarily rural areas, including the high desert communities of Pinion Hills and Phelan before it intersects with SR 2, a major access road to the mountain community of Wrightwood. From SR 2, it passes through portions of the San Bernardino National Forest and intersects with I-15 in the Cajon Pass. In Los Angeles County, SR 138 is regarded as an Urban Principal Arterial and as a connecting link between Route 14 (Antelope Valley Freeway, PM 43.242) in the City of Santa Clarita and Pearblossom Highway (Avenue T, PM 51.41) in Palmdale.

Between Avenue T and Route 18 (PM 69.3), Route 138 is classified as Rural Minor Arterial carrying heavy traffic including a substantial percentage of truck traffic. Route 138 is a 4-lane divided highway from Route 14 to Avenue T. It continues as a 2-lane highway into San Bernardino County.

The segment of SR 138 within this project area was originally constructed during the mid 1930s. Within San Bernardino County segment, shoulders were added at several locations as well as a westbound passing lane from PM 8.64 to PM 9.04 in the late 1950s. In 1973 the roadway was realigned from PM 12.18 to PM 12.59. Several drainage improvements and surface treatment projects were later performed in the 1980s. The last major roadway work in San Bernardino County within this project limits was completed in the summer of 2007 and included the construction of eastbound and westbound passing lanes from PM 9.04 to PM 10.99 and the reconstruction of the intersections at SR 2, Sheep Creek Road, and Oasis Between Avenue T and Route 18 (PM 69.3), Route 138 is classified as Rural Minor Arterial carrying heavy traffic including a substantial percentage of truck traffic. Route 138 is a 4-lane divided highway from Route 14 to Avenue T. It continues as a 2-lane highway into San Bernardino County.

The segment of SR 138 within this project area was originally constructed during the mid 1930s. Within San Bernardino County segment, shoulders were added at several locations as well as a westbound passing lane from PM 8.64 to PM 9.04 in the late 1950s. In 1973 the roadway was realigned from PM 12.18 to PM 12.59. Several drainage improvements and surface treatment projects were later performed in the 1980s. The last major roadway work in San Bernardino County within this project limits was completed in the summer of 2007 and included the construction of eastbound and westbound passing lanes from PM 9.04 to PM 10.99 and the reconstruction of the intersections at SR 2, Sheep Creek Road, and Oasis

Road. Normal maintenance activities were performed on the section of project limits in Los Angeles County.

The following is a list of projects along the SR 138 corridor and the status of their development:

1. SR 138 Widening Project from Avenue T to SR 18
 - Widen segment 2 (60th St. E to east of Ave T-8), in construction
 - Widen segment 5 (77th St. E to 89th St. E), in design and it is anticipated to begin construction in 2010
 - Widen segment 7 (96th St. E to 106th St E), in construction
 - Widen segment 9 (126th St. E to 106th St. E), anticipated to begin construction in 2012
 - Widen segment 10 (126th St. E to Longview Rd.), completed construction in 2007
 - Widen segment 11 (146th St. E to 175th St. E), completed construction in 2005
 - Widen segment 12 (175th St E to Largo Vista Rd.), in design.
2. Widen SR 138 From I-5 to SR 14, in project initiation phase
3. Safety improvements from SR 18 to LA County Line, in project approval and environmental document stage
4. High Desert Corridor, in project approval and environmental document stage

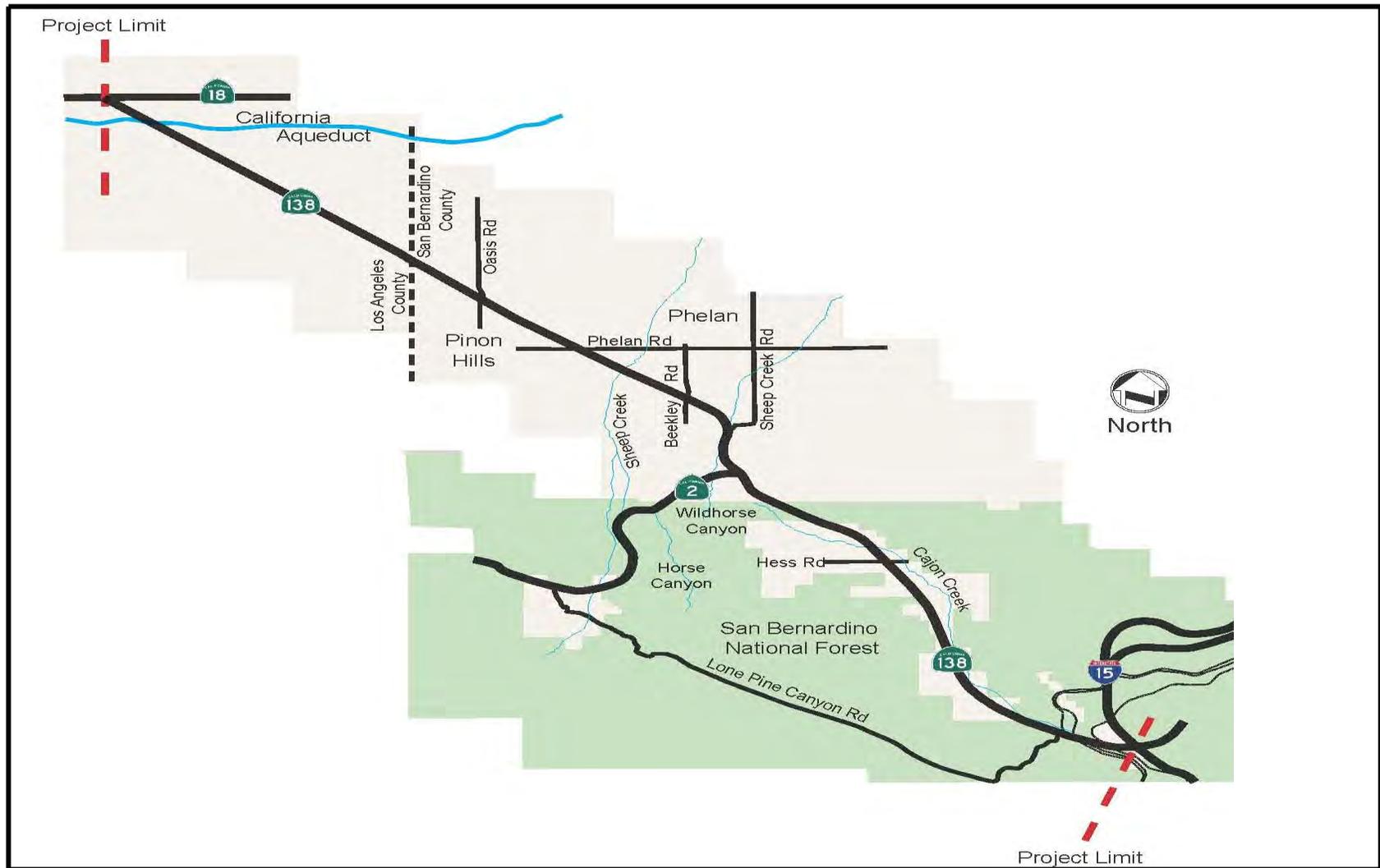
SR 138 in San Bernardino County is a designated truck route and evacuation route. Portions of the route are designated as eligible scenic route. According to the 1999 Route Concept Fact Sheet prepared by D-8, the Ultimate Transportation Facility for SR 138 in San Bernardino County is a 6-lane expressway from Los Angeles/San Bernardino County line to its junction with SR 173. The 20-year Concept Facility for this portion of SR 138 is a 4-lane highway with a continuous median left turn lane.

Figure 1-1. Regional Location Map



Source: Department of Transportation, District 8 GIS

Figure 1-2. Project Location Map



Source: Visual Impact Report (VIA), Department of Transportation, 2009

1.1.2 Existing Facility

Within San Bernardino County, the existing facility is an undivided conventional highway that consists of one to two lanes in each direction between I-15 and SR 18. The existing geometric cross section consists of 12-foot lanes and 0.0 to 8 feet outside shoulders. There exist westbound and eastbound passing lanes between PM 4.8 to PM 9.0. The eastbound roadway starting at Sheep Creek Road has a 6% uphill grade for approximately 1 mile. The westbound roadway starting at the existing passing lane (PM 8.64 to PM 9.04) has the same sustained uphill grade for about 2 miles. The existing right-of-way varies throughout the entire corridor from a minimum half width of 50 feet to a maximum of 312 feet from centerline. The Sheep Creek Bridge (BR #54-0810), Cajon Mount UP (BR #54-0832), Pine Lodge West OH (BR #54-1056), Pine Lodge East OH (BR #54-1057), Cajon Creek Bridge (BR #54-0561), and California Aqueduct bridge (#53-2174) are the only structures within the project limits.

Within the limits of the project in Los Angeles County, the existing facility is an east-west highway that is classified as a conventional highway. It is a two-lane highway that traverses through a flat rural terrain with a 150-foot wide right-of-way. The existing facility includes one 12-foot lane and a 2-foot wide paved shoulder in each direction of travel with three designated passing zones. This segment of SR 138 is a 5.7 miles long horizontally tangent (straight) section. The existing profile includes 105 crest and sag vertical curves, most being about 100 ft in length. The posted speed limit is 55 mph.

The following roadways traverse the facility within the project area:

- The Mojave Freeway (I-15) extends north from the San Diego metropolitan area through the western portion of San Bernardino County and continues northeastern through Las Vegas, Nevada.
- State Route 18 provides direct connection between Victorville and Palmdale. It is a two lane major arterial highway that begins at the interchange with SR 138 just west of the Los Angeles County line and extends eastward crossing I-15 in the City of Victorville.
- Phelan road, an east west facility that begins at SR 138 in the community of Phelan and continues east through unincorporated San Bernardino County until it reaches US 395 where it becomes Main Street.
- Sheep Creek Road is a primary arterial located in the western edge of unincorporated San Bernardino County. It extends between El Mirage Road to the north and SR 138 in the south.
- Lone Pine Canyon Road serves as an alternative access route into Wrightwood, starting at SR 138 and extending south, west and northwest to the SR 2 in Wrightwood.
- Oasis Road is an east-west roadway that begins at SR 138 in the community of Phelan and continues east through unincorporated San Bernardino County until the US 395, where it becomes Main Street in the City of Hesperia.
- Angeles Crest Highway (SR 2) is a rural highway that travels from State Route 210 in La Canada Flintridge northeast to Pearblossom Highway (SR 138). This roadway is primarily used as access into the Angeles Crest National Forest. The segment of SR 2 located in San Bernardino County extends from Lone Pine Canyon Road to SR 138.

This route provides access from the project area to the nearby mountain community of Wrightwood.

- The 263rd Street intersection with SR 138 is located just north of the County line and within Los Angeles County.

1.2 Purpose and Need

Project Purpose

The purpose of the project is to improve traffic flow within SR 138 corridor in order to maintain an effective facility for the movement of people and goods. The project purpose will be achieved through the following objectives:

1. Maintain an effective facility as a link for the intraregional and interregional movement of people and goods by providing a continuous 4-lane facility.
2. Relieve traffic congestion by providing an acceptable level of service of E or better.
3. Improve operational efficiency and enhance safety conditions by providing continuous flow of traffic and improving roadway quality within the corridor.

Project Need

The roadway deficiencies, needs and justification for improvements are described below:

Intraregional and Interregional Traffic Demand.

Within the Interregional Road System, High Emphasis and Focus routes have become a priority for upgrade to minimum operational and design standards of (freeway/expressway) such as lane and shoulder width, in the next 20 years. The portion of SR 138 west of I-15 is classified as a “High Emphasis” route. From the Los Angeles County line to I-15, the state route is part of the Freeway and Expressway System and is classified as a “High Emphasis” route in the Interregional Road System (IRRS). The IRRS is a series of interregional state highway routes, outside the urbanized areas, that provides the most adequate access to, and links between the State’s economic centers, major recreational areas, and urban and rural regions. The 1990 Interregional Transportation Strategic plan identified 13 of the routes in the IRRS as “High Emphasis Routes” due to their critical importance for interregional travel. High Emphasis and Focus routes have become a priority for completion to minimum standards (freeway/expressway) within the IRRS. This portion is also included in the National Network of Surface Transportation Assistance Act (STAA) for oversized trucks as a State Highway Terminal Access Route. One of the listed objectives of the 2004 Interregional Transportation Improvement Program is to improve safety, provide mobility and congestion relief on SR 138, which connects two of the State’s fast growing urbanized areas of Antelope Valley and Victorville.

The route serves as a connecting link between Los Angeles County’s economic centers and I-15. In Los Angeles County, it is a 4-lane divided highway from Route 14 to Avenue T. The segment between Avenue T and Route 18 is classified as Rural Minor Arterial carrying heavy traffic including substantial percentage of truck. It continues as a 2-lane highway into San Bernardino County. Within the project area, the facility also carries a large number of commuter traffic from the rapidly developing high desert areas and mountain communities of both Los Angeles and San Bernardino Counties and is heavily utilized by recreational travelers and commercial tractor trailers. This segment is experiencing a continuing growth of truck traffic.

The state route is developed in San Bernardino County as a 4-lane facility just to the eastern limits of the proposed project. Several projects are completed, under construction, or being developed to widen the segments west of the proposed project limits in Los Angeles County. These projects are listed in Section 1.1.1 Background.

Traffic Congestion

According to a Traffic Operational Report that was prepared by the Department for this project, with the existing traffic volumes, the facility is currently operating at a Level of Service (LOS) E within Phase 1, and E or C within Phase 2 (See Table 2-15, under section 2-1-18). Due to funding availability, the project will be constructed in two phases. It is anticipated that phase 1 construction will be completed in 2015, and phase 2 construction will be completed in 2018. Without improvements, the facility will be operating at LOS E within Phase 1 segment in the year 2015, and LOS D within Phase 2 segment, in year 2018. (See Table 1-1)

According to traffic forecasts, without improvements, the two segments will experience mostly a LOS F in the horizon years of 2035 and 2038 due to the continuing growth of traffic. (See Table 1-2)

Table 1-1. Mainline LOS Analysis in the Years 2015 and 2018 for Phase 1 and Phase 2 (No-Build)

SR-138 Mainline LOS Analysis		ADT (veh)	Truck %	EB (vph)	EB Truck (vph)	WB (vph)	WB Truck (vph)	Phase 1-Opening Year 2015 ¹		
								No Build (2-lane)		
From	To							V/C	ATS (mi/hr)	LOS
I-15	Hess Road	21300	6%	1160	70	1030	62	0.58	40.9	E
Hess Road	Sheep Creek Road	19300	6%	980	59	870	52	0.63	43.8	E
Sheep Creek Road	Phelan Road	18770	6%	1309	79	561	34	0.64	42.9	E
Phase 2-Opening Year 2018										
Phelan Road	Oasis Road	20335	6%	980	59	420	25	0.48	48.1	D
Oasis Road	Mountain Road	21900	6%	980	59	420	25	0.48	48.1	D
Mountain Road	263 rd Street	15300	6%	980	59	420	25	0.51	46.0	D
263 rd Street	233 rd Street	14700	6%	1050	63	450	27	0.51	46.0	D
233 rd Street	SR-18	16800	6%	980	59	420	25	0.48	46.9	D

Source: Department of Transportation Traffic Report, September 2009

¹ All major works for the project would be completed and the project open to traffic in late 2014. Some of the residual minor improvement works on the project would continue until February 2015. There would not be material change in traffic volume between late 2014 and early 2015.

Table 1-2. Mainline LOS Analysis of Horizon Years for Phase 1 and Phase 2 (No-Build)

SR-138 Mainline LOS Analysis		ADT (veh)	Truck %	EB (vph)	EB Truck (vph)	WB (vph)	WB Truck (vph)	Phase 1-Horizon Year 2035		
								No Build (2-lane)		
From	To							V/C	ATS (mi/hr)	LOS
I-15	Hess Road	33200	6%	1120	67	2080	125	1.09	N/A	F
Hess Road	Sheep Creek Road	21000	6%	805	48	1495	90	0.79	40.0	E
Sheep Creek Road	Phelan Road	25700	6%	872	52	1618	97	0.85	37.6	F
Phase 2- Horizon Year 2038										
Phelan Road	Oasis Road	29500	6%	1155	69	2145	129	.97	N/A	F
Oasis Road	Mountain Road	33300	6%	1155	69	2145	129	1.09	N/A	F
Mountain Road	263 rd Street	37800	6%	1155	69	2145	129	.99	N/A	F
263 rd Street	233 rd Street	26700	6%	1225	74	2275	137	1.05	N/A	F
233 rd Street	SR-18	13400	6%	1120	67	2080	125	.97	N/A	F

Source: Department of Transportation Traffic Report, September 2009

Operational and Safety Improvements, Accident Data and Roadway Rehabilitation

The existing facility is restricted in its utility due to the continuing traffic growth, and the lacking of passing opportunities due to limited sight distance. There is a need to improve overall traffic operations of the two lane highway by breaking up traffic platoons and reducing delays caused by inadequate passing opportunities over substantial lengths of the highway. Providing assured passing opportunities without the need for the passing driver to use the opposing traffic lane, will improve operation as well as safety conditions.

In its present condition, the facility lacks designated left turn lanes, which has contributed to the reduced operational efficiency of the facility. Signalization and/or the construction of left turn pockets at deficient intersections are needed to improve operational efficiency of this facility as well as safety conditions. (See Table 1-3 for LOS analysis at intersections.)

In addition, recovery areas are limited due to existing narrow shoulders. Widening shoulders to standard 8-foot shoulders and providing a median buffer is needed to improve operations and enhance safety. Two rows of rumble strips will be placed in the median where possible. Final location of rumble strips will be determined during design stage. Usually rumble strips are provided continuously except at the intersections and turning movements.

Table 1-3. Intersection LOS Analysis of Years 2015 and 2018, and Horizon Years for Phase1 and Phase 2 (No-Build)

Phase 1 Intersections	2015 (No-Build)				2035 (No-Build)			
	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 138/Lone Pine Road *	10.3	B	11.0	B	13.1	B	16.9	C
SR 138/Hess Road *	29.7	D	36.6	E	-	F	-	F
SR 138/SR 2	11.3	B	10.3	B	16.9	B	15.0	B
SR 138/Beekley Road	28.0	C	21.9	C	47.9	D	33.0	C
SR 138/Phelan Road	18.5	C	17.7	B	22.6	C	30.5	C
Phase 2 Intersections	2018 (No-Build)				2038 (No-Build)			
SR 138/Oasis Road	25.9	C	29.8	C	33.2	C	36.8	D
SR 138/Mountain Road *	12.3	B	97.1	F	-	F	-	F
SR 138/233 rd Street *	14.9	B	9.0	A	48.8	E	16.4	C
SR 138/263 rd Street *	19.2	C	30.3	D	-	F	-	F
SR 138/SR 18 *	9.5	A	9.7	A	15.5	C	18.4	C

Source: Department of Transportation Traffic Report, September 2009

Accident Data. The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) Table “B” provided by the Office of Traffic Operations is summarized in Table 1-4. The data includes actual and average accident rates in Los Angeles and San Bernardino Counties, from January 1, 2006 to December 31, 2008.

Table 1-4. Accident Rates between Jan. 1, 2006 - Dec. 31, 2008 (per million vehicle Mile)

Location	Actual rate			State Average rate		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
07-LA-138 (PM 69.3/74.9)	.031	.20	.41	0.025	0.33	0.78
08-SBd-138 (PM 0.00/R15.2)	.033	.42	0.97	0.028	.45	0.98

Source: Department of Transportation, Traffic Operations, 2009

Accident Rates analysis is summarized as follow:

Los Angeles County: There were a total of 26 accidents that occurred along this stretch of Route 138 during the period investigated (01/01/06-12/31/08). Of those 26 accidents, eight were BROADSIDE (30.8%), seven were SIDESWIPE (26.9%), five were HEAD ON (19.2%), four were HIT OBJECT (15.4%) and two were TURNOVER (7.7%).

The Primary Collision factor was Other Violations of which, there were 11 accidents (42.3%). There were also six accidents due to IMPROPER TURN (23.1%), one due to Use of Excessive Speed (3.8. %), five due to Driving Under the Influence (19.2%), two due to Failure to Yield (7.7%), and one due to Following Too Close (3.8%).

San Bernardino County: There were a total of 268 accidents along this stretch of Route 138 during the period investigated (01/01/06-12/31/08). Of those 268 accidents 80 were REAR END (29.9%), 46 were HIT OBJECT (17.2%), 56 were BROADSIDE (20.9%), 37 were SIDESWIPE (13.8%), 12 were HEAD-ON (4.5%), 32 were OVERTURN (11.9%), four were OTHER (1.5%), and one was AUTO-PEDESTRIAN (0.4%).

The Primary Collision Factor was Use of Excessive Speed. Of which, there were 85 accidents (31.7%). There were also 59 accidents due to IMPROPER TURN (22%), 59 due to Other Violation (22%), 38 due to Failure to Yield (14.2%), 17 due to Driving Under the Influence (6.3%), five due to Other Than Driver (1.9%), three due to Unknown (1.1%), one due to Following Too Close (0.4%), and one due to IMPROPER DRIVING (0.4%). 9 of these accidents were fatalities (3.4%) in which 9 people were killed. 106 of these accidents (39.5%) were Injury type accidents in which 185 people were injured. 18 of these accidents occurred during wet weather (6.7%) and two of them occurred on an icy roadbed (0.7%).

Roadway Rehabilitation. The existing pavement in various locations has deteriorated and signs of distress are quite noticeable. Local maintenance personnel have indicated that the pavement for this segment of SR-138 requires frequent maintenance. Deteriorated pavement reduces the consistency in profile and quality of ride. It also adds to delays as well as maintenance costs.

1.3 Independent Utility and Logical Termini

In developing scope of a project, consideration are given to satisfying an identified need in contexts of context of the local area socio-economics and topography, the future travel demand, and other infrastructure improvements in the area. This is important in order to meet the purpose of the project without causing effects that will require additional corrective actions, and avoid inappropriately segmentation where a transportation need extends throughout an entire corridor but environmental issues and transportation need are inappropriately discussed for only a segment of the corridor.

The Federal Highway Administration (FHWA) regulations outline three general principles at 23 CFR 771.111(f) that are to be used to determined the limits of a highway project:

1. Connect logical termini and at a sufficient length to address environmental matters on a broad scope;
2. Have independent utility or independent significance, i.e.; be usable and be a reasonable expenditure even if no additional transportation improvements-in the area are made; and
3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The proposed project connects SR 18 in Los Angeles County and I-15 in San Bernardino County. The project scope extends a sufficient length that allows addressing the need and environmental impacts along a considerable section of the SR 138 corridor. The project will be constructed in two phases. Funding for phase 2 is pursued in order that its construction will follow the completion of phase 1. The project will complement other present and foreseeable transportation improvements to the state route in Los Angeles County.

1.4 Project Description and Alternatives

For build alternatives to be considered, they must meet the project's purpose and need with least possible cost, while avoiding and minimizing impact on the environment. The purpose of the project is to improve traffic flow on SR 138 corridor and meet transportation demands.

One build alternative was developed for this project, which proposes to widen the existing State Route 138 from 2-lanes to 4-lanes with a 4-foot median buffer and realign portions of the mainline from State Route 18 in Los Angeles County [PM 69.3/74.9] to Interstate 15 in San Bernardino County [PM 0.0/R15.2]. Other build alternatives that were considered but rejected are discussed in the following section. Final selection of an alternative would not be made until after the full evaluation of environmental impacts, full consideration of public hearing comments, and approval of the final environmental document.

1.4.1 Project Alternatives

Alternative 1: The “No Build” Alternative

The “No Build” Alternative provides a baseline for comparing the impacts associated with the alternatives. The “No-Build” alternative would consist of no widening of the SR 138. The infrastructure in the project area would remain as it exists now. The “No-Build” alternative would not result in any foreseeable adverse environmental impacts; it will neither improve roadway operation nor increase capacity. Lack of improvements would result in further deterioration of traffic flow, and safety conditions. This alternative is not in concurrence with the objective of improving routes designated as “Focus” or “High Emphasis”.

Alternative 2: Build Alternative

Alternative 2 proposes to widen the existing SR-138 facility in both segments to a 4-lane highway plus a 4-foot median buffer. The proposed facility will consist of two 12-foot lanes in each direction, 8-foot outside shoulders, and a 4-foot median buffer. Two rows of centerline rumble strips will be placed within the 4-foot median buffer. Median left turn bay will be provided at various locations. Phase 1 will construct the segment that begins in San Bernardino County from Phelan Road (PM 2.9) and ends at the existing 4-lane facility just west of I-15. Phase 2 includes the segment that begins in Los Angeles County at SR 18 and extends into San Bernardino County where it ends at Phelan Road. The following improvements are also proposed under build alternative: (See Figure 1-3-A to 1-3-E, and Appendix F).

Phase 1:

Horizontal Realignment: In San Bernardino County from PM 13.9 to PM 14.7, the centerline will be shifted towards the north side of the highway. This realignment is required to avoid conflict with the existing bridge columns at Cajon Mount Underpass at PM 14.16. The offset between the existing centerline and the proposed realignment will vary from 0 to 16 feet.

Pavement Rehabilitations: Conforming to the proposed widening, the existing pavement from PM 2.9 to PM 4.95, and from 9.12 to R15.2 will be cold planed and overlaid with 0.5 feet of Hot Mix Asphalt. Dig out and repairing of localized failed existing pavement may be required during cold planning stage. The rehabilitation strategy measures will be determined during the design phase.

Drainage Improvements: Proposed drainage improvements will include extension of culverts, removal or construction of headwalls, reconstruction of several overside and down drains, asphalt concrete (AC) aprons, flared end sections, and rock slope protection. Within the project limits there are approximately 48 existing drainage facilities, which will be extended or replaced if the facility exceeds 60% of its service life.

Turning Lanes: Existing Turn pockets will remain in place. Additional turning lanes will be provided at the intersections of SR 2, and Beekley Road.

Wildlife Crossing: Based on the recommendations from United States Forest Service (USFS), two locations are identified as the most active area for wildlife crossing between the open space habitat areas. The locations for a wildlife underpass are recommended to strengthen the connectivity of wildlife habitat and movement. Wildlife movement is important to ensure a healthy functioning ecosystem for the long- term. Movement allows for species to find food, water, shelter, mates, and to mark and defend territories.

To facilitate wildlife movements within USFS boundaries in phase 1 of this project, it is proposed to construct two bridge structures at two locations as listed below: (See Figure 1-3A and Figure 1-3B below, and Figures 2-8 page 2-100, and Figure 2-9 on Page 101.)

- Wildlife Crossing Location number 403: Construct a cast-in- place, pre-stressed concrete slab bridge at PM 7.63.
- Wildlife Crossing Location number 735: The exiting Reinforced Concrete Box (RCB) at PM 13.93 is not large enough to meet the height to width ratio opening as recommended by USFS. It is proposed to replace the existing 8'x10.5' RCB with a cast in place re-enforced concrete slab bridge at the same location.

Structure Widening: All bridge widening is designed to accommodate the proposed full width of the traveled way and paved shoulder areas. In addition to the wildlife crossing structures, proposed improvements include four structures as listed below:

- Replace Sheep Creek bridge (# 54-0810), PM 3.62
- Widen Pine Lodge West Overhead (# 54-1056), PM 14.27
- Widen Pine Lodge East Overhead (#54-1057), PM 14.76
- Widen Cajon Creek Bridge, (#54-0561), PM 14.93

Utility Relocation: The project requires that utilities be relocated to accommodate the widening of the roadway. Power poles, overhead electric and boxes, overhead and underground telephone, fiber optic, and water/sewer lines will be affected at some locations.

Phase 2:

This phase of the project will be constructed in both San Bernardino and Los Angeles Counties. The final cross section will provide 4-lanes, 4-foot median buffer and 8-foot shoulders. A Centerline Rumble Strip will be provided within the 4-foot median buffer.

Vertical Alignment: Within the limits of the proposed widening in Los Angeles County, the roadway profile would be raised to eliminate existing dips and to accommodate a new drainage system consisting of culverts and ditches to convey the flows from one side of the

highways to the other. Elimination of this rolling profile would provide standard stopping sight distance and will improve the operational efficiency of the facility.

The proposed improvements in phase 2 include widening the California Aqueduct Bridge (#53-2174) at PM 70.28. All bridge widening are designed to accommodate the proposed full width of the traveled way and paved shoulders.

Drainage improvements: Proposed drainage improvements will include construction of new culverts, headwalls, oversize drain, down drains, AC aprons, flared end sections, and rock slope protection. It is proposed to construct 35 new culverts and extend 18 of the existing drainage pipes.

1.4.2 Identification of Preferred Alternative

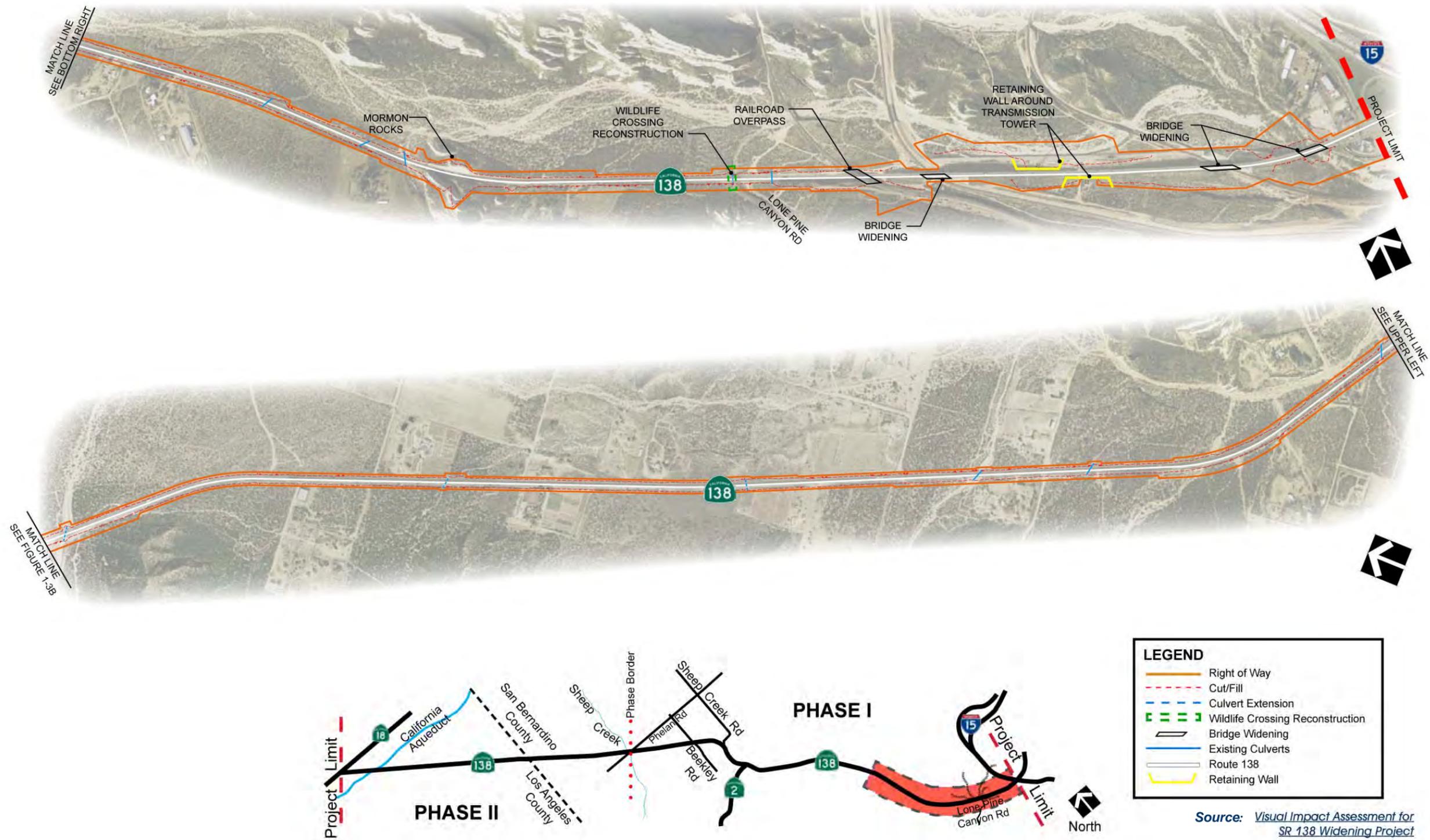
After the public circulation period, all comments will be considered, and the Department will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with CEQA, if no unmitigable significant adverse impacts are identified, the Department will prepare a Negative Declaration (ND) or Mitigated ND. Similarly, if the Department determines the action does not significantly impact the environment, the Department, as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.4.3 Alternatives Considered and Withdrawn

The development of a practicable alternatives that have less adverse impact on the aquatic ecosystem, without other significant adverse environmental consequences that do not involve discharges into "waters of the US" or at other locations within these waters was requested by ACOE. This alternative was considered but withdrawn for the following reasons:

1. The significance of this route was demonstrated in the purpose and need section of this document. The development of an alternative existing corridor cannot replace the proposed project in meeting the transportation needs of this rout.
2. Waterways cross SR 138 at mostly a perpendicular angle within the general area of the project. A route at a new location to the north or south of the existing location that serves the same utility would carry a much greater impacts on waters of the US, as it will impact new areas of waters of the US in addition to approximately the same area impacted by the proposed build alternative. Such alternative will also increase the project footprint significantly with additional impacts to the environmental and local communities, as well as the project cost.

Figure 1-3A. Build Alternative, Proposed Widening and Project Features



Source: *Visual Impact Assessment for SR 138 Widening Project*
November 2009

Figure 1-3B. Build Alternative, Proposed Widening and Project Features

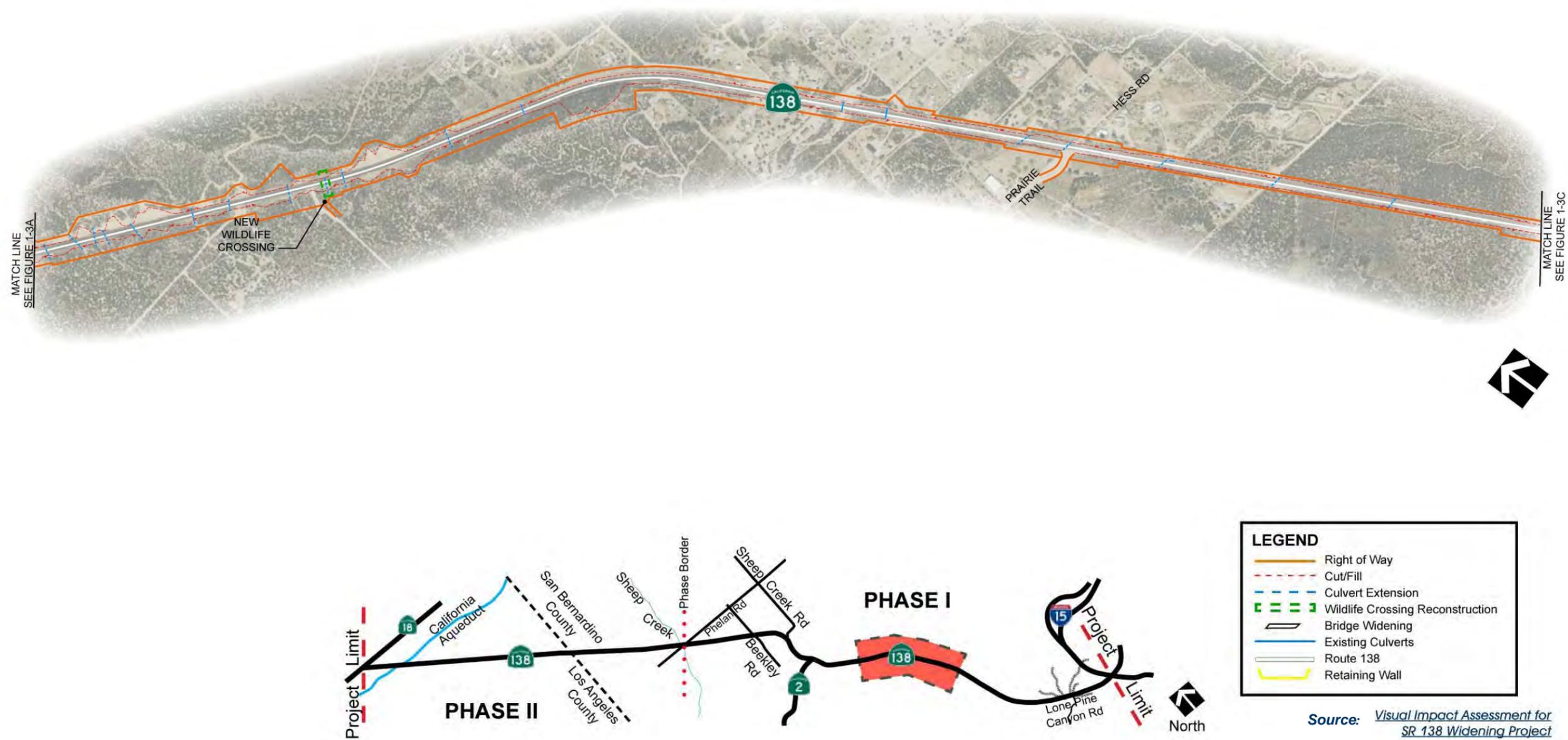


Figure 1-3C. Build Alternative, Proposed Widening and Project Features

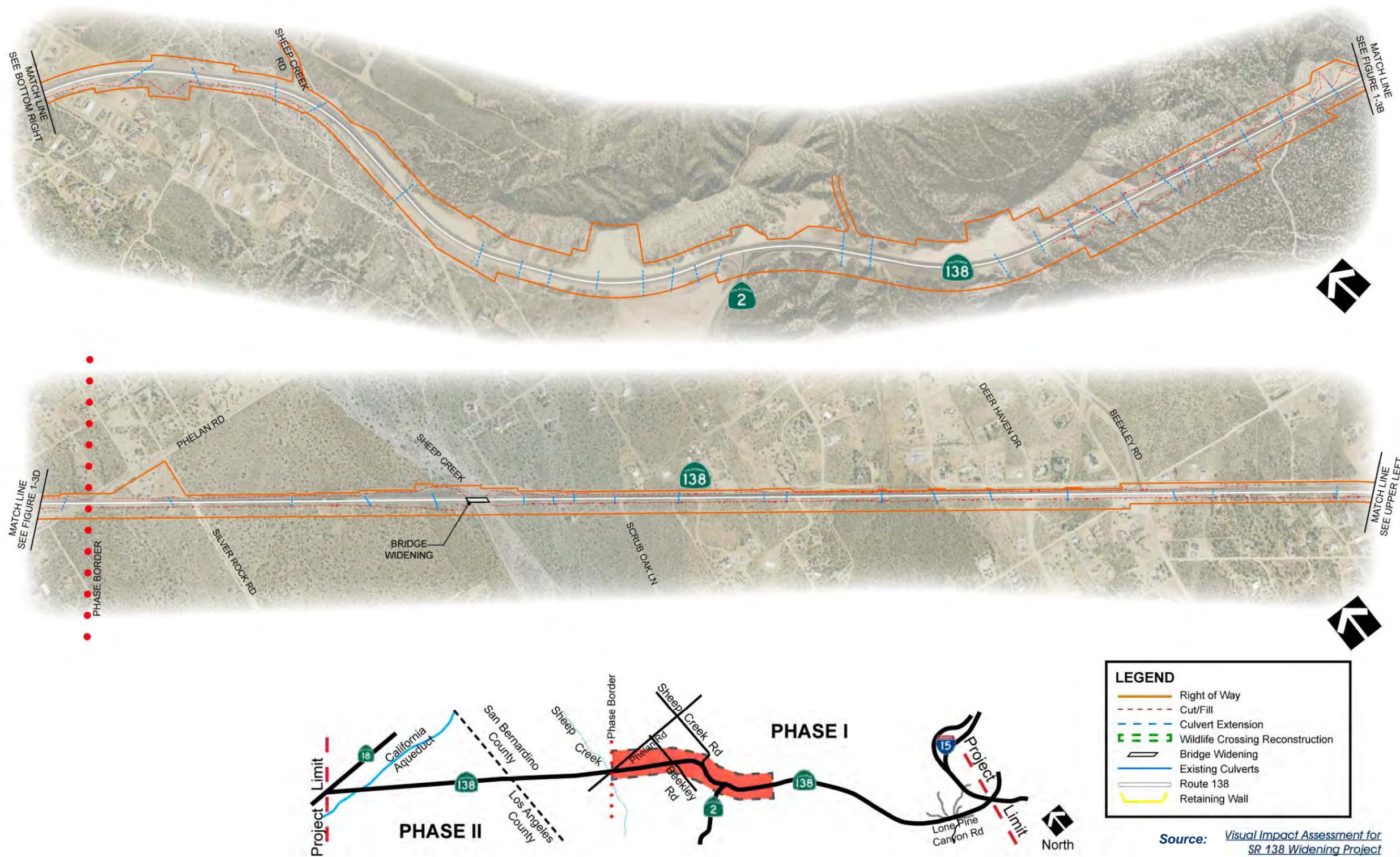


Figure 1-3D. Build Alternative, Proposed Widening and Project Features

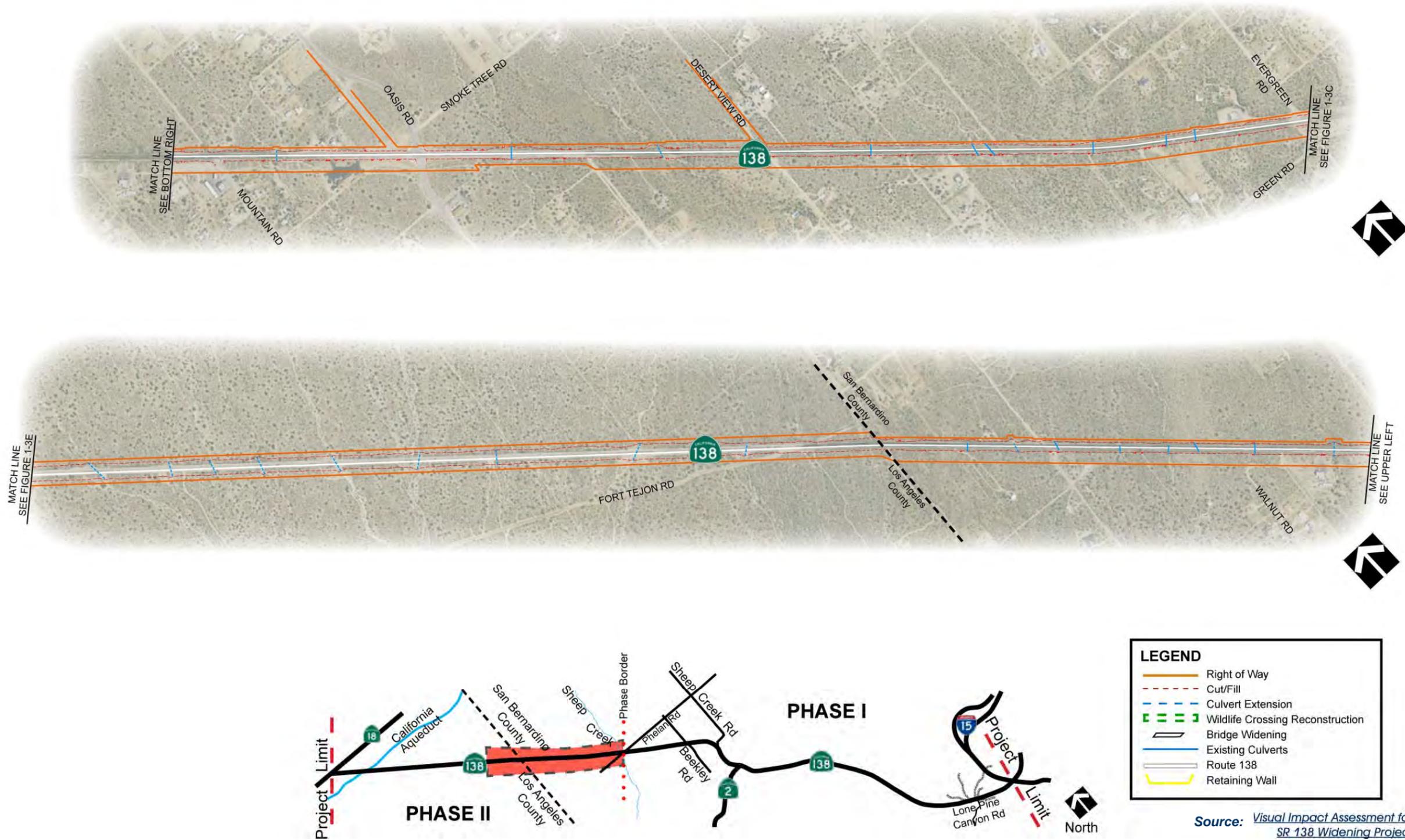
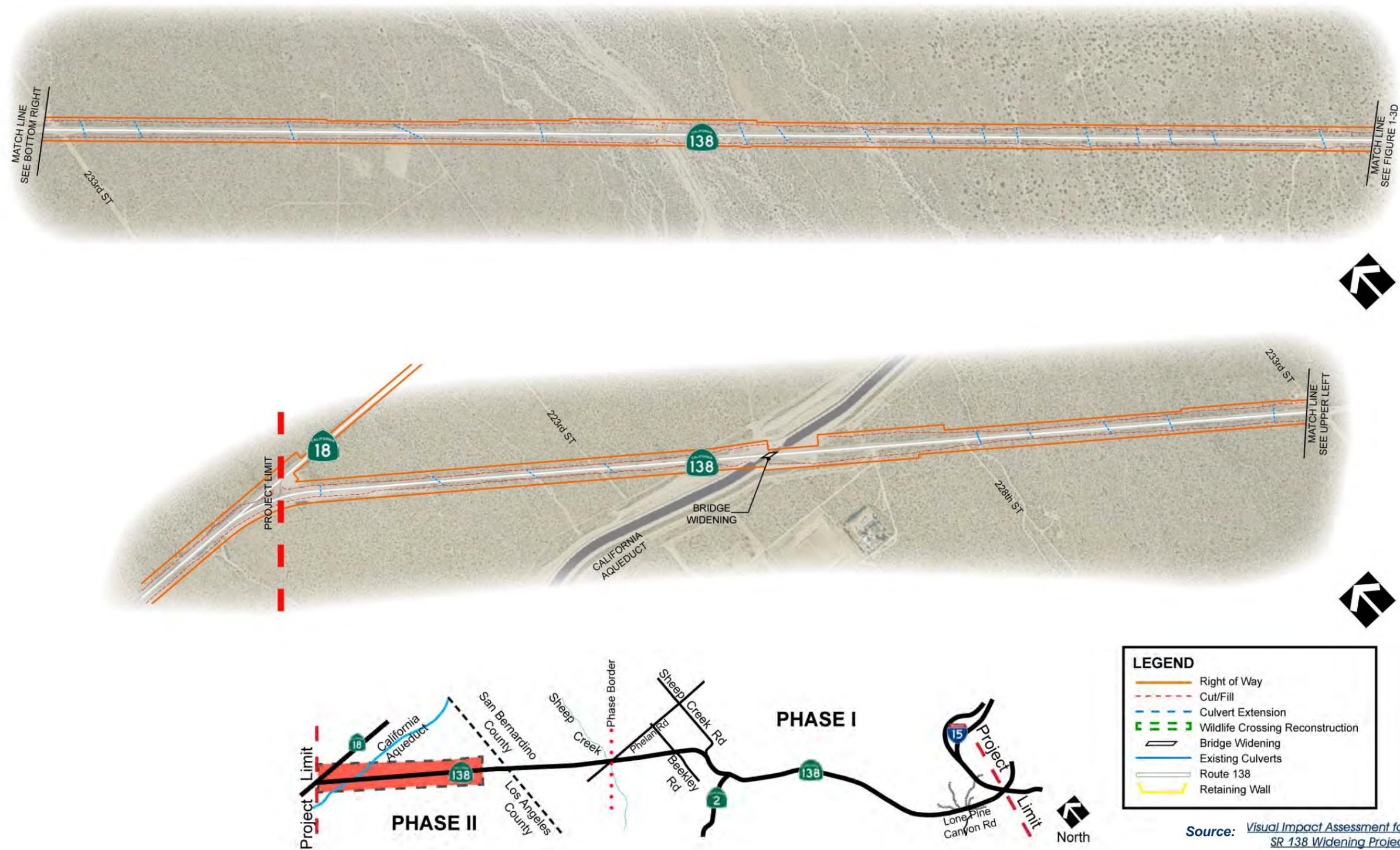


Figure 1-3E. Build Alternative, Proposed Widening and Project Features



1.4.4 Value Analysis

Per Federal Highway Administration (FHWA) guidelines, a Value Analysis (VA) study was conducted and a VA report was presented for this project on October 2002. Eight alternatives were proposed and selected with potential for value and performance enhancement including the facilitation of construction staging in order to maintain two lanes available for traffic at all times.

The VA team grouped the alternatives into three combinations that would complement each other in meeting the goals of the study. Three combinations were generated as following:

- Set 1 involves a change to a divided typical section (Alternative 1.1), deletion of bridge work not considered to perform a required project function Alternative 4.0, and realignment of a portion of SR 138. (Alternatives 5.1, 5.2)
- Set 2 is similar but offers significant reduction in project cost, in that it retains the existing SR 138 roadway for a portion of the project length. (Alternative 1.2)
- Set 3 retains the baseline typical section but offers an alternative construction staging concept (Alternative 1.3). This set includes alternatives intended to improve the safety performance of the baseline typical section, which are the construction of 4.2 m. median throughout the project (Alternative 2.0), and the construction of rumble strips in the median Alternative (3.0). The deletion of bridge widening and the short realignment are retained in this set as well as alternatives 4.0, 5.1 and 5.2.

VA Alternative 2 recommendation to widen SR 138 symmetrically on both sides is adopted. The VA report recommended widening SR 138 from 2 to 4 lanes with 14-foot median. This recommendation is adopted with reduction to the median width from 14-foot to 4-foot. The median width is reduced to comply with the limited funding and minimize environmental impacts.

1.4.5 Transportation Systems Management and Transportation Demand Management

Transportation Systems Management (TSM) and Transportation Demand Management strategies aims at increasing the efficiency of existing facilities such as ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system.

Based on the project rural setting, many of these measures are not applicable. Given the undeveloped nature of the area, the proposed 8-foot wide paved shoulders is sufficient to accommodate bicycles and pedestrians use.

1.4.6 Nonstandard Mandatory And Advisory Design Features

There are two nonstandard mandatory and three nonstandard advisory design features proposed under this project per the Highway Design Manual (HDM) 6th Edition, September 1, 2006.

Nonstandard Mandatory Design Features:

HDM Section 201.1, Sight Distance: Standards for passing and stopping sight distance related to design speed would not be provided at various locations. Meeting the standards

would require the upgrading vertical curves that lead to extensive grading, utility relocations, and right-of-way acquisitions.

HDM Section 202.2, Superelevation: This mandatory standard is not met and the existing nonstandard superelevation will be maintained. A Nonstandard Superelevation Rate would be used at various locations of the horizontal alignment. Obtaining the standard superelevation rate will adversely impact the right-of-way, construction cost, and environmental effects.

Nonstandard Advisory Design Features:

HDM Section 202.5(1), Superelevation Transition: This mandatory standard is not met and the existing nonstandard superelevation transition length will be maintained.

HDM Topic 304.1, Side Slope Standards: At various locations embankment will be constructed with 2:1 slope. Providing standard 4:1 slope will cause extensive earthwork, additional right-of-way, and adverse environmental impacts.

HDM Section 309.1(2), Clear Recovery Zone (CRZ): Within the project limits there are numerous locations where obstructions and non-recoverable slopes are within the Clear Recovery Zone. Sections within this segment of highway are in mountainous terrain with steep slopes and well-established vegetation. To provide the required Clear Recovery Zone will require extensive cut and fill slopes that will cause severe environmental, right-of-way and utility impacts.

HDM Section 403.3, Angle of Intersection: The existing angle of intersection at Mountain Road, and Phelan Road is less than 75 degree and does not meet the HDM standards. The San Bernardino County Transportation Planning Division has prepared a master access plan for SR 138. Future realignment of these intersections is part of the plan.

1.5 Permits and Approvals Needed

The proposed facility in San Bernardino County will cross over Burlington Northern Santa Fe (BNSF) Railroad facilities at Pine Lodge West Overhead Bridge and at Pine Lodge East Overhead Bridge. The proposed facility will also cross under the Southern Pacific Railroad facility at Cajon Mountain Underpass. A segment of the project will be constructed within U.S Department of Forest Service. Permits will be required from these agencies for the construction of the project. Following is a table with a list of all permits and agreements that are required for the project and will be obtained by the Department.

Table 1-5. Permits and Approvals

Approval/Permit	Agency	Status
401-Water Quality Certification	Regional Water Quality Control Boards (RWQCB)	Application will be submitted after project approval and will be obtained during final design of each project phase.
Two Nation Wide and one Individual 404 Permit	U.S. Army Corps of Engineers (ACOE)	Coordination with ACOE regarding calculation of Jurisdictional Delineation (JD) took place before the preparation of the study. Three watersheds were identified within the project are that require three separate permits. JD and applications will be submitted after project approval and will be obtained during final design of each project phase.
1602-Streambed Alteration Agreement	California Department of Fish and Game (CDFG)	Coordination with the agency regarding species surveys, required measures, and permit approvals took place since the project initiation and over the period of survey and reports preparation. Application will be submitted after project approval and will be obtained during final design.
2018 Permit	CDFG	Coordination with the agency regarding species surveys, required measures, and permit approvals took place since the project initiation and over the period of survey and reports preparation. Application will be submitted after project approval and will be obtained during final design.
Section 7 Consultation	U.S. Fish and Wildlife Service (USFWL)	Informal Section 7 consultations was determined to be sufficient. Letter of concurrence for “Not Likely to Adversely Affect” was received on December 30, 2009.
Right- of-Way Permit	Southern Pacific railroad, and Burlington Northern Santa Fe railroad	Application will be submitted during Final Design Stage
Right-of-Way Permit	U.S Department of Forest Service (USFS)	Application will be submitted during Final Design Stage
Air Quality Conformity Determination	Conformity Determination Letter from FHWA	Air Quality Conformity Analysis will be submitted to FHWA after the completion of Public Circulation Period of the environment document.

2 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION &/OR MITIGATION MEASURES

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

- **Costal Zone:** The project is inland and far from coastal areas.
- **Wild and scenic Rivers:** There are no designated wild and scenic rivers in the vicinity of the project area.
- **Farm/Timberlands:** According to the Maps published by the Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, the project area falls within land designated as Grazing Land and Other Land. The right-of-way that will be acquired for the project is not considered a prime agricultural land or farmland of importance.

In addition to the affected environment discussion, a cumulative discussion is also included in this section for the following resources that would be potentially impacted:

- Visual/Aesthetics
- Natural Communities
- Wetlands and Other Waters of the United States
- Plants Species
- Animal Species
- Threatened and Endangered Species

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA

Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.1 Human Environment

The information provided in this section is based on the Community Impact Assessment that was completed for this project on October 2009.

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

The majority of existing land along SR 138 from the 1-15 to SR 18 consists of vacant and undeveloped land. Scattered developments along both sides of the route include large lot residences, commercial services for travelers at major intersections, and scattered warehouses. Two rural communities are located along SR 138. Phelan community is generally located north of the highway, between Sheep Creek Road and Beekley Road. The Pinon Hills community is generally located south and north of highway, around Oasis Road. In addition, scattered large lot residences are located along Cajon Canyon, from Del Rosa Road to south of Mantova Drive. An orchard, a vineyard, and ranches are also present at this location.

The project area is rural with limited development. There is no major land development that is planned or under construction at the present time. General plans are consistent with the existing development trends within the project area.

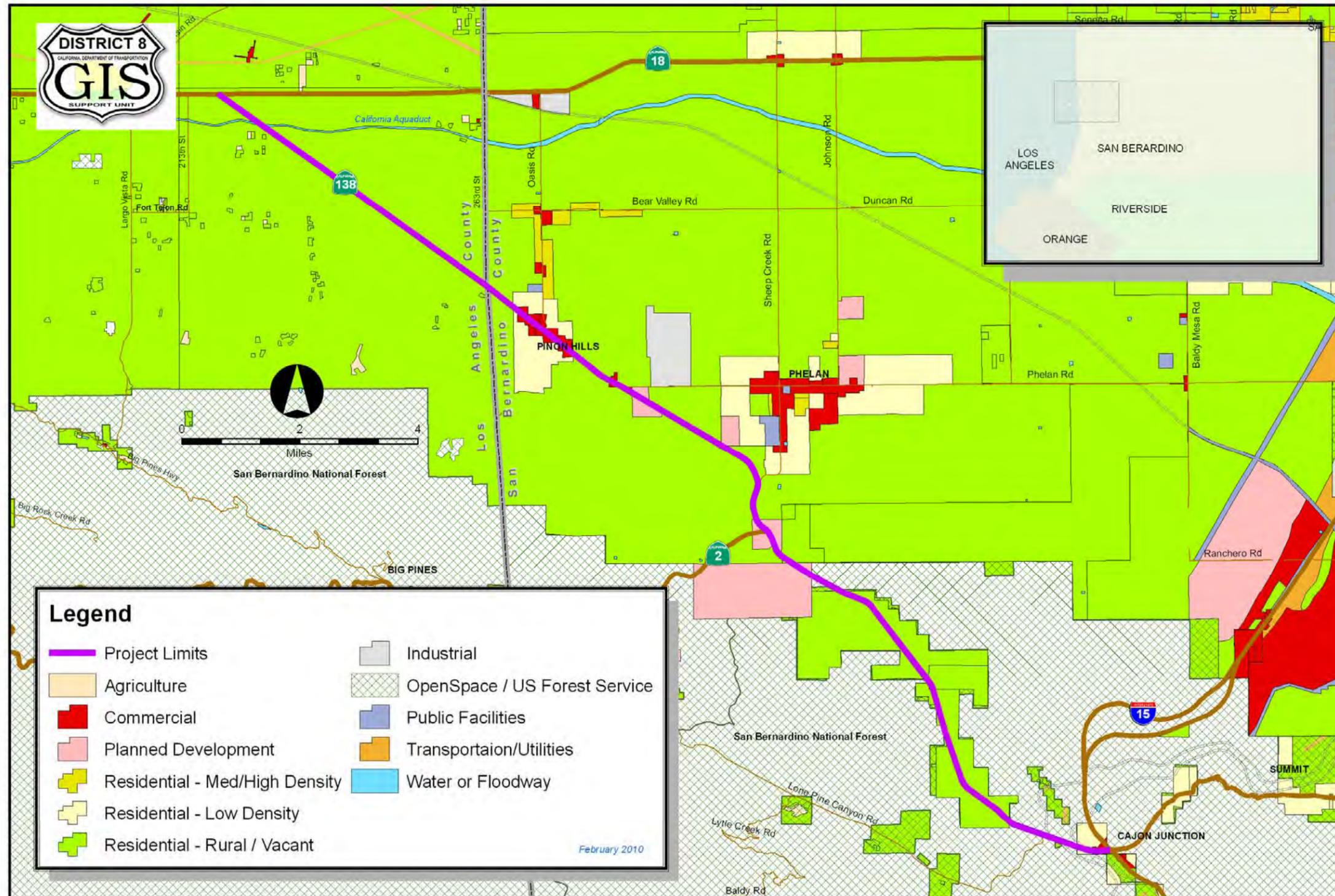
According to the Los Angeles County and San Bernardino County General Plans, the most prominent land use designation within the project area is Rural Living (RL), with the exception of some Planned Development areas that include land use designation for some Single Residential (RS), Multiple Residential, Special Development, Office Commercial, Service Commercial, General Commercial, Community Industrial, and Institutional land use districts. Service Commercial, General Commercial and Industrial use make a very small part of land use plans. The majority of the commercial land use districts are concentrated in Pinon Hills and Phelan communities along SR 138. (See Figure 2-1, Project Area Land Use). The area in the section between SR 2 and I-15 is surrounded by San Bernardino National Forest/Resource conservation area.

The higher elevated areas in the vicinity of the project area provide a variety of recreational opportunities, such as Mountain High Ski Resort, and trails for hiking and rock climbing. The Rural setting of Phelan/Pinon Hills also offers the opportunity for certain rural-recreation activities.

The Mescal Wildlife Sanctuary is designated as Open Space (OS) and is located approximately 0.25 mile north of the SR 138, 3.0 miles southeast of the Aqueduct. Pockets of land designated as Open Space and owned by the Bureau of Land Management (BLM) exist in the vicinity of SR 138.

Under the no-build alternative, there will be no improvement to the facility. The facility will continue to experience problems due to operational and roadway deficiencies problems. Future traffic demands will cause the facility to become congested, and safety conditions to deteriorate.

Figure 2-1. Project Area Land Use



Source: District 8 GIS, February 2010

The project proposes to widen an existing transportation facility, with no changes to access points. The widening is in response to the traffic demands of the existing and planned land uses of the regions that are served by the facility. The widening of the highway will not generate demands that will require changes in the planned uses. In addition, the project will require minimal acquisition of new right-of-way to construct the project and will not result in change of existing or planned land use including any of the BLM land and the Open Space uses.

2.1.1.2 Consistency with State, Regional and Local Plans and Programs

The following is a description of the applicable goals and policies of the plans of the various jurisdictions within the study area.

Southern California Association of Government 2008 Regional Transportation Plan

SCAG is the metropolitan planning organization of six counties in Southern California including Los Angeles County and San Bernardino County. SCAG is responsible for developing a 20 years Regional Transportation Plan that outlines the transportation goals, objectives and policies for the SCAG region. The plan also addresses other elements such as air quality, housing, growth, hazardous waste, and water quality. SCAG also develops a Regional Transportation Implementation Program (RTIP) according to the vision and strategy of the RTP. The RTIP includes all funded transportation project that regionally significant and are proposed for construction within the six years cycle of the RTIP.

Phase 1 and Phase 2 of the proposed project is included in the 2008 RTP and consistent with the approved 2008 RTP Amendments #1 and #2. Phase 1 is included in 2008 RTIP Amendment #08-01. Phase 2 will be included in the following RTIP and Federal TIP as funding becomes available.

San Bernardino County-West Desert Region

Information used in the following section utilizes information from the Final San Bernardino County General Plan approved in March of 2007.

Land Use Element:

GOAL D/LU1. Maintain land use patterns in the Desert Region that enhances the rural environment and preserve the quality of life of the residents of the region.

POLICIES:

D/LU1.1 Encourage low-density development by retaining Rural Living (RL) zoning in Community Plan areas that are outside of city spheres of influence and removed from more urbanized community core areas.

D/LU1.2 Limit future industrial development to those uses which are compatible with the Community Industrial Land Use Zoning District or zone, are necessary to meet the service, employment and support needs of the region, do not have excessive water requirements, and do not adversely impact the desert environment.

D/LU1.3 Utilize Rural Living (RL) areas to buffer Resource Conservation (RC) areas from more intensive land uses.

GOAL D/LU2. Establish locational criteria for future development within the region to ensure compatibility between uses and with the character and vision that is desired for the region.

GOAL D/LU3. Ensure that commercial and industrial development within the region is compatible with the rural desert character and meets the needs of local residents.

Circulation Element

GOAL D/CI 1. Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the rural desert character of the region.

POLICIES:

D/CI 1.1 The County shall ensure that all new development proposals do not degrade levels of Service (LOS) on Major Arterials below LOS C in the Desert Region.

D/CI 1.2 Design roads to follow natural contours, avoid grid pattern streets, minimize cuts and fills and disturbance of natural resources and trees wherever possible.

D/CI 1.3 Design road locations and alignments in such a manner to help preserve and protect sensitive habitats.

D/CI 1.4 Preserve the rural character by discouraging required urban-scale improvements such as curbs, gutters and street lighting where the public health, safety and welfare are not endangered.

D/CI 1.5 Along the highways, encourage shared driveways for industrial and commercial uses on adjacent properties to minimize turning movements and traffic congestion.

D/CI 1.6 The County Department of Public Works shall coordinate with the local communities to identify priorities and establish a schedule to pave roads and provide improved maintenance of dirt roads within the plan area.

Phelan/Pinon Hills Community plan

A Community Plan was approved in March of 2007. The Community Plan area of Phelan/Pinon Hills includes approximately 134 square miles of unincorporated area located at the transition between the foothills of the San Gabriel Mountains and southwestern portion of the Mojave Desert. The plan area is bordered on the south by the San Bernardino National Forest, the Oak Hills Community Plan area and the cities of Adelanto and Victorville to the east, the unincorporated area of El Mirage to the north, and Los Angeles County to the west.

During scoping meeting held during the Community Plan review period, the public has identified the following priorities to be reflected and addressed in the plan's goals and policies:

- Protect and preserve the rural character of the community by maintaining primarily low-density residential development and commercial development that serves the needs of local residents.
- Key features of the rural lifestyle that should be maintained are spaciousness, the natural desert environment, large lots, an equestrian-friendly environment and animal raising opportunities.
- Maintain the character of the community through a network of public and private open space, trail corridors, and facilities for active and passive recreation.

- Provide adequate infrastructure commensurate with meeting community needs.
- Protect mountain and valley views, and dark skies.
- Maintain adequate emergency response and law enforcement to ensure that community safety and low crime rates continue.
- Ensure that the rate of development and population growth aligns with the ability of Snowline Joint Unified School District's ability to provide excellent educational opportunities for all students.

Phelan/Pinon Hills Community plan goals and Policies:

Land Use Element

GOAL PH/LU 1. Retain the existing rural desert character of the community.

POLICIES:

PH/LU 1.1 Require strict adherence to the land use policy map unless proposed changes are clearly demonstrated to be consistent with the community character.

PH/LU 1.2 In recognition of the community's desire to preserve the rural character and protect the area's natural resources, projects that propose to increase the density of residential land uses or provide additional commercial land use districts or zones within the plan area should only be considered if the following findings can be made:

A. That the change will be consistent with the community character. In determining consistency the entire General Plan and all elements of the community plan shall be reviewed.

B. That the change is compatible with surrounding uses, and will provide for a logical transition in the plan area's development. One way to accomplish this is to incorporate planned development concepts in the design of projects proposed in the area.

C. That the change shall not degrade the level of services provided in the area, and that there is adequate infrastructure to serve the additional development that could occur as a result of the change. Densities should not be increased unless there exists or assured services and infrastructure, including but not limited to water, wastewater, circulation, police, and fire, to accommodate the increased densities.

Circulation Element:

PH/CI 1. Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the desert landscape and rural character of the community.

Los Angeles County General Plan

Land Use Element:

The majority of land within the study area for this project is designated as Rural Land.

According to the Draft General Plan of 2008, the intent of lands designation as Rural Land is to maintain the character of the small communities and dispersed rural single family housing of the

unincorporated areas of the County. Rural lands include mountain, foothill, high desert areas not planned for urban use, and rural communities.

The following policies apply to areas designated as Rural Land:

- Have maximum use intensity for housing at a base density of 1dwelling/1 gross acre.
- Clustering of development and ground disturbance is encouraged where it would help reduce environmental impacts, provide open space, and protect natural resources.
- Where development does occur in rural community areas, the General Plan promotes “infill” development first, and/or development that is consistent with the existing community character, density levels, be compatible with the natural resources in the area, and be carried out in conjunction with an analysis of public service and infrastructure capabilities.

Transportation Corridor:

- The Transportation Corridor land use designation provides for areas that contain major transportation infrastructure and facilities. Land uses that are designated Transportation Corridor represent freeways, highways and major roads, rail and bus ways, and their dedicated right-of ways.
- Allows the development of high intensity public and private use transportation facilities such as freeways, railways, and transit-oriented development over or near light-rail.

Scenic Highway designation:

According to the San Bernardino General Plan EIR, the County desires to retain the scenic character of visually important roadways throughout the County. A “scenic route” is defined a roadway that has scenic vistas and other scenic and aesthetic qualities that over time have been found to have beauty to the County. The County of San Bernardino General Plan designates SR 138 from the SR 18 in Crestline to the LOS Angeles County line as a County scenic highway. All County Plan’s applicable policies to scenic routes are to be followed in developing the route.

The portion of SR 138 within Los Angeles County has been identified as Second Priority for adoption as a scenic highway within the County of Los Angeles General Plan. As funds become available, the route will be studied and appropriate standards will be established for its development.

SR 138, from SR 2 to the I-15 Freeway, has been identified by the Department to be eligible as a scenic route. There is no State Scenic designation for this route within the project area.

Without the proposed improvements, the facility will not meet the traffic demands of the region. This will result in operational and capacity deficiencies, which does not comply with the plans and policies of a safe and efficient transportation facility for the region and the local communities including Phelan, Pinion Hills and Wrightwood.

The proposed 2007 update to the San Bernardino County General Plan establishes LOS C as the standard in the Desert Region. The report indicates that SR 138 in San Bernardino County, from I-15 to the Los Angeles County will experience a capacity deficiency and a LOS of E and F with the land use build out by the year 2030. The General Plan emphasizes the fact that the projected deficiencies are a result of the forecasted cumulative growth in the entire southern California region, and a large part of the deficiencies are unrelated to trips generated by current or projected land uses in unincorporated San Bernardino County. Many of the trips that will be generated

from growth in unincorporated San Bernardino County, will have an origin or a destination in cities or adjacent areas in either counties. The proposed improvements will remedy the deficiencies to achieve a level that is consistent with the goals and policies for the facility. The project will provide for a safe and effective transportation system that provides adequate traffic movement with minimal disruption of the rural desert character of the project area.

The project requires a minimal land acquisition from the adjacent properties, and will not affect existing or planned land use. With the project, development in the project area is expected to continue to be consistent with the area's plans and policies.

2.1.1.3 Parks and Recreation

Affected Environment

A segment of this project falls within Forest Service land. According to the Selected Alternative included in the Final Environmental Statement (EIS) prepared for the U.S Department of Forest Service Land Management Plans, the project area is located in an area that is mostly designated as Non-Forest System Land. (Atlas of Southern California Planning Maps, National Forests of Southern California, Land Use Management Plan Revision. Land Use Zones, Alternative 4 map, 2005.) The rest is designated as Developed Area Intermix, and Back Country, Motorized. Developed Area Intermix includes areas adjacent to communities and characterized with developed recreation facilities and other uses. Back Country is typically undeveloped and includes semi-primitive motorized uses and public access to remote recreational facilities. However, the project area located within this land designation is marginal, and does not include such facilities. The project will not affect any land within the project area that may be designated as Existing or Recommended Wilderness or wildlife refuge. (See Figure 2-1 in Section 1.4.1)

There are no hiking trails along or near SR 138, and there are no dedicated or signed bike trails in the area. No parks and recreation facilities are present within the immediate vicinity of the project limits. No resources are evaluated, as there is no property or properties that trigger the provisions of section 4(f), 23 cfr 774. Additional discussion is provided in Appendix B relative to Section 4(f) regulations.

Environmental Consequences

No-Build Alternative. No impacts will occur to any public parks and recreation facilities if the project was not constructed.

Build Alternative. The project is not adjacent to any public parks and recreational facilities. The proposed project will improve access to recreational facilities and parks available in near by areas. These facilities are accessed via SR 2, which intersect with SR 138 within the project area. It is not anticipated that the project will have any adverse impact on the access to these facilities.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and mitigation measures are required.

Cumulative Impacts

The proposed Project is consistent with the General Plans for the area and would not contribute to land use impacts not addressed in the aforementioned general plans.

The existing land use within the limits of the proposed project is comprised mainly of rural living and open space. Increases in population and housing are not expected to occur as a result of the

project within the project area. Impacts related to relocation of utilities would be temporary and not substantial on either an individual or cumulative basis.

The proposed project does not connect any currently undeveloped areas or create new access. For these reasons, the project is not expected to induce a change in the proposed development plans for the area.

2.1.2 Growth

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

Affected Environment

A project is considered to influence growth if it causes foreseeable and substantial change in development trends and land use in a community, thus affecting the social, economic and quality of life in general. Some of the effects may include changes in population distribution, population concentration, the use of the land, health and safety problems caused by the physical changes, and other resources such as water, scenic quality, and public services.

The majority of the study area is within unincorporated areas of the counties. In the recent years, some of the unincorporated areas has witnessed high rate of population and housing growth in both counties. There is a tremendous pressure towards growth and urbanization faced by the communities in close proximity to incorporated cities and the overall area that is witnessing high growth rates. The communities within the project area are within a close proximity to job centers in the City of Lancaster, City of Palmdale, and the inland empire, and are accessible to the regional freeway system, however, commuters who are residents of these communities are commuters who desire to live in a more rural environment.

Goals and policies of all adopted plans are compatible with the area's rural character. The project area is planned mostly as rural living with the predominance of large lots. With the exception of few highway based commercial developments, most of the planned development is within the communities of Phelan and Pinon Hills. Table 2-1 presents SCAG's 2008 RTP Population Growth Forecast for cities within the study area and census tracts of the project area. (See Figure 2-2. Population and Housing Study Area, page 2-9). Comparing to surrounding area, the project area did not witness the high growth rates in population as in the surrounding areas. Growth rate is expected to remain lower in the next twenty years except within the census tract 9110 located in Los Angeles County.

Table 2-2 indicates that housing growth within the project area remains substantially smaller than the rest of the study area, and it is projected to remain smaller except within the census tract in Los Angeles County.

The projected growth rates correspond with the goals and policies of the future plans for these areas. Los Angeles General Plan planned growth for the county calls for using different strategies that will represent the best outcome for each individual community. For the unincorporated areas of in north of the County, planned growth involves preserving its rural nature, protecting agricultural land, and meeting the needs of the growing population. The primary objective of the overall planned growth of the County is the protection and preservation

Table 2-1. Population Growth between the years 2003-2005, 2035

Area	2003 Population	2005 Population	Average yearly growth %	2035 Population	Average Yearly growth %
City of Victorville	75,259	90,913	10.4	182,275	3.3
City of Hesperia	69,249	78,284	6.5	211,108	5.7
City of Lancaster	127,548	135,672	3.2	261,501	3.1
City of Palmdale	129,181	138,423	3.6	363,252	5.4
Project Area					
Census Tract 91.07	9111	5338	-0.7	6997	1.0
Census Tract 91.06	5406	8889	0.6	10768	0.7
Census Tract 92	6583	6597	0.0	9426	1.4
Census Tract 9110	1300	1324	0.09	2836	3.8

Source: SCAG, Adopted 2008 RTP Growth Forecast

Table 2-2. Occupied Housing Units Growth Between the Years 2003-2005, 2035

Area	2003 Housing Units	2005 Housing Units	Average yearly growth %	2035 Housing Units	Average Yearly growth %
City of Victorville	22,975	27,108	9.0	56,875	3.7
City of Hesperia	21,164	23,621	5.8	61,887	5.4
City of Lancaster	39,609	41,924	2.9	79,233	3.0
City of Palmdale	36,491	38,893	3.3	90,516	3.0
Project Area					
Census Tract 91.07	1845	1825	0.5	2576	1.4
Census Tract 91.06	2943	2887	-1.0	3761	1.0
Census Tract 92	2530	2533	0.0	3955	1.9
Census Tract 9110	459	467	0.9	1080	4.4

Source: SCAG, Adopted 2008 RTP Growth Forecast

of the County's remaining open space and natural amenities, at the same time, ensuring the growth and development in the County meets social and economic needs of its residents and businesses.

The Environmental Impact Report prepared for the 2007 Draft General Plan for the San Bernardino County states that development of the county will be consistent with the Land Use Policy Map and will be dependent on the goals and policies established for the regions as well as economic and market conditions. The General Plan also adopts policies for a lower build out capacity than the 1989 General Plan, which are also closer to SCAG's Regional Growth policies.

During the preparation of the Phelan/Pinion Hills Community Plan, the residents of the plan area expressed the opinion that home-based businesses are one way to ensure protection of the rural character while also providing needed services. Residents have also recommended an increase in light industry to help promote job growth within the plan area.

Environmental Consequences

No-Build Alternative. The population and housing in the urban areas and unincorporated areas adjacent to the project continue to grow at a rate higher than the community within the project area. Without the project, it is expected that some pressure will exist for development due to the desirability of the rural setting and close proximity to job centers, however growth rates are not expected to increase substantially.

Build Alternative.

In order to determine the project's influence on growth, a two-phase approach is used to the evaluation of growth-related impacts. The first phase is "*first cut screening*", which is designed to figure out the likely growth-potential effect and whether further analysis is necessary. Depending on the determination of the first phase, a decision will be made if further analysis is required. The first cut screening analysis for build alternative is presented below:

How, if at all, does the project potentially change accessibility?

The proposed project involves the widening of an existing transportation facility. It will not change accessibility patterns to land in the study area, and will not create new access that will make land more available for development.

How, if at all, do the project type, project location, and growth-pressure potentially influence growth?

The project is not expected to create additional pressure to change land use plans and zoning. Existing zoning provides for the opportunity to developed land in a way that is responsive to the needs, goals and policies of communities in the project area.

The project will be acquiring new right-of-way, however it is not expected to be affecting the amount of land available for the various uses, and will not change the pattern of development.

Determine whether project-related growth is "reasonably foreseeable".

It is not foreseeable that there will be any change to the land use and zoning plans, or to the general attitude of the community. The area surrounding the project area is mostly rural with sparse development, and it is anticipated that the goals and policies to maintain the setting will not change. This project will not affect growth beyond the present plans and anticipated growth patterns for the region and communities within the project area.

If there is project-related growth, how, if at all, that will impact resources of concern? Identify which resources of concern are likely to be affected by the foreseeable future growth.

Resources of concern include community characteristic, scenic quality, natural environment and cultural resource. However, it is not anticipated that the project will influence growth that will affect these resource.

Based on the first-cut screening, it is determined that growth resulting from the propose project is not foreseeable. Therefore, no further analysis of growth related impact is required.

2.1.3 Community Impacts

2.1.3.1 Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA), established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as, destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

Information in the following section provided by the Community Impact Assessment completed for this project on October 2009.

Population and Housing. The study area is intended to encompass an area where the potential impacts of the construction and operation of the proposed project to the land use and community would be reasonably foreseeable. SR 138 (Pearblossom Highway) travels southeast from Palmdale in Los Angeles County to an interchange with I-15 at Cajon Junction, and continues east until it terminates at Rim of the World Highway (SR 18) in San Bernardino County. This segment provides a connection between the high desert communities in Los Angeles County and San Bernardino County, as well as to travel via I-15. The regional study area includes communities that are connected indirectly to the study area. For this purpose, the community profile analysis includes the Cities of Palmdale, and Lancaster at the west end of the SR 138, as well as City of Victorville and Hesperia at the east end of the route. All of the project area is within the limits of the Los Angeles County and San Bernardino County unincorporated areas. The project study area includes the local communities of Phelan, Pinon Hills, Wrightwood, and surrounding rural living designated land with scattered developments. See Figure 2-2, Population and Housing Study area.

The predominant land use within the project area is rural living. Some single-family housing and planned multi-family housing exist within the development area of the communities of Pinon Hills, Phelan, and Wrightwood. Scattered commercial uses also exist along SR 138. Some light industry areas exist within the community of Phelan. The community of Phelan is located to the northeast of SR 138, and accesses the State highway through Phelan Road and Sheep Creek Road. Pinon Hills community is generally located south and north of the State Route near the intersection of Oasis Road. The community of Wrightwood is located at SR 2, which intersects SR 138 and providing an access to the community and the recreation areas within the Angeles National Forest.

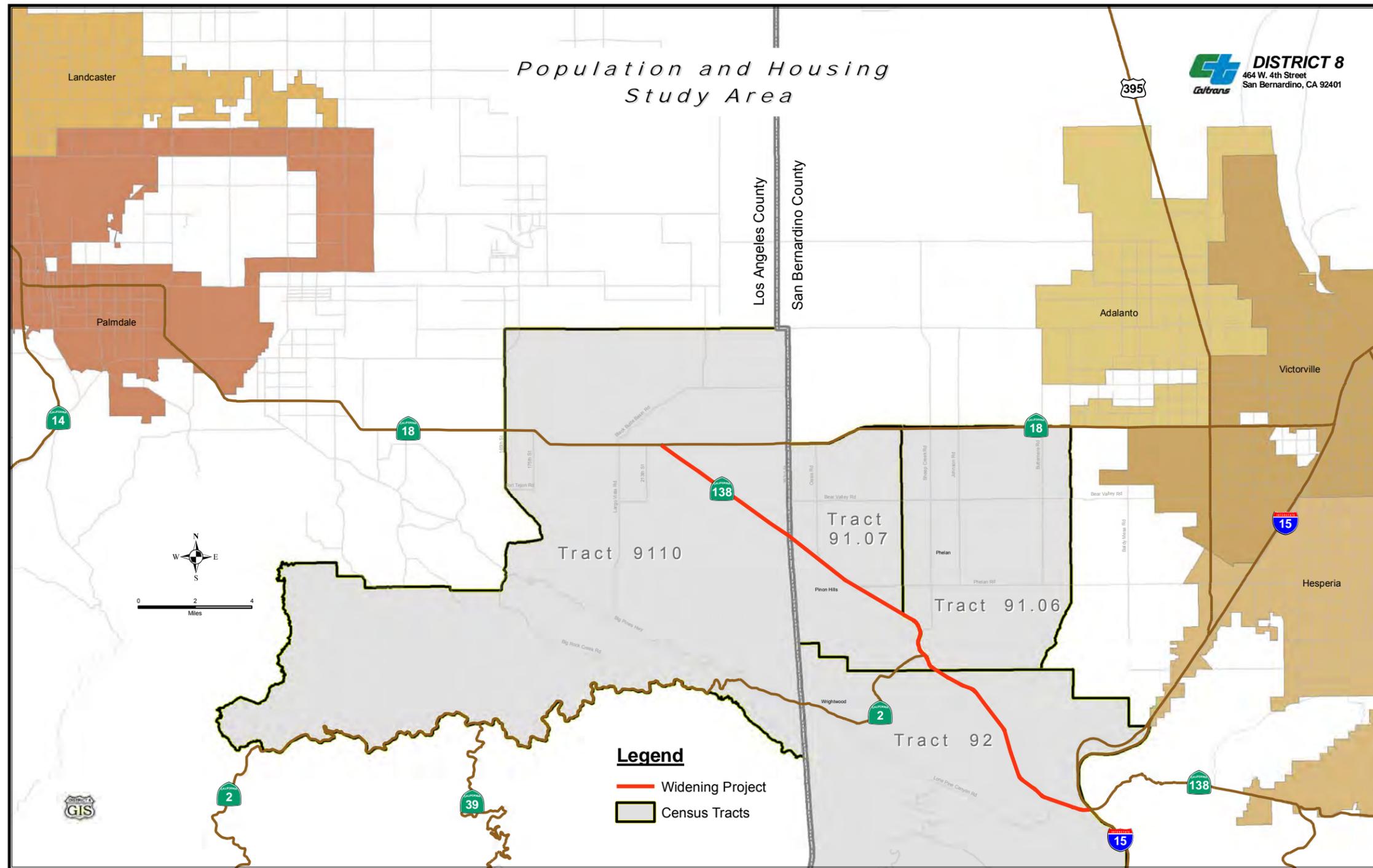
Total Population in all of the Census Tracts adjacent to the project location, in both San Bernardino and Los Angeles Counties is 22,034. Total Population of White origin within these tracks is 78.5%. Hispanic/Latino comprise 15.2% of the population. Blacks/African Americans are at 1.4% of the population in the project area. The study area has considerably less minority population than the cities in the study area. (Table 2-3)

Table 2-4 indicates that the percentage of the population below 18 years of age is slightly below of the cities. According to the 2000 census data, (Table 2-5) there are 9,649 housing units in the project area. 80.2% of these are occupied, and 19.8% are vacant. Of the vacant units, 12.3% are for seasonal use by the owners.

There is also a higher rate of vacant homes and homes that are for seasonal use in the project area than that of the studied cities. Rental properties rate is lower in the project area than that of the general study area.

Owner occupied units are at 78.8%, while renter occupied units are only 21.3%. Renter occupied unities in the cities are at a range of 27.5-38.8 percent. (See Table 2-6) The number of single-family homes in the project area is 5431, at a 70.1 percent of the occupied units. Only 2.3 percent of homes are multi family units. This is a much lower rate than in the cities. However, the Mobile homes, RVs and other homes are much higher than the cities at 27.6 percent of the total occupied housing units. (See Table 2-7)

Figure 2-2. Population and Housing Study Area



Source: Department of Transportation District 8-GIS Unit, 2008

Table 2-3. Existing Regional and Local Population Characteristics – Race/Ethnicity (2000)

Area	Total Population	White	%	Hispanic/Latino	%	Black/African American	%	Native American/Alaska Native	%	Asian	%	Native Hawaiian/Pacific Islander	%	Two or More Races	%	Other	%
City of Victorville	64,516	30,382	47.5	21,426	33.5	7,431	11.6	380	0.6	2,095	3.3	107	0.2	2,065	3.2	143	0.2
City of Hesperia	62,578	39,057	62.4	18,400	29.4	2,388	3.8	469	0.7	619	1.0	102	0.2	1,456	2.3	91	0.1
City of Lancaster	118,783	62,256	52.4	28,644	24.1	18,548	15.6	706	0.6	4,348	3.7	231	0.2	3,559	3.0	426	0.4
City of Palmdale	116,670	47,831	41.0	43,991	37.7	16,447	14.1	622	0.5	4,327	3.7	163	0.1	265	0.2	265	0.2
Project Area																	
Census Tract 91.07	5,471	4,436	81.1	791	14.5	37	0.7	54	1.0	30	0.5	5	0.1	100	1.8	18	0.3
Census Tract 91.06	9,276	6,888	74.3	1,768	19.0	141	1.5	111	1.2	99	1.1	6	0.1	249	2.7	14	0.2
Census Tract 92	6,032	5,051	83.7	577	9.6	32	0.5	34	0.6	113	1.9	8	0.1	187	3.1	30	0.5
Census Tract 91.10	1,255	925	73.7	206	16.4	95	7.6	9	0.7	4	0.3	0	0	12	1.0	4	0.3

Source: U.S. Census Bureau, Census of Population and Housing, 2000

Table 2-4. Existing Regional and Local Population Characteristics – Age (2000)

Area	Total Population	Age			
		Under 18	%	65 and Over	%
City of Victorville	64,516	22,213	34.4	7,337	11.4
City of Hesperia	62,578	20,335	32.5	6,753	10.8
City of Lancaster	1,118,783	38,440	36.4	10,488	8.8
City of Palmdale	116,573	43,868	37.6	6,716	5.8
Project Area					
Census Tract 91.07	5,471	1542	28.2	705	12.9
Census Tract 91.06	9,276	2,902	31.3	915	9.9
Census Tract 92	6,032	1,655	27.4	602	10.0
Census Tract 9110	1,275	204	26.0	218	17.1

Source: U.S. Census Bureau, Census of Population and Housing, 2000.

Table 2-5. Existing Regional And Local Housing Characteristics – Occupancy (2000)

Area	Total Units	Occupied	%	Vacant	%	Seasonal	% ²	Persons Per Household
City of Victorville	22,498	20,893	92.9	1,605	7.1	119	0.5	3.3
City of Hesperia	21,348	19,966	93.5	1,382	6.5	92	0.4	3.12
City of Lancaster	41,745	38,224	91.6	3,521	8.4	108	0.3	2.93
City of Palmdale	37,096	34,285	92.4	2,811	7.6	1,111	0.3	3.39
Project Area								
Census Tract 91.07	2,150	1,897	88.2	253	11.8	93	4.3	2.9
Census Tract 91.06	3,392	3,037	89.5	355	10.5	84	2.5	3.07
Census Tract 92	3,440	2,341	68.1	1,099	31.9	917	26.7	2.57
Census Tract 9110	667	461	69.1	206	30.9	94	14.1	2.43

Source: U.S. Census Bureau, Census of Population and Housing, 2000

² Percentage of Seasonal Use for Vacant Houses

Table 2-6. Existing Regional And Local Housing Characteristics – Tenure (2000)

Area	Total Housing Units	Occupied Units	Owner Occupied Units	%	Renter Occupied Units	%
City of Victorville	22,498	21,040	13,648	64.9	7,392	35.1
City of Hesperia	21,348	19,920	14,435	72.5	5,485	27.5
City of Lancaster	41,745	38,209	23,394	61.2	14,815	38.8
City of Palmdale	37,096	34,344	24,412	71.1	9,932	28.9
Project Area						
Census Tract 91.07	2,150	1897	1548	81.6	359	18.4
Census Tract 91.06	3,392	3,037	2,446	80.5	591	19.5
Census Tract 92	3,440	2,341	1,737	74.2	604	25.8
Census Tract 9110	1,275	475	384	80.8	91	19.2

Source: U.S. Census Bureau, Census of Population and Housing, 2000

Table 2-7. Existing Regional and Local Housing Characteristics – Type of Housing (2000)

Area	Total Occupied Units	Single Family	%	Multi Family			%	Mobile Homes, RV, Other	%
				2 units	3-9 units	10 or more			
City of Victorville	21,040	15,328	72.9	711	1,760	1,728	20.0	1,513	7.2
City of Hesperia	19,920	16,222	81.4	690	988	974	13.2	1,046	5.3
City of Lancaster	38,209	25,476	66.7	1,600	3,964	4,385	26.0	2,784	7.3
City of Palmdale	34,344	26,800	78.0	908	1,624	3,627	18.0	1,385	4.0
Project Area									
Census Tract 91.07	1897	1227	74.7	38	17	7	3.3	608	32.0
Census Tract 91.06	3,037	1,644	54.1	9	9	7	0.8	1,368	45.1
Census Tract 92	2,341	2,191	93.6	69	12	0	3.5	69	3.0
Census Tract 9110	475	369	77.7	11	0	0	2.3	95	20.0

Source: U.S. Census Bureau, Census of Population and Housing, 2000

The Census data for the year 2000 shows the population in the project area at a higher education level than the cities within the study area, especially in the category of population with some college and associate degree education. (See Table 2-8)

Table 2-8. Existing and Regional and Local Population Characteristics-Education Attainment (2000)

Area	Less than 12 th grade	%	High school ³	%	Some College and Associate degree	%	Bachelor Degree	%	Graduate Or Professional Degree	%
City of Victorville	8,563	23.3	10,904	29.6	13,404	36.5	2,527	6.9	1,379	3.7
City of Hesperia	10,002	27.3	11,219	30.7	12,413	39.0	1,049	5.3	967	2.6
City of Lancaster	25,017	21.6	18,001	26.0	25,313	36.5	7,088	10.2	3,863	5.6
City of Palmdale	16,355	25.9	15,695	24.9	22,566	35.8	5,968	9.5	2,422	3.8
Project Area										
Census Tract 91.07	655	18.8	924	26.5	1,577	4.2	219	6.3	111	3.2
Census Tract 91.06	1,307	23.2	1,780	31.6	2,069	36.7	311	5.5	161	2.9
Census Tract 92	278	6.8	895	22.1	1,801	44.5	616	15.2	461	11.4
Census Tract 9110	156	26.8	275	28.8	225	23.5	122	12.8	78	8.2

Source: U.S. Census Bureau, Census of Population and Housing, 2000

According to Table 2-9, Census Tract 92 has the lowest disability rates for all age groups than the rest of the studied areas. Other study area census tracts have comparable disability rates.

Table 2-10 shows that the average Per Capita for the local project area is higher than the rest of the study area at \$19,296, with lower percentage of people below poverty threshold.

³ Including Equivalency

Table 2-9. Existing Regional and Local Population Characteristics –Disability Status ⁴ (2000)

Area	Population 5-20 Years	Population with Disability	%	Population 21-64 years	Population with Disability	%	Population 65 years and Over	Population with Disability	%
City of Victorville	19,303	1,301	6.7	32,006	7,387	23.1	7,088	3,451	48.7
City of Hesperia	18,301	1,1315	7.2	32,461	7,424	22.9	6,653	3,153	47.4
City of Lancaster	33,310	3,012	9.0	59,270	13,571	22.9	9,719	4,453	45.8
City of Palmdale	38,304	2,915	7.6	60,763	12,659	20.8	6,708	3,048	45.4
Project Area									
Census Tract 91.07	1462	75	5.1	2984	688	23.1	705	323	45.8
Census Tract 91.06	2,826	222	7.9	5,061	1295	25.6	915	478	52.2
Census Tract 92	1,464	69	4.7	3,609	607	19.3	602	159	26.4
Census Tract 9110	206	0	0	682	198	29.0	218	102	46.8

Source: U.S. Census Bureau, Census of Population and Housing, 2000

Table 2-10. Existing Regional and Local Population Characteristics-Income/Poverty. (1999)

Area	Total Population	Per Capita Income (\$)	Persons Below Poverty Threshold	%
City of Victorville	64,516	14,454	11,885	18.7
City of Hesperia	62,578	15,487	8,762	14.1
City of Lancaster	118,783	16,935	18,239	16.4
City of Palmdale	116,670	16,384	18,272	15.8
Project Area				
Census Tract 91.07	5,471	15,312	689	12.7
Census Tract 91.06	9,276	15,602	1,126	12.2
Census Tract 92	6,032	23,970	455	7.4
Census Tract 9110	1,275	22,298	151	13.2

Source: U.S. Census Bureau, Census of Population and Housing, 2000

Table 2-11 provides information on the types of occupation of the civilian population 16 years of age or older within the local and regional study areas.

⁴ Of Civilians, Non-Institutionalized Population

Table 2-11. Existing Regional and Local Population Characteristics-Occupation of Civilians 16 Years Old and Over. (2000)

Area	Employed Civilians	Management, Professional, and Related Occupations	%	Service	%	Sales and Office	%	Construction, Extraction, and Maintenance	%	Production, Transportation, and Material Moving	%	Farming, Fishing, and Forestry	%
City of Victorville	22,385	5,733	25.6	4,224	18.9	6,092	27.2	2,659	11.9	3,21	16.2	56	0.3
City of Hesperia	22,533	4,707	20.9	3,434	15.2	5,900	26.2	3,792	16.8	4,663	20.7	37	0.2
City of Lancaster	43,178	13,948	32.3	7,517	17.4	11,297	26.2	4,965	11.5	5,388	12.5	63	0.1
City of Palmdale	43,474	12,263	28.2	6,992	16.1	11,999	27.6	5,261	12.1	6,899	15.9	60	0.1
Census Tract 92	2,864	1,284	44.8	349	12.2	543	19.0	316	11.0	356	12.4	16	0.6
Project Area													
Census Tract 91.07	2,120	534	25.2	345	16.3	533	25.1	409	19.3	299	14.1	0	0
Census Tract 91.06	3,514	856	24.4	558	15.9	889	25.3	606	17.2	589	16.8	16	0.5
Census Tract 91.04	7,025	1,316	18.7	1,191	17.0	1,756	25.0	959	13.7	1,738	24.7	65	0.9
Census Tract 9110	508	175	34.4	94	18.5	118	23.2	39	7.7	66	13.0	16	3.1

Source: U.S. Census Bureau, Census of Population and Housing, 2000

Community Facilities. Community facilities that serve the local communities of the project area are shown in Table 2-12 and Figure 2-3 below.

According to the San Bernardino General Plan, fire hazard severity is very high only in limited areas, south of Highway 138 of the project area. Otherwise, the fire threat throughout most of the communities is considered moderate. In Phelan/Pinon Hills, the San Bernardino County Fire Department (SBCFD) provides services through the South Desert Division of their department. The California Department of Forestry and Fire Protection (CDF) is another agency that provides fire protection services and/or fire related information for the communities. There are three fire stations located within the Phelan/Pinon Hills community, in addition to the Baldy Mesa Station 16, located just outside the eastern boundary of the community.

The vast majority of travel trips in the project’s area are made by automobile, using the existing network of State Highways and major County roads. SR 138, SR 18, and SR 2 access the local communities regionally. The community of Phelan obtains its access to SR 138 by Sheep creek road and Phelan road. SR 138 traverses the community of Pinon Hills, and is accessed via Oasis Road. Within the project area, several parcels have direct access to the state route.

The San Bernardino County Department of Regional Parks is responsible for maintaining the trails that are located near the Angeles Crest Highway (SR-2). The United States Forest Service (USFS) is responsible for maintaining several other motorized and non-motorized facilities. However none of these trails are adjacent to the project area and will not be directly or indirectly affected by the project.

Snowline Joint Unified School District serves all local communities within the project area. Health Services are provided by two local clinics in Wrightwood and Phelan, and by hospitals in the City of Victorville.

Table 2-12. Project Area Community Facilities and Services

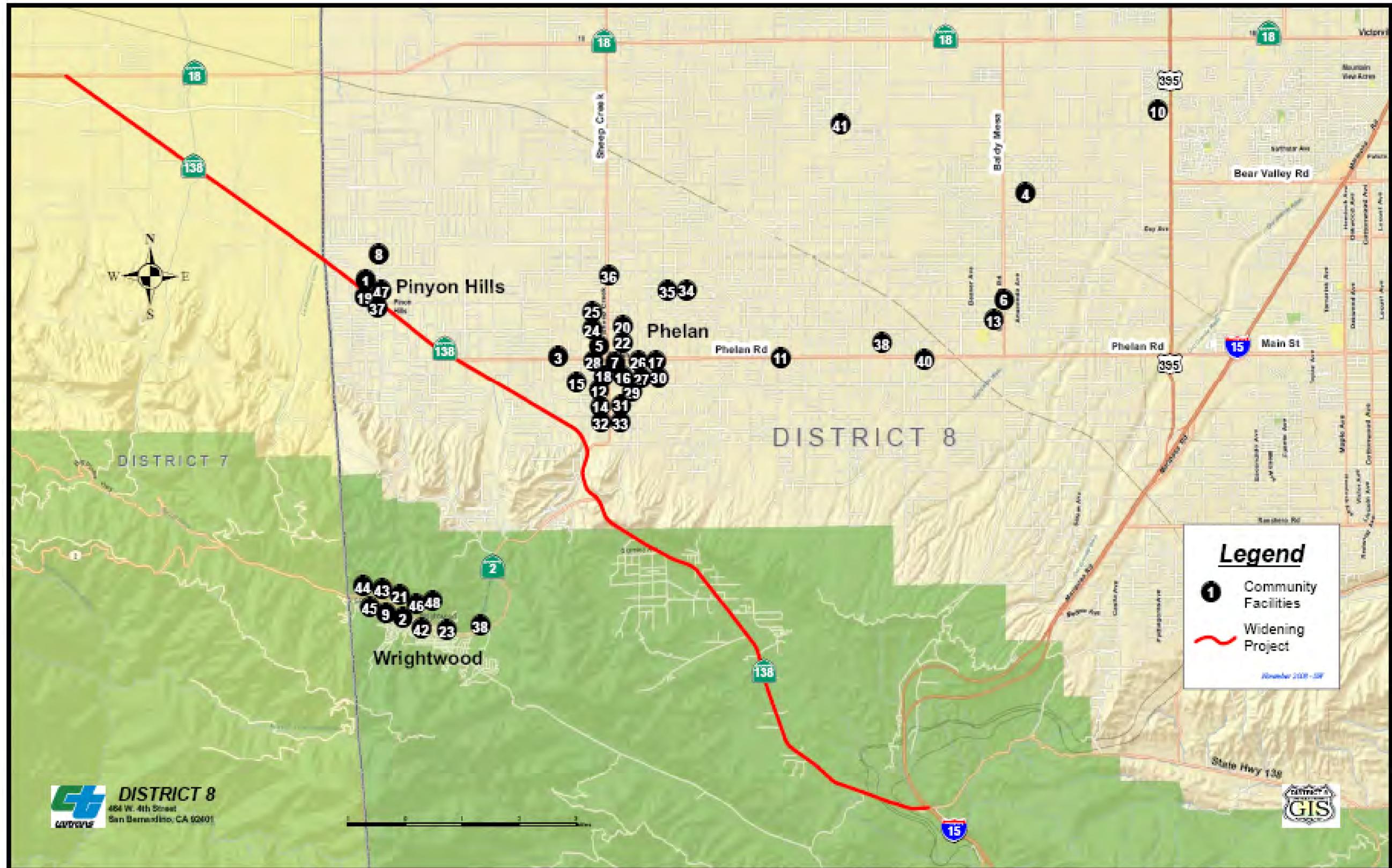
Type	Name	Address	Map ID
Fire/EMS	Piñon Hills Fire Station, 102 Office	10433 Mountain Rd Piñon Hills, CA 92372	1
	Wrightwood Station 101	5980 Elm St. Wrightwood, CA 92397	2
	Phelan Station 103	9625 Beekly Rd. Phelan, CA 92371	3
	Baldy Mesa Station 16	11855 "E" St. Baldy Mesa, CA 92392	4
Police/ Sheriff	Phelan Sheriff Department	4050 Phelan Road Phelan, CA 92371	5
Schools	Baldy Mesa Elementary	10376 Baldy Mesa Rd. Baldy Mesa, CA	6
	Phelan Elementary	4167 Phelan Rd. Phelan, CA	7
	Piñon Hills Elementary	878 Mono Rd. Piñon Hills, CA	8

	Wrightwood Elementary	1175 Highway 2 Wrightwood, CA	9
	Vista Verde Elementary	13403 Vista Verde St., Victorville, CA	10
	Heritage School	9542 Wilson Ranch Rd. Phelan, CA	11
	Piñon Mesa Middle School	9298 Sheep Creek Rd. Phelan, CA	12
	Quail Valley Middle School	10058 Arrowhead Rd. Baldy Mesa, CA	13
	Serrano High School	9292 Sheep Creek Rd. Phelan, CA	14
	Chaparral High School	9358 Malpaso Rd. Phelan, CA	15
	Desert View Independent School	9298 Sheep Creek Rd. Phelan, CA	16
	Eagle Summit Community Day School	3919 Nielson Road, Phelan CA 92371	17
	Snowline Joint Unified School District Office	4075 Nielson Rd. Phelan CA 92371	18
Community Centers	Piñon Hills Senior Center	10433 Mountain Rd. Piñon Hills 92371	19
	Phelan Senior Center	9856 Sheep Creek Rd. Phelan 92371	20
	Wrightwood Senior Center	Wrightwood 92397	21
	YMCA	4216 Phelan Rd Phelan, CA 92	22
	Wrightwood Parks & Recreation	5980 Elm Wrightwood, CA 92397	23
Places of Worship	Fountain of Living waters	9852 Sheep Creek Rd Phelan, CA 92371	24
	Phelan Community Church	9852 Sheep Creek Rd Phelan, CA 92371	25
	Phelan New Life Church	4232 Phelan Rd Phelan, CA 92371	26
	Sung Ryung Presbyterian Church	4166 Nielson Rd Phelan, CA 92371	27
	Seventh Day Adventist Church of Phelan	3830 Brawley Rd Phelan, CA 92371	28
	Cornerstone Baptist Church	9281 Sheep Creek Rd Phelan, CA 92371	29
	Calvary Chapel	4501 Nielson Rd Phelan, CA	30

	The Church of Jesus Christ of Latter-Day Saints	8889 Sheep Creek Rd Phelan, CA	31
	Our Lady of the Snows Church	8820 Sheep Creek Rd Phelan, CA	32
	Assembly of God Harvest Christian Center	8778 Sahara Rd Phelan, CA 92371	33
	New Eden Mission Center	4834 Smoke Tree Rd Phelan, CA 92371	34
	High Desert Baptist Church	10484 Johnson Rd Phelan, CA 92371	35
	Set Free Christian Fellowship	3842 Coyote Rd Phelan, CA 92371	36
	Great Light Mission	10324 Oasis Rd Pinon Hills, CA 92372	37
	Kingdom Hall Jehovah's Witness	7815 Phelan Rd Phelan, CA 92371	38
	Hillside Community Church	3221 State Highway 2 Wrightwood, CA 92397	39
	Evergreen Lutheran Church	9526 Vinton Rd Phelan, CA 92371	40
	Glesia de Jesucristo el Buen Samaritano	7411 Saratoga Rd Phelan, CA 92371	41
	Community United Methodist Church Wrightwood	1543 Barbara Wrightwood, CA 92397	42
	The Church of Jesus Christ of Latter-Day Saints	888 State Highway 2 Wrightwood, CA 92397	43
	Sunrise Church	770 State Highway 2 Wrightwood, CA 92397	44
	Our Lady of The Snows	975 Lark Rd Wrightwood, CA 92397	45
Library	Wrightwood Branch Library	6011 Pine St. Wrightwood, CA 92397	46
Postal Office	United States Postal Service	653 State Highway 138 Pinon Hills, CA 92372	47
	United States Postal Service	State Route 2 Wrightwood, CA 92397	48

Source: Various Providers Web Sites and Yellow Pages, 2009

Figure 2-3. Community Services Within the Project Area



Environmental Consequences

No-Build Alternative. Under the No-Build alternative there will be no change to the setting and that will not cause an effect on community characteristics and cohesion.

Build Alternative. The project will be improving the existing transportation facility. Intersections providing access to the local communities will also be improved as needed.

There will be no adverse impacts on access to the communities, and businesses. Access of emergency services, senior center services and postal services as well as other community services will not be affected by the project. It is not anticipated that services will be affected by the construction of this project.

The proposed project will not create changes that will affect the characteristics of the community, nor it will take away from the present level of the community cohesion. It is not anticipated that the project will significantly affect population growth and it will not create additional needs for services.

Construction impacts

No impact is anticipated to homes or businesses in the project area during construction. The highway itself and access to the highway will be maintained open the entire construction period. It is not anticipated that any of the community services including emergency and postal services will be interrupted during construction. Coordination with the community will be continuous on all construction plans.

Avoidance, Minimization, and/or Mitigation Measures

The following measures are proposed to alleviate impacts during construction:

- Com-1. Prepare staging plan that will ensure access to homes and businesses is available at all times with minimum disruption of traffic flow and increase in delays.
- Com-2. Design a public campaign through which the public is will advised of construction plans that may have impacts on traffic.
- Com-3. Keep emergency services providers informed of changes in traffic plans, and continue coordination on traffic management over the entire period of construction.

2.1.4 Relocations and Real Property Acquisition

Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, et seq.). Please see Appendix C for a copy of the Department's Title VI Policy Statement.

Affected Environment

Information in the following section provided by the Community Impact Assessment completed for this project on October 2009. The Department Right-of-Way Engineering provided information regarding the affected parcels, and the total area of each parcel required to construct the project. There will be the need to acquire new right-of-way from 62 parcels in Los Angeles County, and 121 parcels in San Bernardino County. All the acquired parcels are vacant. The majority of the land acquired is less than 10 percent of the total area of the parcel. APN numbers identify the affected parcels and amount of property required for the project from each parcel. (See Table 2-13, and Appendix F) The table also identifies the side of the highway where the widening is going to occur relative to the highway centerline. Widening was kept on one side of the highway at certain locations to minimize impacts to right of way, as well as overall environmental impacts.

Table 2-13. Proposed Right-of-Way Requirements by County

Los Angeles County -PM 69.3/74.9

Right of Centerline SR 138

APN	Total Area (Acre)	Area Needed	% of Area Needed	APN	Total Area (Acre)	Area Needed	% of Area Needed
3033016003	37.80	1.64	4.34%	3086007016	6.51	0.36	5.58%
3033016002	39.31	1.66	4.23%	3088012016	4.56	0.01	0.23%
3033015917	14.85	0.19	1.27%	3088012017	4.56	0.01	0.26%
3033015916	40.58	0.12	0.29%	3064001025	41.32	0.01	0.03%
3086007904	1.45	0.52	35.84%				

Left of Centerline SR 138

3033011008	159.06	2.55	1.60%	3088012020	1.80	0.52	29.07%
3033013015	9.85	0.51	5.19%	3088012016	4.56	0.26	5.74%
3033013005	19.91	0.53	2.67%	3088012017	4.56	0.26	5.79%
3033016047	34.48	3.34	9.70%	3088012019	3.30	0.37	11.12%
3033015075	24.44	1.03	4.20%	3088009006	298.38	3.40	1.14%
3033015917	14.85	0.92	6.17%	3064001027	0.04	0.03	83.95%
3033015916	40.58	0.52	1.28%	3064001026	7.63	1.68	22.03%
3086007901	0.35	0.34	96.67%	3064001017	74.19	1.74	2.35%
3086007018	5.65	1.82	32.14%	3064001010	5.61	1.43	25.54%
3086007022	11.65	0.77	6.60%	3064001052	2.51	0.32	12.69%
3086007023	19.23	0.75	3.88%	3064001053	2.96	0.32	10.73%
3086007024	25.77	0.79	3.05%	3064001054	3.43	0.32	9.30%
3086007025	19.36	1.17	6.07%	3064001064	2.54	0.32	12.54%
3086008001	38.41	0.49	1.28%	3064001065	2.53	0.32	12.55%
3088010008	34.57	2.14	6.20%	3064001066	2.42	0.30	12.39%
3088010006	9.81	0.36	3.64%	3064001031	152.34	2.54	1.67%
3088011003	1.91	0.58	30.11%	3064001035	35.80	1.27	3.55%
3088011002	2.25	0.27	12.14%	3064001045	35.28	1.26	3.57%
3088011004	2.15	0.34	15.78%	3064029048	1.57	0.62	39.58%

Continue Los Angeles County - Left of Centerline SR 138

APN	Total Area (Acre)	Area Needed	% of Area Needed	APN	Total Area (Acre)	Area Needed	% of Area Needed
3088011005	2.15	0.35	16.31%	3064029049	0.83	0.19	23.12%
3088010009	21.38	0.05	0.22%	3064029050	1.75	0.50	28.40%
3088010010	19.00	1.10	5.76%	3064029059	0.73	0.34	45.76%
3088012001	17.07	1.15	6.76%	3064029058	1.83	0.37	19.99%
3088012021	11.94	0.81	6.81%	3064013031	0.72	0.45	62.25%
3088012010	4.60	0.03	0.61%	3064013065	12.70	1.85	14.56%
3088012011	9.12	0.45	4.94%	3064013028	7.95	0.67	8.45%
3088012012	4.57	0.26	5.68%				

**San Bernardino County (SBDCO) PM 0.0/R15.2
Right of Centerline SR 138**

APN	Total Area (Acre)	Area Needed	% of Area Needed	APN	Total Area (Acre)	Area Needed	% of Area Needed
0351-221-17	22.29	0.179	0.80%	0351-081-28	19.56	0.003	0.02%
0351-052-06	3.70	0.099	2.66%	0351-251-30	13.39	0.088	0.66%
0351-052-07	5.03	0.039	0.78%	0351-251-11	3.29	0.040	1.21%
0351-052-16	7.76	0.434	5.59%	0351-251-15	0.63	0.032	5.02%
0351-052-17	26.57	0.217	0.82%	0351-251-16	0.16	0.005	2.81%
0351-211-05	2.09	0.122	5.84%	0351-251-18	20.76	0.081	0.39%
0351-061-07	67.50	0.455	0.67%	0351-251-27	14.69	0.063	0.43%
0351-081-05	18.04	0.121	0.67%	0351-251-28	0.30	0.30	100.00%
0351-081-60	4.10	0.217	5.29%	0351-251-02	297.12	0.552	0.19%
0351-081-61	6.66	0.155	2.33%	0351-161-02	50.54	0.197	0.39%
0351-081-64	9.54	0.156	1.64%	0351-161-02	0.007	0.007	100.00%
0351-081-17	5.07	0.157	3.10%	0351-161-05	8.88	0.038	0.43%
0351-081-38	4.29	0.155	3.62%	0351-161-02	5.05	0.925	18.32%
0351-081-23	9.22	0.149	1.61%	0351-141-09	9.17	2.234	24.36%
0351-081-74	1.73	0.131	7.61%	0351-141-00	0.99	0.021	2.08%
0351-081-40	12.94	0.316	2.44%				

Left of Centerline SR 138

3068-221-23	2.27	0.011	0.48%	0351-053-02	2.58	0.100	3.87%
3068-231-05	0.76	0.160	21.06%	0351-053-03	2.22	0.132	5.96%
3068-231-29	7.61	0.275	3.62%	0351-053-18	2.29	0.095	4.16%
3068-231-41	1.69	0.211	12.49%	0351-053-12	2.51	0.138	5.48%
3068-231-42	0.16	0.030	18.43%	0351-053-10	2.53	0.114	4.53%
3068-231-43	0.21	0.030	14.32%	0351-053-07	3.52	0.360	10.23%
3068-231-44	0.29	0.029	9.94%	0351-211-09	18.54	0.028	0.15%
3068-231-46	1.77	0.063	3.57%	0351-211-06	2.85	0.162	5.68%
3068-231-47	1.86	0.120	6.47%	0351-211-07	2.62	0.185	7.09%
3067-091-20	0.15	0.043	28.48%	0351-061-07	68.47	1.373	2.00%

Continue San Bernardino County - Left of Centerline SR 138

APN	Total Area (Acre)	Area Needed	% of Area Needed	APN	Total Area (Acre)	Area Needed	% of Area Needed
3067-091-15	15.14	0.889	5.87%	0351-081-05	0.58	0.069	11.90%
3067-101-09	9.77	0.583	5.96%	0351-081-60	32.73	0.272	0.83%
3067-131-14	0.91	0.029	3.22%	0351-081-63	11.02	0.158	1.43%
3067-131-15	1.82	0.053	2.91%	0351-081-65	7.56	0.163	2.15%
3067-131-16	3.97	0.107	2.69%	0351-081-17	1.43	0.215	14.96%
3067-131-17	4.69	0.107	2.27%	0351-081-38	2.20	0.157	7.17%
3067-131-18	6.07	0.121	2.00%	0351-081-23	0.16	0.054	34.39%
3067-131-19	6.55	0.118	1.81%	3067-571-09	2.52	0.081	3.23%
3067-151-00	0.96	0.219	22.85%	3067-571-10	2.53	0.077	3.03%
3067-161-01	6.15	0.196	3.19%	3067-571-01	3.10	0.032	1.03%
3067-161-16	4.31	0.212	4.92%	0351-081-43	9.53	0.027	0.28%
3067-161-03	9.42	0.179	1.90%	0351-081-70	6.94	0.049	0.70%
3067-161-05	2.71	0.095	3.49%	0351-081-71	6.43	0.047	0.73%
3067-161-06	3.15	0.092	2.92%	0351-081-72	6.01	0.047	0.79%
3067-341-17	1.98	0.090	4.52%	0351-081-73	5.59	0.107	1.92%
3067-341-18	2.37	0.089	3.77%	0351-081-39	22.17	0.429	1.94%
3067-341-19	4.43	0.233	5.25%	0351-081-30	6.12	0.162	2.65%
3067-341-20	2.47	0.162	6.55%	0351-081-31	2.81	0.159	5.67%
3067-341-21	5.60	0.145	2.59%	0351-081-33	0.21	0.053	25.49%
3067-351-20	2.66	0.225	8.48%	0351-091-06	45.79	1.192	2.60%
3067-351-21	3.81	0.222	5.83%	0351-091-37	1.98	0.397	20.09%
3067-481-05	2.96	0.304	10.29%	0351-091-32	1.88	0.073	3.87%
3067-521-01	30.83	0.578	1.88%	0351-091-47	44.78	0.293	0.65%
3067-521-02	42.73	1.261	2.95%	0351-251-14	5.99	0.706	11.79%
3067-561-18	2.92	0.062	2.11%	0351-251-29	67.46	0.932	1.38%
3067-561-21	11.52	0.258	2.24%	0351-251-28	25.55	0.223	0.87%
3067-571-04	0.98	0.099	10.12%	0351-161-02	25.54	0.552	2.16%
3067-571-05	0.74	0.048	6.54%	0351-161-05	6.20	0.135	2.17%
3067-571-06	1.53	0.083	5.43%	0351-141-09	2.56	1.244	48.66%
3067-571-07	0.74	0.035	4.70%	0351-141-27	62.69	0.184	0.29%
3067-571-08	2.53	0.103	4.07%	0351-141-40	1.72	0.160	9.29%

Source: Department of Transportation, District 8, Right-of-Way Engineering, 2009

Environmental Consequences

No-Build Alternative. No properties will be acquired under the no-build alternative.

Build Alternative. All needed right-of-way that will be acquired for the construction of this project is vacant land. The majority of this land is zoned as rural living with the exception of some residential and commercial use within the boundaries of the communities of Phelan and Pinion Hills. There will be no impacts to resident or business within the project area. The

proposed project would not conflict with any applicable Title VI or Environmental Justice regulations.

Avoidance, Minimization, and/or Mitigation Measures

RRA-1. All property owners shall be compensated for the acquired property as required by Federal regulation.

2.1.5 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For year 2009, this was \$22,050 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

Affected Environment

The Community Impact Assessment completed for this project in October 2009 indicates that the non-white ethnic groups comprise about 17%-27% of the population of communities within the project area, of which approximately 9%-19% is Hispanic population. Persons below poverty levels in the project area ranges between 7.4%-13.3%. (See Tables 2-3, page 2-14 and Table 2-10 page 2-18). However, the proposed project will acquire vacant land for the widening of an existing facility, and will not be affecting any population groups within the adjacent communities of Phelan and Pinon Hills.

Environmental Consequences

No-Build Alternative. With the no-build alternative, there will be no change in conditions that may affect environmental justice.

Build Alternative. The percentages of non-white ethnic groups including Hispanic and other minority groups are comparable or lower than percentages in the larger study area. It is not readily identifiable that minority groups or low income population are clustered in areas of the project location. The project will not result in any permanent impact to the communities within the study area. Construction activities would result in temporary impacts in the proposed project area. However, it is not expected that they will have disproportional impacts on any minority or low-income population.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the No-Build and Build Alternatives will not cause disproportionately high and adverse effects on any minority or low-income populations as per E.O. 12898 regarding environmental justice. No measures are required.

2.1.6 Utilities/Emergency Services

Affected Environment

Utilities: Utilities within the project limits include underground water, overhead electric, overhead and underground telephone, fiber optic, underground gas and overhead cable television. Utilities providers include Southern California Edison, Verizon, Kinder Morgan Energy Partners, Level 3 Communications, Golden State Water, The Gas Company, MCI Business, Sprint, AT&T, Southwest Gas, Sprint, Phelan Pinon Hills CSD, and Sheep Creek Water Co.

The Phelan/Pinon Hills community is located in the Mojave Basin Watershed Planning Area and water supplies are drawn from the Alto and Oeste portions of the groundwater basin.

The communities in the project area were developed with a septic tanks and leach field systems. There are an unknown number of private systems as some properties have multiple systems.

Solid waste disposal service is provided to the communities by the County of San Bernardino Solid Waste Management Division. The county disposal site that serves the area is located on 10130 Buckwheat Road, north of Phelan Road.

Fire Services: Fire hazard severity is very high only in limited areas, south of Highway 138. Otherwise, the fire threat throughout most of the community is considered moderate. In Phelan/Pinon Hills, the San Bernardino County Fire Department (SBCFD) provides services through the South Desert Division of their department. The California department of Forestry and Fire Protection (CDF) is another agency that provides fire protection services and/or fire related information for the Phelan/Pinon Hills community. There are three fire stations located within the Phelan/Pinon Hills community, and one station, Baldy Mesa Station 16, located just outside the eastern boundary of the community.

Health Services: Health Services are provided by two local clinics in Wrightwood and Phelan, and by hospitals in the City of Victorville.

Police: Police protection is provided by San Bernardino County Sheriff Department station in Phelan located on 4050 Phelan Road, with additional services provided by the California Highway Patrol (CHP).

Environmental Consequences

No-Build Alternative: There will be no effect on utilities and emergency services under the no-build alternative.

Build Alternatives: Neither permanent nor cumulative utility impacts due to the implementation of this project are expected to occur. The proposed project does not include the construction of new development that would generate a temporary or permanent need for new or additional utilities. However, temporary impacts to utilities would occur. The project requires that utilities be relocated to accommodate the widening of the roadway. Power poles, lines and boxes, in addition to Under Ground telephone and water lines will be affected at the some locations. No other utilities are known to be affected by the project at this time. Utilities will be relocated within the proposed right-of-way-limits for Phase 1 and Phase 2 during the time of construction of each phase. The Department will coordinate with the affected utility companies during the final design stage of each phase to insure that services are not impacted.

It is not anticipated that the project would generate any considerable amount of disposable material, and will not impact landfills.

Phase 1 and Phase 2 of this project will be constructed in two stages. During stage 1, construction will be performed on one side of the highway while the traffic traverses on the existing facility. During stage 2, the traffic will be moved to the already completed portion of the highway while the other side is being constructed. Temporary railing (Type K) will be used for this project where extensive earthwork is anticipated. The project will not generate the need for new emergency services, and will not have temporary impacts during construction. The highway as well as access to residents' houses and businesses fronting the highway will remain open at all times.

Construction impacts

It is not anticipated that any impact will occur during construction on utilities and emergency services. Coordination with the utility companies, emergency services providers, and the community will be continuous on all construction plans to ensure that none of these services will be interrupted during construction.

Avoidance, Minimization, and/or Mitigation Measures

U/ES-1. The Department will coordinate with the affected utility companies during the final design phase of the project to insure that services are not impacted.

U/ES-2. A Comprehensive Transportation Management Plan (TMP) will be prepared to minimize traffic inconveniences due to construction activities. The plan will include coordination with emergency services providers.

2.1.7 Traffic & Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

A Traffic Analysis Report was prepared for the project in July 2009. The report provides project's traffic analysis for the existing condition, the project opening to traffic year, and build out year (Horizon year). It evaluated highway mainline and intersection level of service (LOS) criteria and thresholds within the project studied area. The study area includes the highway from SR 18 in Los Angeles County and ends at 1-15 in San Bernardino County. The analysis includes the two phases for the construction of this project. The following scenarios were used to present the traffic analysis:

- Existing Year 2008
- No-Build and Build conditions of Opening Year 2015,⁵ and Horizon Year 2035 for Phase 1.
- No-Build and Build conditions of Opening Year 2018, and Horizon Year 2038 for Phase 2.

A total of 10 intersections were included in the traffic analysis. Table 2-14 provides LOS performance of the intersections within the project area. All intersections within the project's limits operate at the acceptable LOS. Several intersections will be operating at an unacceptable LOS in the build out and horizon years. (See Tables 2-18 and 2-20)

Table 2-14: Existing Year 2008 Intersection Level of Service

Intersection LOS Analysis		2008			
		AM		PM	
Intersections		Delay	LOS	Delay	LOS
SR 138/Lone Pine Road *	TWS	9.8	A	10.2	B
SR 138/Hess Road *	TWS	24.1	C	28.8	D
SR 138/SR 2	TS	9.2	A	14.0	B
SR 138/Beekley Road	TS	29.3	C	23.1	B
SR 138/Phelan Road	TS	17.0	B	20.0	B
SR 138/Oasis Road	TS	24.2	C	27.8	D
SR 138/Mountain Road *	TWS	10.2	B	27.8	D
SR 138/233rd Street *	TWS	11.6	B	8.3	A
SR 138/263 rd Street *	TWS	12.9	B	16.2	C
SR 138/SR 18 *	TWS	8.7	A	8.8	A
* Unsignalized Intersections					

Source: Department of Transportation Traffic Report, September 2009

The mainline is currently operating at a Level of Service (LOS) E within Phase 1 segments, and E or C within Phase 2 segments. (See Table 2-15) According to Table 2-16, the facility will be operating at LOS E within Phase 1 segments in the year 2015. Phase 2 segments will be operating with LOS E and D, in the year 2018. The segments within the two phases will experience mostly a LOS F in the design years of 2035 and 2038. (See Table 2-17)

There is no existing, proposed, or planned pedestrian facilities within the project limits due to the undeveloped nature of the area. Bus service within the project area is not available, however, the project would be providing turn out pockets for school buses.

⁵ All major works for the project would be completed and the project open to traffic in late 2014. Some of the residual minor improvement works on the project would continue until February 2015. There would not be material change in traffic volume between late 2014 and early 2015.

Table 2-15. Existing Year 2008 Peak Hour Two-Lane Highway LOS Analyses Summary

From	To	ADT (veh)	Directional Split (%)	Truck (%)	EB (vph)	EB (vph) - Truck	WB (vph)	WB (vph) - Truck	2-Way Hourly (vph)	V/C	ATS (mi/hr)	LOS
Phase 1												
I-15	Hess Road	19300	EB-51%	6%	979	59	941	56	1920	0.66	43.2	E
Hess Road	Sheep Creek Road	18700	EB-51%	6%	877	53	843	51	1720	0.59	44.9	E
Sheep Creek Road	Phelan Road	17500	EB-71%	6%	1207	72	493	30	1700	0.58	4.3	E
Phase 2												
Phelan Road	Oasis Road	18200	EB-71%	6%	1278	77	522	31	1800	0.62	44.7	E
Oasis Road	Mountain Road	18900	EB-71%	6%	1342	81	548	33	1890	0.65	44.0	E
Mountain Road	263rd Street	12400	EB-71%	6%	639	38	261	16	900	0.31	51.1	C
263rd Street	233rd Street	11900	EB-71%	6%	687	41	273	16	960	0.33	50.6	C
233rd Street	SR-18	10900	EB-71%	6%	632	38	258	15	890	0.31	57.5	C
* ATS: Average Travel Speed. Source: Department of Transportation Traffic Report, September 2009												

Environmental Consequences

No-Build Alternative. Congestion and safety conditions are expected to worsen if capacity and operational improvements were not implemented. With no improvements, the highway mainline conditions will continue to deteriorate to LOS E or D within the opening year 2015 for Phase 1 segments, and the year 2018 for Phase 2 segments. All segments will be operating at a LOS F within the Horizon years. Several intersections will be operating at LOS E and F with the no-build alternative. The projected increased traffic demand is expected to exacerbate the operating conditions, unless adequate improvement as proposed are implemented.

Build Alternative. The project proposes the widening of the highway to a 4-lane facility with operational improvements, which includes the construction 8-foot outside shoulder, and a 4-foot median buffer, as well as the addition of left turn lanes and signalization of intersections as needed. Table 2-16 presents mainline LOS analysis data for Phase 1 and Phase 2 at opening years of 2015 and 2018 with no-build conditions and build conditions. The widening of the facility will improve the level of service for the highway segments to LOS A or B for phase 1 in the year 2015, and LOS B for phase 2 in the year 2018. Table 2-17 shows that, without the project, all highway segments will be operating at LOS F. With build conditions, Phase 1 will be at LOS C or B in the horizon year of 2035, and Phase 2 will be mostly at LOS C in the horizon year of 2038.

Table 2-18 presents intersection LOS analysis for Phase 1 and Phase 2, at opening years of 2015 and 2018, with no-build conditions and build conditions. The analyses shows an acceptable LOS at build conditions except for the intersections at Hess Road, which would operate at unacceptable LOS D or LOS E. Build conditions analysis at phase 2 shows LOS D or better, except at the intersection of Mountain Road (PM).

Table 2-16. Mainline LOS analysis of Project Opening Years for Phase 1 and Phase 2

SR-138 Mainline LOS Analysis		ADT (veh)	Directional Split (%)	Truck %	EB (vph)	EB Truck (vph)	WB (vph)	WB Truck (vph)	Phase 1 - Opening Year 2015				
									No Build (2-lane)			Build (multi-lane)	
									V/C	ATS (mi/hr)	LOS	Density	LOS
I-15	Hess Road	21300	EB-53%	6%	1160	70	1030	62	0.58	40.9	E	13.80	B
Hess Road	Sheep Creek Road	19300	EB-53%	6%	980	59	870	52	0.63	43.8	E	11.70	A
Sheep Creek Road	Phelan Road	18770	EB-70%	6%	1309	79	561	34	0.64	42.9	E	15.80	B
									Phase 2- Opening Year 2018				
Phelan Road	Oasis Road	16700	EB-70%	6%	980	59	420	25	0.48	48.1	D	11.80	B
Oasis Road	Mountain Road	16700	EB-70%	6%	980	59	420	25	0.48	48.1	D	11.80	B
Mountain Road	263rd Street	16700	EB-70%	6%	980	59	420	25	0.51	46.0	D	11.80	B
263rd Street	233rd Street	16100	EB-70%	6%	1050	63	450	27	0.51	46.0	D	12.70	B
233rd Street	SR-18	14700	EB-70%	6%	980	59	420	25	0.48	46.9	D	11.80	B
* ATS: Average Travel Speed (mph)													
* E/W: SR-138													

Source: Department of Transportation Traffic Report, September 2009

Table 2-17. Mainline LOS Analysis of Horizon Years for Phase 1 and Phase 2

SR-138 Mainline LOS Analysis		ADT (veh)	Directional Split (%)	Truck %	EB (vph)	EB Truck (vph)	WB (vph)	WB Truck (vph)	Phase 1-Horizon Year 2035				
									No Build (2-lane)			Build (multi-lane)	
From	To								V/C	ATS (mi/hr)	LOS	Density	LOS
I-15	Hess Road	33200	WB-65%	6%	1120	67	2080	125	1.09	N/A	F	24.70	C
Hess Road	Sheep Creek Road	21000	WB-65%	6%	805	48	1495	90	0.79	40.0	E	17.70	B
Sheep Creek Road	Phelan Road	25700	WB-65%	6%	872	52	1618	97	0.85	37.6	F	19.40	B
									Phase 2- Horizon Year 2038				
Phelan Road	Oasis Road	30400	WB-65%	6%	1155	69	2145	129	1.13	N/A	F	24.70	C
Oasis Road	Mountain Road	30400	WB-65%	6%	1155	69	2145	129	1.13	N/A	F	24.70	C
Mountain Road	263 rd Street	30400	WB-65%	6%	1155	69	2145	129	1.13	N/A	F	24.70	C
263 rd Street	233 rd Street	29200	WB-65%	6%	1225	74	2275	137	1.20	N/A	F	26.40	D
233 rd Street	SR-18	26700	WB-65%	6%	1120	67	2080	125	1.09	N/A	F	23.90	C
* ATS: Average Travel Speed (mph)													
* E/W: SR-138													

Source: Department of Transportation Traffic Report, September 2009

Table 2-18. Intersection LOS analysis of Project Opening Years for Phase 1 and Phase 2

Phase 1 Intersections	2015 (No Build)				2015 (Build)			
	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 138/Lone Pine Road	10.3	B	11.0	B	10.4	B	11.1	B
SR 138/Hess Road	29.7	D	36.6	E	25.9	D	37.4	E
SR 138/SR 2	11.3	B	10.3	B	11.3	B	10.3	B
SR 138/Beekley Road	28.0	C	21.9	C	26.1	C	17.3	C
SR 138/Phelan Road	18.5	C	17.7	B	15.4	B	16.1	B
Phase 2 Intersections	2018 (No Build)				2018 (Build)			
SR 138/Oasis Road	25.9	C	29.8	C	19.5	B	23.6	C
SR 138/Mountain Road	12.3	B	97.1	F	10.6	B	74.2	F
SR 138/233rd Street	14.9	B	9.0	A	14.5	B	9.1	A
SR 138/263rd Street	19.2	C	30.3	D	16.4	C	20.7	C
SR 138/SR 18	9.5	A	9.7	A	9.6	A	9.8	A

Source: Department of Transportation Traffic Report, September 2009

The following improvements, as identified in Section 1.4.1 Project Alternatives, will be required to improve level of service at these intersections:

SR-138/Beekley Road: Construct an additional SB left turn lane. This improvement would reduce the queue length on the SB left turn movement.

SR-138/SR-2: Construct an additional NB left turn lane. This improvement would reduce the queue length on the NB left turn movement.

No additional improvements are required to improve the level of service at the following intersections as described below:

SR-138/Hess Road: LOS E due to NB left turn and right turn vehicle movements. Since the numbers of vehicles making these movements are minimal on the minor street, therefore LOS is considered acceptable, and no mitigation measure is provided at this location. In addition, constructing an additional through lane at this location will divert through traffic on SR-138 from one lane to two lanes and create more gaps in the traffic flow on SR-138 that could be utilized to lessen the delay experienced by traffic on the side streets.

SR-138/Mountain Road: LOS F due to NB left turn vehicle movements. Since the delay is mostly on the vehicles on Mountain Rd waiting to make a left turn, delay on SR-138 is low therefore LOS is considered acceptable. No mitigation measure is provided at this location since addressing delay on the side streets are outside of this project’s scope of improving traffic operations on SR-138. In addition, constructing an additional through lane at this location will divert through traffic on SR-138 from one lane to two lanes and create more gaps

in the traffic flow on SR-138 that could be utilized to lessen the delay experienced by traffic on the side streets.

Table 2-19 shows intersection analysis for no-build and build conditions for phase1 horizon year of 2035, and phase2 horizon year of 2038. Build condition analysis shows that multiple intersections will be at LOS E or LOS F. These include intersections at Hess Road, Mountain Road, 233rd Street, and 263rd Street.

Table 2-19. Intersection LOS Analysis of Horizon Years for Phase 1 and Phase 2

Phase 1 Intersections	2035 (No Build)				2035 (Build)			
	AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 138/Lone Pine Road *	13.1	B	16.9	C	13.4	B	17.4	C
SR 138/Hess Road *	-	F	-	F	-	F	-	F
SR 138/SR 2	16.9	B	15.0	B	16.9	B	15.0	B
SR 138/Beekley Road	47.9	D	33.0	C	27.1	C	22.6	C
SR 138/Phelan Road	22.6	C	30.5	C	16.8	B	20.4	C
Phase 2 Intersection	2038 (No-Build)				2038 (Build)			
SR 138/Oasis Road	33.2	C	36.8	D	30.4	C	35.9	D
SR 138/Mountain Road *	-	F	-	F	29.0	D	-	F
SR 138/233rd Street *	48.8	E	16.4	C	36.6	E	16.7	C
SR 138/263rd Street *	-	F	-	F	-	F	-	F
SR 138/SR 18 *	15.5	C	18.4	C	15.9	C	19.0	C

Source: Department of Transportation Traffic Report, September 2009

No additional improvements are required to improve the level of service at the following intersections described below:

SR-138/Hess Road and SR-138/233rd Street: LOS F & E due to NB and SB left turn vehicle movements. Since numbers of vehicles making these movements are minimal on the minor street, therefore LOS is considered acceptable, and no mitigation measure is provided at these 2 locations. In addition, constructing an additional through lane at this location will divert through traffic on SR-138 from one lane to two lanes and create more gaps in the traffic flow on SR-138 that could be utilized to lessen the delay experienced by traffic on the side streets.

SR 138/263rd Street: LOS F due to SB left turn vehicle movements. Since the delay is mostly on the vehicles on 263rd Rd waiting to make a left turn, delay on SR-138 is low therefore LOS is considered acceptable. No mitigation measure is provided at this location since addressing delay on the side streets are outside of this project’s scope of improving traffic operations on SR-138. In addition, constructing an additional through lane at this location will divert through traffic on SR-138 from one lane to two lanes and create more gaps in the traffic flow on SR-138 that could be utilized to lessen the delay experienced by traffic on the side streets.

SR-138/Mountain Road: LOS F due to NB left turn vehicle movements. Since the delay is mostly on the vehicles on Mountain Rd waiting to make a left turn, delay on SR-138 is low therefore LOS is considered acceptable. No mitigation measure is provided at this location since addressing delay on the side streets are outside of this project's scope of improving traffic operations on SR-138. In addition, constructing an additional through lane at this location will divert through traffic on SR-138 from one lane to two lanes and create more gaps in the traffic flow on SR-138 that could be utilized to lessen the delay experienced by traffic on the side streets.

SR 138/Beekley and SR 138/SR 2: if the additional SB and NB left turn lanes were constructed in year 2018, LOS for these two intersections would operate in LOS B for both AM and PM peak hours.

As a result, the proposed SR-138 widening project has shown sufficient LOS improvements and vehicle delays reduction in the years 2035 and 2038. With the additional proposed number of lanes, and recommended intersection configurations, levels of service for highway segments and intersections have improved to acceptable level of service within the project limits.

In addition, the construction of other proposed improvements such as the median buffer with centerline rumble strips, the shoulders widening with shoulder rumble strips, and pavement rehab will improve over all operational and safety conditions of the state route.

Since there are no designated bicycle lanes or shoulders within the project area along SR 138, impacts to bicycle facility and sidewalks are not expected to occur due to the implementation of this project

Construction Impacts

This project will be constructed in two stages. During stage 1, construction will be performed on one side of the highway while the traffic traverses on the existing facility. During stage 2, the traffic will be moved to the already completed portion of the highway while the other side is being constructed. Access to residents' houses and businesses fronting the highway will be maintained at all times. Temporary railing (Type K) will be used for this project where extensive earthwork is anticipated. Detailed stage construction plan will be developed in design phase of the project. The roadway will be open to traffic at all times. For the temporary limited, short-term impacts on traffic during construction, the Department will prepare a Traffic Management Plan (TMP) to be implemented in order to minimize localized congestion and travel delays during construction.

With minimization and avoidance measures, the project is not expected to have any impacts on emergency routes and services.

The proposed project would improve circulation of the highway and consequently may have a beneficial effect on emergency vehicle access and response times upon completion of the project.

Avoidance, Minimization, and/or Mitigation Measures

Trans-1. A comprehensive Transportation Management Plan (TMP) will be required to minimize the traffic impact due to construction activities. A detailed TMP will be developed during the PS&E phase of the project. Some of the general elements that will be included are Public Awareness Campaign (PAC), Construction Zone

Enhancement Enforcement Program (COZEEP) and Enhanced COZEEP, Portable Changeable Message Signs (PCMS), Caltrans Highway Information Network (CHIN), and Radar Speed Message Sign

Cumulative Impacts

In accordance with NEPA and CEQA, it is concluded that the proposed project would not substantially affect growth. The proposed project would have beneficial traffic and transportation effects and would not contribute to cumulative adverse impacts. The disruption of traffic on the highway that would result from project construction is a temporary occurrence and would not contribute to a cumulative impact.

2.1.8 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities.” (CA Public Resources Code Section 2100[b])

California Scenic Highway Program

The California Scenic Highway Program (1963) was created to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state laws governing the Scenic Highway Program are found in the Streets and Highway Codes, Section 260 et seq. Within the project area, SR 138 from SR 2 to the I-15 has been identified by the Department to be eligible as a scenic route. The County of San Bernardino General Plan designates as eligible SR 138 from the SR 18 in Crestline to the Los Angeles County line as a County scenic highway. Lone Pine Canyon Road and SR 2 are also County-designated scenic highways. The Circulation Element of the Phelan/Piñon Hills Community Plan acknowledges local visual resources and includes policies to protect the scenic values along SR 138. The portion of the SR 138 within Los Angeles County has been identified as Second Priority for adoption as a scenic highway within the County of Los Angeles General Plan. The Antelope Valley Area Plan (which is part of the Los Angeles County General Plan) states that as funds become available, each of the identified routes will be studied and appropriate standards will be established to assure retention of aesthetic qualities.

Additionally, a portion of SR 138 (from the Mormon Rocks United States Forest Service Station entrance east to Crestline) forms part of the Rim of the World Highway, a designated National Forest Scenic Byway.

Affected Environment

A Visual Impact Assessment was completed for the proposed project was completed on June 2009. The analysis was performed according to criteria set forth in *The Visual Impact Assessment for Highway Projects* (USDOT, FHWA c. 1979). The VIA describes the visual setting and resources of the SR 138 project segment as it passes through the northern foothills of the San Gabriel Mountains and across the High Desert area. At the SR 138 interchange with the I-15 Freeway, commercial uses and freeway on and off ramps are present. West of the I-15 Freeway, the eastern project segment is defined by bridges that are used for 3 railroad crossings (one above the highway and 2 below) and across Cajon Creek. SR 138 then passes through the Mormon Rocks area, with rock formations located mainly north of the highway and a small rock formation to the south. The highway rises slightly as it nears the rocks from the east and west, and then drops down to a flatter slope beyond the rocks. In this general area, Cajon Canyon Wash is located north of the highway. However, the wash is not highly visible to vehicles on SR 138. The wash serves as a drainage channel for runoff in the area but generally remains dry, except during heavy rainfall events.

SR 138 runs westerly and roughly parallel to Cajon Canyon from the I-15 Freeway toward the canyon mouth near Phelan Peak. As the highway rises in elevation, views from this segment of SR 138 are dominated by the mountain slopes and ridges, with large-lot residences and ranches on both sides of SR 138 at scattered locations. Other nearby structures are not readily visible from the highway, since they are set back from the travel way and are screened by intervening shrubs and trees.

Near Phelan Peak is Mountain Top Junction (the intersection of SR 138 and SR 2). From this junction, the SR 138 highway descends as it runs northerly through Horse Canyon. Horse Canyon is located west of SR 2 and then south of SR 138, crossing SR 138 just after its intersection with Sheep Creek Road. From the canyon, SR 138 approaches the base of the San Gabriel Mountains near Beekley Road. The High Desert area with scattered developments and rural communities is visible along this higher vantage point.

From Beekley Road, SR 138 runs in a straight line through the relatively flat terrain of the High Desert toward SR 18. Here, the highway passes through the unincorporated communities of Phelan and Piñon Hills, with distant mountains and the desert valley serving as backdrops for these small communities. Commercial uses are found at the corners of SR 138 intersections with Beekley Road, Phelan Road, Oasis Road, and Mountain Road. The surrounding area is largely undeveloped vacant land within the relatively flat desert valley. Scattered homes are present but are not located along the highway.

The visual resources within the project area lie in the distant hillsides of the San Gabriel Mountains (south), San Bernardino Mountains (east), and the High Desert and Baldy Mesa Mountains (north), which provide a backdrop to the SR 138 as the mountain ranges rise to elevations over 10,000 feet above mean sea level. The mountainsides are brown to dark green in color and reflect plant materials that grow in the mountain regions of Southern California. The views of the mountainsides and ridges extend far beyond the project area and provide an expansive mountain scene. While part of the San Gabriel Mountains, the Mormon Rocks present a distinct landscape due to the form and color of the rock formations and the limited vegetation on the rocks. These rocks are confined to the eastern project segment, with most of the rock formations located north of the highway.

The High Desert area is defined by vast amounts of open land with low hills, buttes, peaks, valleys, dry lakes, and the seasonal floodway rivers and lakes. The wide expanse of open desert offers very limited relief in topography. SR 138 follows the terrain, with slight rolls through the sand dunes, within the High Desert. The low-lying scrub vegetation, scattered Joshua trees, and blue sky dominate views in areas with limited development. Distant hills and buttes form the edges of the landscape. The desert provides stark contrast to the nearby mountains in terms of form and line (topography) and color and texture (vegetation).

Manmade developments indicate the presence of rural communities along or near SR 138. Buildings, road signs, commercial signs, streetlights, traffic signals, and utility poles and lines are visible from the highway at 3 areas. Near Oasis Road and Mountain Road is the Community of Piñon Hills. Between Phelan Road and Sheep Creek Road is the community of Phelan. From Del Rosa Road to south of Mantova Drive, a small mountain community is present. While most residences are located on scattered large lots, the density of development increases and commercial uses are found at the intersections of SR 138 with Beekley Road, Phelan Road, Oasis Road and Mountain Road.

A historic landscape resource is present in the Los Angeles Department of Water and Power (LADWP) Boulder Dam – Los Angeles 287.5 Kilovolt Transmission Line, which is eligible for the National Register of Historic Places. Two of its transmission towers are located near SR 138. These towers would be protected in place by a retaining wall and Environmentally Sensitive Area (ESA) Action Plan.

In order to evaluate a project's impact on the visual resources of an area, identification of view corridors and an evaluation of the existing resources in these corridors have to be completed. View corridors for the proposed project were identified through the analysis of aerial and topographic maps combined with on-site surveys. Key views were identified through observation, and were selected from viewpoints considered most sensitive to viewers of the proposed widening project, as well as the most common public views. Views of the SR 138 are available from the highway itself and from properties adjacent to the highway. Viewers of SR 138 include recreational travelers, business travelers/commuters, hikers/bicyclists, residents of the nearby homes, and employees and patrons at the local businesses along the highway.

Due to the large number of viewer groups and their diverse viewpoints, not all views could be analyzed. Rather, viewpoints analyzed in this Visual Impact Assessment focus on the key views of sensitive viewer groups, which were selected based on the number of individuals in the group, the magnitude of change in their view, and their length of exposure to the affected view. Based on these considerations, twelve viewpoints were selected for visual simulation and analysis as a result of the changes that would occur due to the proposed project. The locations of the analyzed views are shown in Figure 2-4. A description of the location, viewers, and type of views at each location are described below..

Viewpoint 1 – Looking Southwest from 76 Station. This is the view of users at the 76 gas station, Del Taco restaurant, Best Western Hotel, and Cajon maintenance yard at the northwest corner of the I-15 and SR 138 interchange. The view includes the San Gabriel Mountains in the background, with the SR 138 winding along the northern foot of the mountains and the Cajon Creek Bridge farther back.

Viewpoint 2 – Looking South from Railroad Tracks. This is the train enthusiasts' and hikers' viewpoint of the SR 138 from the open area at the BNSF railroad tracks located north

of the highway. Individuals at this location are watching the trains or hiking into the surrounding hills and open space areas. However, part of their view is portion of the highway pavement and the railroad underpass bridge. The view shows the SCE transmission tower north of the highway. The San Gabriel Mountains and Mormon Rocks serve as the backdrop for this view.

Viewpoint 3 – Looking East at Railroad Overpass. This is the viewpoint of travelers, commuters and drivers on the SR 138, west of the railroad overpass at the Lone Pine Canyon Road intersection. This easterly view shows the UPRR railroad overpass flanked by hills on each side and the San Bernardino Mountains in the background.

Viewpoint 4 – Looking East at Mormon Rocks. This is the viewpoint of travelers, commuters and drivers on the SR 138, as they pass through the Mormon Rocks area. This view includes the segment of SR 138 where the rocks are nearest the highway. Most of the rock outcrops at Mormon Rocks are located to the north of SR 138 and are separated from the highway by Cajon Creek.

Viewpoint 5 – Looking West at Slope. This is the travelers' view of SR 138, just east of the intersection with SR 2. With slopes on each side of the highway, cuts have been made as part of earlier improvements. This view represents those of travelers as they pass through the mountain areas where slope cuts would be made.

Viewpoint 6 – Looking West from Sheep Creek Road. This is the viewpoint of travelers, commuters and drivers on the SR 138, east of the Sheep Creek Road intersection. This view was taken from the highway's right-turn lane into Sheep Creek Road, with views of the Phelan community to the north of SR 138.

Viewpoint 7 – Looking East at Rick's Roadside Café. This is the view of eastbound travelers, commuters and drivers on the SR 138 who makes a stop at Rick's Café, near the intersection of Beekley Road. This view shows that the area north of the highway is generally at the lower elevation, while the area to the south is at a slightly higher elevation. The roadway right-of-way includes an undeveloped area supporting scrub vegetation, with Rick's Roadside Café located approximately 100 feet from the edge of pavement.

Viewpoint 8 – Looking South from Residence. This is the view from a residence located north of the highway, east of Sheep Creek. The highway pavement is visible from the driveway, where vegetation or buildings do not block views. Beyond the highway are vacant land and dirt roads in the middleground, with the San Gabriel Mountains in the background.

Viewpoint 9 – Looking North from Residence. This is the view from a residence located south of the highway, near Scrub Oak Lane. To the west, the highway rises slowly toward Sheep Creek Bridge. This would be the permanent view of residents located south of SR 138, where the highway would be visible in the foreground, lands on the other side of the highway in the middleground, and the distant buttes in the background.

Figure 2-4. Location of Key Viewpoints



Key Viewpoints

- Viewpoint 1 – Looking Southwest from 76 Station
- Viewpoint 2 – Looking South from Railroad Tracks
- Viewpoint 3 – Looking East at Railroad Overpass
- Viewpoint 4 – Looking East at Mormon Rocks
- Viewpoint 5 – Looking West at Slopes
- Viewpoint 6 – Looking West from Sheep Creek Road
- Viewpoint 7 – Looking East at Rick’s Roadside Café
- Viewpoint 8 – Looking South from Residence

- Viewpoint 9 – Looking North from Residence
- Viewpoint 10 – Looking West at Sheep Creek Bridge
- Viewpoint 11 – Looking East at Roadway Depressions
- Viewpoint 12 – Looking Southwest at California Aqueduct

*Visual Impact Assessment for
SR 138 Widening Project*

Figure 2-5. Comparison of Viewpoints Existing Conditions and Simulations with Proposed Improvements



Viewpoint 1 – Existing Conditions, Looking Southwest from 76 Station



Viewpoint 1 – Simulation of Proposed Improvements, Roadway Widening at the Beginning of the Project Near I-15 Southbound Off-ramp



Viewpoint 2 – Existing Conditions, Looking South from Railroad Tracks



Viewpoint 2 – Simulation of Proposed Improvements, Roadway Widening and a Retaining Wall at Transmission Tower



Viewpoint 3 – Existing Conditions, Looking East at Railroad Overpass



Viewpoint 3 – Simulation of Proposed Improvements, Horizontal Realignment and Roadway Widening



Viewpoint 4 – Existing Conditions, Looking East at Mormon Rocks



Viewpoint 4 – Simulation of Proposed Improvements, Removal of Rock Outcroppings and Roadway Widening



Viewpoint 5 – Existing Conditions, Looking West at Slopes



Viewpoint 5 – Simulation of Proposed Improvements, Roadway Widening and Grading Hillside Area Toward Phelan Peak



Viewpoint 6 – Existing Conditions, Looking West from Sheep Creek Road



Viewpoint 6 – Simulation of proposed Improvements, Roadway Widening at the Bend to Sheep Creek Road



Viewpoint 7 – Existing Conditions, Looking East at Rick's Roadside Cafe



Viewpoint 7 – Simulation of Proposed Improvements, Roadway Widening Near its Intersection with Beekley Road



Viewpoint 8 – Existing Conditions, Looking South from Residence



Viewpoint 8 – Simulation of Proposed Improvements, Roadway Widening at Residence Driveway



Viewpoint 9 – Existing Conditions, Looking North from Residence



Viewpoint 9 – Simulation of Proposed Improvements, Driveway of a Resident Located South of SR 138



Viewpoint 10 – Existing Conditions, Looking West at Sheep Creek Bridge



Viewpoint 10 – Simulation of Proposed Improvements, Roadway and Bridge widening at Cheep Creek Bridge



Viewpoint 11 – Existing Conditions, Looking East at Roadway Depressions



Viewpoint 11 – Simulation of proposed improvements, Vertical realignment and Roadway Widening



Viewpoint 12 - Looking Southwest at California Aqueduct



Viewpoint 12 – Simulation of proposed improvements, Roadway Widening and the Widening of California Aqueduct Bridge on Both Sides

Viewpoint 10 – Looking West at Sheep Creek Bridge. This is the viewpoint of travelers, commuters and drivers on the SR 138, east of Sheep Creek Bridge. This view was taken from the intersection with Scrub Oak Lane, showing a residence to the south (location of Viewpoint 9). This westerly view shows the highway rising over to Sheep Creek Bridge. The roadway right-of-way includes an undeveloped area supporting scrub vegetation, with the residence located approximately 150 feet from the roadway pavement, with setback areas between the residence and the highway right-of-way defined by the power lines running parallel and south of the highway. This view also shows that the area north of the highway is generally at the lower elevation, while the area to the south is at a slightly higher elevation.

Viewpoint 11 – Looking East at Roadway Depressions. This is the viewpoint of travelers, commuters and drivers on the SR 138, west of Sheep Creek Bridge. In this area, there are several dry washes that cross the highway and the highway pavement has been graded to the wash elevation, to prevent obstruction of stormwater flows. Thus, the highway features a rolling grade. This view shows the project segment where several roadway depressions are present. This easterly view shows the highway pavement, dirt shoulders, and undeveloped land on both sides of SR 138. Distant views of the high desert are available to the north, along with distant views of the mountains to the south.

Viewpoint 12 – Looking Southwest at California Aqueduct. This is the viewpoint of westbound travelers, commuters and drivers on the SR 138, at the California Aqueduct Bridge. This view shows the aqueduct crossing the highway, with open waters to the southwest, bound by access roads and earthen berms on each side. An equipment shelter surrounded by chainlink fencing is present to the north of the highway and west of the aqueduct, near the sluice gates (not visible to the north of SR 138). This view shows the highway through the high desert area near the western end of the project segment.

Environmental Consequences

No Build Alternative. Under the No-Build Alternative, no adverse impacts will occur on the visual setting and aesthetics conditions in the project area.

Build Alternative. The visual qualities of the selected views were analyzed for changes that would occur as a result of the proposed project. Based on the visual qualities of vividness, intactness and unity, these views were rated on a scale of 1 (very low) to 7 (very high) before and after the construction of the proposed improvements. The results of the analysis are presented in Figure 2-5 above, and Table 2-22 below.

The improvements that would accompany the SR 138 Widening Project would lead to changes in the visual quality of the highway and the surrounding area. The changes would include a wider roadway pavement and shoulders, wider bridges, cut slopes and fill areas at various locations, extended culverts, reconstructed wildlife crossings, driveways and roadway intersections, relocated road signs, traffic signals, and utility poles, vertical and horizontal realignments, and a retaining wall. Based on the ratings of visual quality of the existing and simulated views, overall reductions in visual quality are expected throughout the entire project segment, except for Viewpoint 7. The changes in visual quality at viewpoints along the Phase 1 segment of the project are provided in Table 2-20 below.

Table 2-20. Changes in Visual Quality of Viewpoints at Phase 1 Segment

Viewpoint		$\frac{(V+I+U)}{3}$	Visual Quality
Viewpoint 1 Looking Southwest from 76 Station	Existing	3.30	Moderately Low
	Proposed	3.23	Moderately Low
	Change in Visual Quality		-0.07
Viewpoint 2 Looking South at Transmission Tower	Existing	5.13	Moderately High
	Proposed	4.48	Moderate
	Change in Visual Quality		-0.65
Viewpoint 3 Looking at Railroad Overpass	Existing	5.42	Moderately High
	Proposed	5.22	Moderately High
	Change in Visual Quality		-0.20
Viewpoint 4 Looking East at Mormon Rocks	Existing	4.82	Moderately High
	Proposed	3.35	Moderately Low
	Change in Visual Quality		-1.47
Viewpoint 5 Looking West at Slope Cuts	Existing	2.57	Moderately Low
	Proposed	2.28	Low
	Change in Visual Quality		-0.29
Viewpoint 6 Looking West from Sheep Creek Road	Existing	4.13	Moderate
	Proposed	3.89	Moderate
	Change in Visual Quality		-0.24
Viewpoint 7 Looking East at Rick's Roadside Café	Existing	2.09	Low
	Proposed	2.09	Low
	Change in Visual Quality		0.00
Viewpoint 8 Looking South from Residence	Existing	5.58	High
	Proposed	5.31	Moderately High
	Change in Visual Quality		-0.27
Viewpoint 9 Looking North from Residence	Existing	5.17	Moderately High
	Proposed	3.60	Moderate
	Change in Visual Quality		-1.57
Viewpoint 10 Looking West at Sheep Creek Bridge	Existing	4.26	Moderate
	Proposed	3.72	Moderate
	Change in Visual Quality		-0.54

Source: Visual Impact Assessment, June 2009

Six of the simulation ratings show changes of less than 0.50 over existing conditions. These reductions in visual quality are not considered considerable and include the ratings for viewpoints 1,3,5,6,7, and 8.

Minor changes in visual quality are expected from viewpoint 2 and viewpoint 10, resulting in decrease in visual quality ranging from 0.50 to 1.0.

Major changes in views are expected at 2 viewpoints, as determined by changes in visual quality ratings of more than 1.0. At viewpoint 4, the visual quality changes from Moderately High to Moderately Low. At viewpoint 9, the visual quality changes from Moderately High to Moderate.

The changes in visual quality at viewpoints along the Phase 2 segment of the project are provided in Table 2-21 below.

Table 2-21. Changes in Visual Quality of Viewpoints at Phase 2 Segment

Viewpoint		$\frac{(V+I+U)}{3}$	Visual Quality
Viewpoint 11 Looking East at Roadway Depressions	Existing	5.42	Moderately High
	Proposed	3.98	Moderate
	Change in Visual Quality		-1.44
Viewpoint 12 Looking Southwest at California Aqueduct	Existing	3.90	Moderate
	Proposed	3.63	Moderate
	Change in Visual Quality		-0.28

Source: Visual Impact Assessment, June 2009

No considerable change is expected at viewpoint 12, with the visual quality remaining at Moderate, as determined by the difference in the visual quality ratings between existing and simulated conditions of less than 0.5.

A major change in visual quality is expected at viewpoint 11, as determined by a difference in ratings of more than 1.0 and a decrease in visual quality from Moderately High to Moderate.

Context Sensitive Solutions (CSS) is a Caltrans policy that requires early consideration of the total context within which a transportation improvement project is proposed. This consideration includes protection of the environment and preservation of scenic, aesthetic, cultural, and environmental resources, while maintaining or improving traffic safety and mobility. Minimization, avoidance and mitigation measures have been developed to reduce or avoid impacts that detract from the visual quality of the project area and protect existing visual resources. The measures are focused on viewpoints that are expected to have minor to major reductions in visual quality.

Implementation of these measures would reduce changes in visual quality along the SR 138 project segment, as well as at key viewpoints, by increasing visual quality of the simulated conditions and resulting in smaller difference in visual quality ratings between existing and simulated conditions. Specifically, viewpoints that are expected to experience minor changes in visual quality would have no changes, and viewpoints that are expected to experience major

changes in visual quality would have only minor changes in visual quality after the implementation of the these measures.

To maintain the SR 138's designation as an eligible State Scenic Highway, it will be necessary to review land use and site planning of proposed developments; control outdoor advertising; control earth-moving and landscaping along the highway; and review the design and appearance of proposed structures and equipment (i.e., utility structures, microwave receptors, wireless communication towers, etc.) along the highway. While most of these efforts will be under the purview of the counties of San Bernardino and Los Angeles as the local governing bodies, the Department will have to consider scenic resources during earth-moving and landscaping activities along the highway and the design and appearance of structures and equipment that are proposed as part of the SR 138 Widening Project. The Department would also work with appropriate agencies to ensure the protection of scenic corridors to the maximum extent feasible as part of its project planning, project development, and maintenance operations.

Avoidance, Minimization, and/or Mitigation Measures

Phase 1 Measures

The following measures shall be implemented during Phase 1 of the proposed project:

- Land-1. Project construction shall retain the maximum amount of existing vegetation by minimizing the amount of clearing and earthwork. During construction, Environmentally Sensitive Area (ESA) fencing shall be provided around trees and vegetation to be preserved and around the transmission line steel tower.
- Land-2. The restoration of vegetation shall include replanting of native vegetation on disturbed sites (including staging areas, borrow pits, and other areas of surface disturbance) and preventing soil loss and erosion on shoulders and slopes. Plant materials used for restoration and landscaping shall be indigenous to the area. Hydroseeding and seedling planting shall occur in the early fall, just prior to the rainy season.
- Land-3. The retaining wall proposed around the transmission line steel tower should be treated to break up the expanse of the concrete wall plane and show a more natural cut rock surface, reflective of the surrounding area. This may be achieved using Formliner to add a surface texture to the wall or use of mechanically stabilized earth (MSE) modular concrete block facing unit wall with a buff color.
- Land-4. A vista point shall be developed at the intersection of SR 138 and Lone Pine Canyon Road, to provide a rest stop or turnout where travelers and visitors may get a closer and longer look at the Mormon Rocks near the highway.
- Land-5. After cutting of rock outcroppings along the highway, the rock faces shall be provided with a similar surface as the Mormon Rocks formation, as possible. This will include over excavation to create vertical ridges, provision of a relatively smooth finish on the rock surface with shallow horizontal groves, and rock rounding to eliminate hard edges.

- Land-6. Slopes shall be designed at lower grades to reflect the natural terrain. Disturbed or manufactured slopes shall be landscaped with native vegetation to reflect vegetation in the surrounding area and to mask the hard lines created by engineered cuts and embankments.
- Land-7. The bridge structures, signs and other highway appurtenances to be replaced shall be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance their compatibility with the rural community and mountain or desert landscape. Specifically, call box signs to be relocated shall consist of brown signs and green call boxes to reflect the natural landscape.
- Land-8. Where existing developments abut the highway, the highway pavement shall be blocked by planting trees and shrubs between the setback areas (front yards, parking areas, etc.) and the highway to reduce permanent views of the highway pavement.
- Land-9. Joshua trees that would be removed shall be replanted away from the proposed pavement areas within the existing right-of-way. If on-site relocation is not feasible, Caltrans shall contact the San Bernardino County Building and Safety Office for a list of residents willing to adopt and care for the relocated trees. Transplantation standards shall follow best nursery practices.

Phase 2 Measures

The following measures shall be implemented during Phase 2 of the proposed project:

- Land-10. Project construction shall retain the maximum amount of existing vegetation by minimizing the amount of clearing and earthwork. During construction, Environmentally Sensitive Area (ESA) fencing shall be provided around trees and vegetation to be preserved.
- Land-11. While the simulations show that vegetation is not replaced in areas where ground disturbance will occur, revegetation is expected to be provided. The restoration of desert scrub vegetation shall include replanting of native vegetation and Joshua trees on disturbed sites (including staging areas, borrow pits, and other areas of surface disturbance) and preventing soil loss and erosion on shoulders and slopes. Plant materials used for restoration and landscaping shall be indigenous to the area. Hydroseeding and seedling planting shall occur in the early fall, just prior to the rainy season.
- Land-12. Joshua trees that would be removed shall be replanted away from the proposed pavement areas. If on-site relocation is not feasible, Caltrans shall contact the San Bernardino County Building and Safety Office for a list of residents willing to adopt and care for the relocated trees. Transplantation standards shall follow best nursery practices.
- Land-13. The bridge structures, signs and other highway appurtenances shall be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance their compatibility with the rural community and desert landscape. Specifically, call box signs to be relocated shall consist of brown signs and green call boxes to reflect the natural landscape.

Cumulative Impacts

The Visual/Aesthetics resource study area was discussed in the affected environment and environmental consequence sections. This project will have a range of impacts from no impacts to potential minor visual impacts on the environment. The proposed project would not contribute to any visual impacts to the major vistas within the area. No cumulative visual impacts will occur, as there are no other projects planned in the project area.

2.1.9 Cultural Resources

Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Appendix B for specific information regarding Section 4(f).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

Affected Environment

A Historic Property Survey Report (HPSR) was prepared for the proposed project on May 2009. The Area of Potential Effects (APE) was established as the direct project footprint, including cut and fill limits and all proposed construction and construction related activities. The APE limit generally corresponds to either the proposed or existing right-of-way limits, and where necessary, was expanded to include additional parcels to account for potential indirect effects on properties. The vertical APE varies between two and fifteen feet from the existing grade. In terms of depth, the vertical APE is generally limited to the existing highway cut, fill and embankments varying between 2-4 feet in depth from existing grade. In terms of height,

the limits are the highway profile, which will be raised in certain locations along the Los Angeles county section of the project between 5-15 feet. Where bridge widening will occur, the vertical APE is limited to the existing bridge and road structures throughout the project and does not include the structures they span.

According to the HPSR, the Department conducted record searches at the South Central Coast Information Center, Institute of Archaeology at the University of California, Los Angeles and the Archaeological Information Center, San Bernardino County Museum, Redlands, CA variously on September 4, 1996, June 11, 1999, June 13, 2007 and September 12, 2008. The record search resulted in the identification of 12 previously recorded cultural resources within the APE. Nine of these properties were ultimately determined to be non-extant or outside the APE, two were previously determined ineligible, and one, the LADWP- Boulder Dam Transmission Line (CA-SBR-7694H), was determined to be a Historic Property and is eligible for listing on the NRHP. During the course of cultural resources surveys for the project, three additional properties were identified and evaluated as ineligible. Seven bridges were found to be located within the APE, all of which were determined ineligible (Category 5) according to the Department's Historic Bridge Inventory Update (2006). All other cultural resources within the APE were exempt from evaluation in accordance with the Department/ SHPO/ FHWA/ ACHP Section 106 Programmatic Agreement Attachment 4.

Therefore, the only identified Historic Property in the APE is CA-SBR-7694H, the LADWP Boulder Dam - Los Angeles 287.5 kV Transmission Line. It was determined eligible for the NRHP on February 16, 1994 under Criteria A and C. This linear resource passes over the SR 138 alignment at approximately PM 14.5. Two transmission line towers are located adjacent to the SR 138 alignment.

California Historical Landmark (NO.577) Mormon Trail Monument is located within the project APE at PM 10.7. The marker was not identified on any of the record searches conducted for the project, and commemorates a resource that is not extant in the project vicinity. The marker was exempted under the Section 106 PA Attachment 4 (architectural property type 1). The marker is located outside the construction limit for the project on private property that will be acquired for the project.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Department's Environmental Support / Cultural Studies Branch, District 8 Native American Heritage Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Environmental Consequences

No-Build Alternative. No modifications to existing structures or the land would occur under the No-Build alternative. Therefore, no effect on historical or archeological cultural resources would result.

Build Alternative. The LADWP Boulder Dam - Los Angeles 287.5 kV Transmission Line site (CA-SBR-7694H) is the only identified Historic Property within the APE. The Transmission Line crosses SR 138 diagonally at approximately PM 14.5. At this location, there is one transmission tower located approximately 30 feet up the hillside on the south side of the highway, and another tower located approximately 30 feet down the roadway slope on the north side of the highway. At both tower locations a retaining wall will be constructed as part of the project on the roadway side of the tower in order to avoid all physical impacts to the transmission line towers. The retaining walls will be approximately 8 feet high and 240 feet long. An Environmentally Sensitive Area (ESA) will be located around the base of both towers to ensure that no adverse effects will occur during construction of the wall and the project. Since the towers will be avoided and protected in place, a determination of a Finding of No Adverse Effect with Standard Conditions- ESAs was made for the project. A letter was sent on May 7th, 2009 to the State Historic Preservation Officer (SHPO) to obtain concurrence on the Department's finding. SHPO received the letter on May 12th, 2009 per the correspondence log and was entered in the Office of Historic Preservation (OHP) database. The 30 days review period ended on June 11, 2009, consequently the Department proceeded forward with the undertaking per stipulation X1a-b of the Section 106 Programmatic Agreement executed January 1, 2004. Copies of correspondence with SHPO are included in Chapter 3.

The California Historical Landmark (NO.577) Mormon Trail Monument located within the project APE was not identified on any of the record searches conducted for the project, and commemorates a resource that is not extant in the project vicinity. Therefore, it was exempt under the Section 106 PA Attachment 4 (architectural property type 1). The marker will be within the proposed right-of-way acquired for the project, but will not be affected by the project. The Department will be responsible for the marker's upkeep under PRC 5023(a).

Section 4(f) findings: The project does not use any historic properties based on the following definition: Use of a Section 4(f) property occurs: (1) when land is permanently incorporated into a transportation facility; or (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) when there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired). The potential for indirect effect due to the proximity of the historic property to the project is minimal because the surrounding area has already been substantially altered through previous transportation projects and recent improvements to the railroad lines that pass through the area. The portion of the transmission line within the APE has suffered a loss of integrity of setting, and the construction of the proposed project will not potentially affect the setting of the property. (See Appendix B for additional information on Section 4(f) findings.)

Avoidance, Minimization, and/or Mitigation Measures

Measures to avoid and minimize harm to historic properties include the following:

Cult-1. Prior to any construction or construction related activity, the ESA will be delineated in the field by the placement of temporary fencing. An approved archaeological

(architectural historian) Monitor shall monitor installation of fencing and all construction related activities.

Cult-2. Contractor shall remove the temporary fencing and construction equipment/material at the conclusion of construction under the supervision of the approved monitors.

Cult-3. If buried cultural materials are encountered during construction, work in the area would halt until a Department archaeologist can evaluate the nature and significance of the find. A Native American Monitor shall be present during all ground disturbing activities to prevent any impact to any unknown cultural resources.

Cult-4. If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code 5097.98.

Cult-5. The Department shall be responsible for the upkeep of the California Historical Landmark (NO.577) "Mormon Trail Monument".

Cumulative Impacts

A Finding of No Adverse Effect was made for this project. Therefore, there would be no contribution of cumulative impacts to historic and/or cultural resources associated with the implementation of the proposed project.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Affected Environment

Information for this section is based on two Hydrology Analysis Reports prepared for this project in December 2002. One report was prepared to analyze the watersheds adjacent to SR 138 in Los Angeles County from SR 18 to the San Bernardino County line. The second report was conducted to analyze the watersheds tributary to the existing cross culvert locations along SR 138 between Los Angeles County Line and just west of I-15. The purpose of the studies is to assess the hydraulic adequacy of the existing culverts and the design of the culvert upgrades or replacements. In addition, Location Hydraulic Studies (LHS) and Summary Floodplain Encroachment Reports were prepared for the project area in November 2009.

SR 138 is a rural highway located within both the desert and mountain areas of San Bernardino County at the southwestern section of the County and within the high desert area of Los Angeles County, with a semi-arid to arid climate. It is characterized by extreme variation in daily temperature and has an average annual precipitation of less than 12.7 cm, mostly from rain and some snow. Almost all the precipitation arrives in winter. Freezing temperatures occur in winter, while summers are hot, dry, and windy.

In general, the topography for the project area descends gradually from the south and southwest to the north/northeast, from the San Gabriel Mountains (approximate elevation 7000ft) to the Victor Valley (approximate elevation 3000ft) and Cajon Canyon. The mountains and Lone Pine Ridge impede drainage of north-flowing San Gabriel Mountain streams, directing the drainage along Lone Pine Canyon. At several isolated locations, such as Sheep Creek and Mescal Creek, the composite ridge is breached and the streams flow north onto the Mojave Desert.

A number of creeks and drainage channels cross SR 138 as culverts, with bridge structures, and sheet flow over the pavement. The major creeks are Cajon Creek near the eastern end and Sheep Creek near the western end of the project. Both creeks are generally dry, except during heavy rainfall. The drainage channels that cross the highway include several dry washes, such as Mescal Creek, Le Montaine Creek, San Canyon Creek, and Wildhorse Canyon Creek. In the western project segment, the natural drainage courses descend from the south toward the highway. They flow over the roadway at dips in the profile grades. Throughout the San Bernardino segment of the project, there are numerous small culverts where small, unnamed drainage courses cross the highway. Almost all of the major watercourses flow within culverts not originally designed to pass the 100-year storm. Only a fraction of the base flood of each of these watercourses flow through the various culverts with the remainder of the flows overtopping the highway.

There are no FEMA defined flood plains within the project limits with the exception of a study shown on FIRM Panel 060270 6450 H of the existing Sheep Creek watercourse (approximate post mile 11.9). The upper terminus of this Flood Zone is the existing bridge. Water upstream of the bridge flows in a concrete trapezoidal channel, and discharges into the natural watercourse (Zone A0) covered by the existing FEMA study. None of the other crossings are associated with FEMA or other flood plain studies, and it is not likely that these crossings will be a subject of studying for the following reasons:

- None of these watercourses represent a threat to buildings, structures, or other properties, both because the land within a far-off distance (50-100 feet or more) of the watercourse has not been developed, nor is there a reason to believe development could

occur in the future because it is located within an area designated as open space and rural living.

- The watercourses are alluvial in nature; the locations of these channels can be expected to change periodically, typically following a major storm. This is one reason it can be expected that no development will take place in the immediate vicinities of these watercourses.
- The relatively steep grades of these watercourses, even with a hypothetical three-foot ponding above the road (far more than what would be anticipated, even for a 100-year storm) would result in upstream backup of only a few hundred feet.

Environmental Consequences

No-Build Alternative. There will be no change to the hydrology or floodplains under this alternative.

Build Alternative. The build alternative proposes the widening of the highway at its existing location. Along the western project segment in Los Angeles County, the roadway profile will be raised to eliminate existing dips and to accommodate a new drainage system consisting of culverts and ditches that will convey storm water flows from one side of the highway to the other. According to the Storm Water Data Report, a minimal increase in the amount of wet weather flows (runoff) would be experienced from this project. The project would result in a slight increase in concrete surfaces that does not allow absorption into the ground.

The proposed project would not alter the course of any river or stream. This project does not involve the construction of facilities within a 100-year flood hazard area and is therefore assigned a “Low Risk” Determination. Floodplain impacts are not expected to occur as a result of the implementation of this project.

Avoidance, Minimization, and/or Mitigation Measures

Floodplain impacts are not expected to occur as a result of this project. No avoidance, minimization, and mitigation measures are required.

2.2.2 Water Quality and Stormwater Runoff

Regulatory Settings

Section 401 of the Clean Water Act requires water quality certification from the State Water Resource Control Board (SWRCB) or a Regional Water Quality Control Board (RWQCB) when the project requires a Federal permit. Typically this means a Clean Water Act Section 404 permit to discharge dredge or fill into a water of the United States, or a permit from the Coast Guard to construct a bridge or causeway over a navigable water of the United States under the Rivers and Harbors Act.

Along with Clean Water Act Section 401, Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and the nine RWQCBs. To ensure compliance with Section 402, the SWRCB has developed and issued the Department an NPDES Statewide Storm Water Permit to regulate storm water and non-storm water discharges from Department’ right-of-way, properties and facilities. This same permit also allows storm water and non-

storm water discharges into waters of the State pursuant to the Porter-Cologne Water Quality Act.

Storm water discharges from the Department's construction activities disturbing one acre or more of soil are permitted under the Department's Statewide Storm Water NPDES permit. These discharges must also comply with the substantive provisions of the SWRCB's Statewide General Construction Permit. Non-Departmental construction projects (encroachments) are permitted and regulated by the SWRCB's Statewide General Construction Permit. All construction projects exceeding one acre or more of disturbed soil require a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. The SWPPP, which identifies construction activities that may cause discharges of pollutants or waste into waters of the United States or waters of the State, as well as measures to control these pollutants, is prepared by the construction contractor and is subject to Department review and approval.

Finally, the SWRCB and the RWQCBs have jurisdiction to enforce the Porter-Cologne Act to protect groundwater quality. Groundwater is not regulated by Federal law, but is regulated under the state's Porter-Cologne Act. Some projects may involve placement or replacement of on-site treatment systems (OWTS) such as leach fields or septic systems or propose implementation of infiltration or detention treatment systems, which may pose a threat to groundwater quality. Currently the OWTS program is without SWRCB regulation but you should be aware of threats to groundwater quality on the project site and evaluate and address accordingly in the environmental document. Design standards for installation and operation of infiltration and detention treatment systems should protect groundwater quality and those protections should also be addressed in the environmental document.

Affected Environment

The information in this section is based on a Storm Water Data Report - Long Form that was prepared and approved for this project on August 18, 2009. Project design considerations as it related to storm water analysis included evaluating climate, soil, topography, geology, groundwater, right-of-way requirements, slope stabilization, among other factors. The project area has a semi-arid climate with warm, dry summers and cool winters. Annual precipitation is approximately 12 inches, with most rainfall occurring between the months of October and April. According to the United States Department of Agriculture Natural Resources Conservation Service, the project site is primarily underlain by Greenfield Series sandy loam, which is well-drained soil, with slow runoff and the slight potential for erosion. Subsurface materials generally consist of artificial fills underlain by older alluvium. Materials include silt sand and sand layers with occasional gravel. At shallow depths, these materials are loose but tend to be denser for deeper materials. Bedrock is at depths greater than 50-ft. According to the San Bernardino County Hydrology Manual, NRCS Soil Type Sandy Loam, HSG Classification A and B, is identified throughout the project limits. Consequently, the pre-construction infiltration rates are assumed to be 0.25 to 1.0 in/hr per Table B-3 of the Project Planning and Design Guide - Storm Water Quality Handbooks (PPDG).

The topography of the project site reveals a gentle gradient and is relatively flat. Slope stabilization is not a concern. Surface drainage is achieved primarily by surface sheet flow. Offsite (upslope) flows are collected in existing storm water conveyance systems do not flow

onto the project site. There are no dry weather flows present in the area of the project. Groundwater in the area is approximately 20 ft below the ground surface.

The project is within the jurisdictions of Lahontan and Santa Ana Regional Water Quality Control Boards (RWQCB). The South Lahontan district includes the following Hydrologic Units in Los Angeles (LA) and San Bernardino (SBD) Counties:

- Antelope Hydrologic Unit; Rock Creek Hydrologic Area; undefined (626.80) Hydrologic Sub-Area located between LA PM 69.3/74.9 and SBD PM 0.0/1.0. Annual rainfall is 9.0 in, with no defined rainy season at levels below 4,000ft. The California Aqueduct Bridge crosses SR 138 at LA PM R70.28. Receiving waters include the following: Mescal Creek, Jesus Canyon (Creek), Puzzle Canyon (Creek), Mountain Creek, and other unnamed dry washes all draining to the north of the project toward but not into the California Aqueduct (Not a receiving water).
- Mohave Hydrologic Unit; El Mirage Hydrologic Area; undefined (628.10) Hydrologic Sub-Area located between SBD PM 1.0/5.0. Annual rainfall is 11.0in, with one rainy season at levels higher than 4,000ft. Receiving water include Sheep Creek (Br# 54-810, PM 3.62) flows 5.0 miles north toward but not into the California Aqueduct, Horse Canyon (PM 5.72) flows 3.9 miles north toward the California Aqueduct, and other dry washes cross and drain to the north of the project.
- Mohave Hydrologic Unit; Upper Mojave Hydrologic Area; undefined (628.20) Hydrologic Sub-Area located between SBD PM 6.0/7.04. Annual Rainfall is 14.0in, with one rainy season at levels higher than 4,000ft. Receiving waters include an unnamed dry wash.

The Santa Ana district includes the following Hydrologic Unit:

- Santa Ana River Hydrologic Unit; Upper Santa Ana River Hydrologic Area; Cajon (801.51) Hydrologic Sub-Area located between SBD PM 7.04/R15.2. Annual Rainfall is 18.0in, with one rainy season from October 1st through May 1st. Receiving waters include Cajon Canyon, Cajon Wash, and other unnamed tributaries that flow south 14.7 miles to meet Lytle Creek and then flows a total 21.5 miles from the project to the Santa Ana River. The Santa Ana River ultimately becomes a concrete lined channel with urban Multiple Separate Storm, and Sewer System (MS4).

Environmental Consequences

No Build Alternative. Under the No-Build Alternative, there will not be a change of conditions that affect water quality.

Build Alternative. The proposed project scope includes widening of the existing SR 138 to four lanes with 4 ft median buffer and upgrade shoulders to 8 ft shoulders. Pre-construction impervious area is 110 acres, and post construction impervious area is 175 acres. The increase of the impervious area by 65 acres can result in an increase of the volume or velocity of down stream flow. In addition the project may increase potential sediment load of downstream flow.

New cross drains will be created, and existing drains will be modified to move stormwater from one side of the highway to the other. Features will be incorporated into the project's drainage system to reduce downstream effects, such as energy dissipation devices at culvert outlets, and smooth transitions between headwalls, wingwalls, and outlets.

Existing slopes are stable and consist of vegetated surfaces. In order to maintain slope stability, cut and fill slopes will be at 1:4 where feasible. Also, appropriate landscape and vegetated surfaces will be incorporated during design stage. Permanent erosion control on all disturbed surfaces and bare soils will be applied.

It is not anticipated that the project with the proposed design features will substantially change hydrologic conditions or substantially increase storm water runoff. There will not be any hydraulic effects to downstream flow as the project will not encroach, realign, or cause other hydraulic changes to a stream.

The Departments-District 8 Stormwater Management Work Plan for the Fiscal Year 2009 – 2010 identifies this project as not being adjacent to a receiving waters, a drinking water reservoir or recharge facility. There are no 303 (d) listed water bodies in the project area, including Total Maximum Daily Loads (TMDLs) or effluent limits. There are no RWQCB special requirements or concern. However, Bio-filtration Swales/Strips will be incorporated into the project. All bio-swales will meet the minimum hydraulic residence time of 5.0 minutes. Swales water depth will be as shallow as the site will permit and ranges from 8 inches to 12 inches. The vegetation-lined swales will follow proposed slopes, requiring minimal excavation. All swales will be trapezoid-shaped in sections, with an invert width of 4 to 6 feet. With implementation of permanent Best Management Practices (BMPs), it is not anticipated that the project will violate water quality standards or waste discharge requirements.

The proposed project will require a 401 Water Quality Certification from RWQCB at the project's Design and Specifications stage.

Construction Impacts.

Due to the scope of work, 111 acres of disturbed soil area (DSA) would be created. A Storm Water Pollution Prevention Plan (SWPPP) will be required for this project to prevent impacts to water quality during construction.

Avoidance, Minimization, and/or Mitigation Measures

The following measures will be developed in order to insure that the proposed project has no impact to existing and future water quality.

- SW-1. Existing vegetation will be preserved in place when possible.
- SW-2. Fiber rolls will be placed along the contours of the new slopes at appropriate intervals.
- SW-3. Bio-swales will be constructed. When possible, they will be constructed early in the construction stages to also function as a construction BMP.
- SW-4. Rock slope protection will be constructed as part of the project. It will be put in place as soon as possible during construction to prevent scour of upstream facilities.
- SW-5. Construction entrance and exit will be protected to prevent tracking soil onto adjoining roadways. Temporary Potable Concrete washout devices will be implemented to contain concrete waste.
- SW-6. The contractor will develop a separate SWPPP that will detail all construction storm water pollution protection measures that will be used on the project. The SWPPP will be consistent with the Department's State Water Resources Control Board permit. This

plan would incorporate the resource agency approved methodology as well as all other appropriate techniques for reducing impacts to water quality.

Cumulative Impacts

It is anticipated that the project would have a minimum impacts to stormwater and water quality. The cumulative impacts of water quality of this project, when it is included with any other projects in the area, are not expected to be significant with proper BMP's and measures to minimize harm.

2.2.3 Geology/Soils/Seismic/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Affected Environment

A Geotechnical Design Report (GDR) was prepared for project EA 4607U in September 2002. In April 2009 the Department's Office of Geotechnical Design amended this GDR, and found that the previously prepared GDR as amended is valid for this project. According to the report, the area of the project consists of three studied segments. Segment 1 extends southeasterly from the Los Angeles/San Bernardino County Line (PM0.0) to Deer Haven Road (PM 4.6) in the community of Phelan. Segment 2 extends from a point approximately two miles east of SR 2 (PM 8.6) to I-15 (PM 15.2). Segment 3 extends between Pearblossom Highway from SR 18 (PM 69.3) in Los Angeles County, and the Los Angeles/San Bernardino County line (PM 75.0). This report addresses the three segments and the gap between segment 1 and 2 that was addressed also previously in Geotechnical Investigation prepared for now completed Truck Climbing Lane project, EA 4697V, in June 2001.

The proposed project site lies at the boundary between two geomorphic provinces, the Great Basin/Mojave Block province and the Transverse Range province. The border between these provinces is in close proximity to the San Andreas Fault, the boundary between the Pacific and North American continental plates. This boundary is strike-slip and has resulted in considerable seismic activity in the past, and should be expected to continue do so in the future. San Andreas fault is approximately 1.6 miles from SR 138. The closest fault to the project site is the Cleghorn-North Frontal fault, a reverse-thrust fault thought capable of generating a Magnitude 7.75 event. The fault is 1.2 miles from the alignment of the route. It is considered unlikely that surface rupture will cause major horizontal and vertical surface displacement at the site.

The upper part of the project, north of the San Bernardino Mountains, lies within the Great Basin/Mojave Bloc province, which is characterized by isolated mountain ranges separated by expanses of desert plains. There are two topographic trends within the province, a northwest-southwest trend controlled by the San Andreas Fault along the southwestern border of the province, and a secondary east-west trend controlled by the Garlock Fault, which is the northern boundary of the province. The southern section of the site lies within the Transverse Range geomorphic province, a complex series of east-west trending mountain ranges and valleys.

Segment 1 and 3 lie within the Upper Mojave River Valley Basin. The geologic formations through which these segments pass consist of silty, gravelly sand with cobble alluvial deposit. Segment 2 passes across the southern edge of the Cajon Basin west of Cajon Pass, southwesterly and roughly parallel to the flow line of Cajon Canyon, which is also located just beyond the base of Lone Pine Ridge to the southwest. Lone Pine Ridge, underlain by Mesozoic plutonic rock and pre-Mesozoic gneiss and marble, separates Cajon Canyon from Lone Pine Canyon on the southwest. As it traverses the floor of Cajon Canyon, Segment 2 is primarily founded on alluvium. However, the northwest end of this segment (PM 8.64 to 8.76) has been cut into the flank of a northwest trending ridge consisting of Crowder Formation Sandstone. This formation is light tan to gray, fine to coarse, highly weathered, friable sandstone with frequent cobbles. Distinct geologic structure was not discerned in this rock where exposed on the surface of the road cut. However, the geologic map depicts bedding as dipping down to the northeast at 20 degrees from the horizontal. At that angle, the bedding is unsupported in the present cut slope, and would be unsupported should the cut be widened at a slope steeper than 20 degrees.

The second location of formational rock along Segment 2 occurs at PM 13.3 to 13.46 where the highway threads between outcrops known as the Mormon Rocks. The Mormon Rocks are comprised of Punchbowl Formation of sandstone and conglomerate, very hard unfractured, gravelly, coarse sandstone with laterally discontinuous cobble lenses that dip to the northeast at 40 to 60 degrees.

For conformation of the soils to be encountered along the project alignment, soil descriptions listed in the Log of Test Boring for the five bridges on the existing alignment was compared with the material types depicted by the geological mapping. The boring results were similar to mapping results. The borings encountered alluvial deposits of interbedded layers of lightly compact to very dense silty sand, sand, gravelly sand, and sandy gravel with scattered cobbles. Based on this analysis it is expected that sandy gravel with scattered cobbles and boulders will be encountered to depths of at least 2 m to 3 m below ground surface.

Other than soil (alluvial) deposits that might be processed to generate sand, there are no known mineral resources identified within the project limits.

Several wells are located near the project area, however, it is not anticipated that groundwater will be encountered during earthwork operations. Groundwater levels fluctuate by season and might be expected to be higher near the mouth of Cajon Canyon. No geothermal activity was identified within the project limits.

Environmental Consequences

No-Build Alternative. There will be no change to the conditions affecting Geology, Soils, Seismic, or Topography under the no-build alternative.

Build Alternative. The project is located in a seismically active area. The activity level is considered to be normal for the Southern California Region. Ground shaking is expected to occur at the site considering the predicted magnitude and peak ground accelerations of earthquakes along nearby faults. Ground shaking could cause densification of loose soil layers and consequently some distress to the roadway structure. However, this nearly at grade highway with flexible pavement is less susceptible to the effects of earthquake induced ground shaking. Surface fault rupture is not anticipated to affect the roadway

Liquefaction exists when fine silts and sands are located below the water table. Based on review of the foundation studies for several of the structures for this project, it was concluded that the relative liquefaction susceptibility along the project is considered to be very low to low. The potential for liquefaction is not anticipated based on ground water depth and generally dense nature of the subsurface granular soils.

Due to deep groundwater level, granular foundation soils, and the low to moderate embankment heights, it is not anticipated that embankment settlement from foundation compression will be a concern for the project.

The proposed cut and fill slopes are of moderate heights. Cut slopes will be graded at 1:2 or flatter. Fill slopes will be graded at 1:4 or flatter and constructed of or in granular materials. These slopes are expected to be stable against deep-seated failure. The existing cut slope at PM 8.64 to PM 8.71 is currently stable, and it is also anticipated to remain stable if flattened to a grade of 1:2 or flatter. The proposed cut in the Mormon Rocks will not be subject to excessive erosion due to the hardness of the rock. These outcrops stand naturally at a steep slope with very little vegetation, nevertheless, with a high resistance of erosion. However, if the top of the future widened cut does not extend to the top of the southwesterly adjacent ridge, then provisions to prevent runoff from the superjacent natural slope from flowing over the cut face should be provided.

The proposed project would not involve any work that increases or decreases landslide potential. Excavations for the project construction can be accomplished by conventional techniques, except for cuts in the Mormon Rocks where blasting will likely be required.

The project will not result in adverse geological or mineral resource impacts.

Avoidance, Minimization, and/or Mitigation Measures

In order to avoid and minimize any effect the project may have, the following measures will be required:

- Soil-1. Install brow ditch, erosion mats at the entire slope face, or install asphalt concrete dikes at the top of embankments, as recommended by District Landscape Architects for the various slopes.
- Soil-2. At the Mormon Rocks cut location, a 4.5 m wide catchment area should be graded between the toe of the cut and the edge of the traveled way. The catchments area should be graded uniformly from the edge of shoulder to the toe of cut, and the toe of the cut slope should be 0.5 m below the edge of traveled way.

Soil-3. Construction of the proposed bridge improvements and/or structures replacement may require additional subsurface exploration during the design stage that would permit assessment of seismic effects such as liquefaction. All improvements would be designed to resist the maximum credible earthquake without collapse, structural damage or traffic obstruction.

Soil-4. Blasting shall conform to standard specifications and control measures so it will not cause damage to nearby buildings and bridges, including any highway fixtures. It shall also be controlled so it will not cause undue annoyance to the nearby residents or danger to the employees on the project. Traffic controls shall be coordinated with the District's Traffic Management Unit to ensure safety and reduce construction impacts on traffic.

Cumulative Impacts

Seismic hazards are experienced throughout Southern California, including the project area. The project would not increase or decrease these hazards, nor would it introduce additional population into an area where these hazards exist. Thus, the project would not contribute to cumulative geology or soils impacts.

2.2.4 Paleontology

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1935 [20 USC 78]). Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Code of Regulations, Title 14, Division 3, Chapter 1, Sections 4307 and 4309, and Public Resources Code Section 5097.5.

Affected Environment

To evaluate the Paleontological resources, Paleontological Identification and Evaluation Report, and Paleontological Mitigation Plan were prepared for this project on November 2009. Generally, scientifically major paleontological resources are identified sites or geologic deposits containing individual fossils or assemblages of fossils that are unique or unusual, diagnostically or stratigraphically important, and add to the existing body of knowledge on fossil animals, distribution, evolution or other scientifically important information. Existing fossil localities within the Project Study Area (PSA) have produced major vertebrate paleontological resources. On this basis, the Cajon Valley Formation, the Phelan Peak Deposits, the Harold Formation, and Shoemaker Gravels have a high sensitivity or potential to produce significant fossils. These rock units are all at the Cajon end of the project. The portion of the project in Los Angeles County does not have sensitive sediments.

Environmental Consequences

No-Build Alternative. There will not be any impacts to the paleontological resources under the no-build alternative.

Build Alternative. While there are areas of high potential for producing significant fossils in the project area, the location and even the presence of the paleontological resources is unknown. For this reason avoidance of paleontological resources is not practical. Excavation may reveal fossils that are beneficial for educational and scientific purposes and long-term preservation.

Avoidance, Minimization, and/or Mitigation Measures

This Paleontological Mitigation Plan (PMP) for the SR 138 Project was developed to meet the requirements of the Department's guidance, along with state and federal regulations. Implementation of the PMP will guide and facilitate the identification and treatment of paleontological resources located during the project in an effort to reduce potential adverse effects during ground disturbing activities. The minimization measures in the PMP include the following:

- Paleo-1. **Monitoring:** A qualified principal paleontologist that meets the qualifications of the Department will be assigned to the project. The principal investigator will be responsible to implement the mitigation plan and maintain professional standards of work, including monitoring, reporting, and recovering of resources. The principal investigator will designate the project team to include a qualified field supervisor and qualified monitors.
- Paleo-2. **Construction Phase:** The Contractor shall provide the Resident Engineer with a schedule of ground-disturbing activities to be conducted within the project limits in writing at least 15 working days prior to construction and update the schedules as needed. The Resident Engineer will make arrangements for the Paleontological Monitoring Team to be at the work sites in accordance with these requirements. Qualified monitors will perform full-time monitoring of construction grading and excavation in the sensitive formations outline above. Personnel must be on call to respond to unanticipated discoveries in other portions of the project area.
- Paleo-3. **Communication:** Monitors will act to protect potentially significant paleontological resources (including direct notification to construction personnel on site to redirect earthmoving to permit recovery of potentially significant fossils) and by notifying the earthmoving contractor's job supervisor and the paleontological field supervisor of the find. The monitor will estimate the time required to recover the fossil as part of that notification. If work will be diverted for more than two hours or if the construction personnel are not cooperative with the monitor, the paleontological field supervisor will discuss the situation with the Resident Engineer. The Resident Engineer will make final decisions regarding formal Suspend Work orders and disputes between parties.
- Paleo-4. **Training:** All project personnel shall receive training prior to commencement of work. Paleontological Personnel will receive a copy of the paleontological resources management plan, daily forms and appropriate maps. In addition, all paleontological personnel will receive any mandated safety training and environmental awareness training before performing any field work on the project. Construction Field Personnel, including all earthmoving personnel and their supervisors, shall be required to attend presentation by the principal paleontologist on possible paleontological resources.

- Paleo-5. Discovery and Recovery: When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program will be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will then be deposited in a scientific institution with paleontological collections.
- Paleo-6. Reports: A weekly email summary will be submitted to the Resident Engineer. If fossils are recovered, additional documentation regarding lab work will also be incorporated. These records and the field notes will be used to prepare a monthly letter report. The monthly reports will summarize the monitoring activities of the previous period, discoveries made, progress of lab work. Upon conclusion of earthmoving, a Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

Cumulative Impacts

It is anticipated that the project would have a minimum impacts to paleontological resources. The cumulative impacts this project, when it is included with other projects in the area, are not expected to be major with the implementation of the paleontological resources mitigation plan to minimize harm and mitigate impacts to any discovered resources.

2.2.5 Hazardous Waste/Materials

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Affected Environment

An Initial Site Assessment (ISA) was completed for the project area on February 2009. Aerially Deposited Lead (ADL), Agricultural Pesticide, and Lead-Based Paint (LBP) and Asbestos Containing Materials (ACMs) were completed for this project in November 2009.

The purpose of the ISA is to identify recognized environmental conditions (RECs) associated with the acquisition of new right-of-way as defined by American Society for Testing and Materials (ASTM) Standard Practice E1527-05.

According to the ISA, ASTM Standard, REC is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. Research included conditions associated with power lines and associated facilities contaminants, lead based paint, aerially deposited lead, asbestos containing materials, solid waste disposal, pesticides, and radon gas.

The study area consists predominantly of clusters of improved properties within areas of open, native desert land. Improvements include mostly residences and a number of commercial businesses. The environmental footprint also contains segments of existing and active railroad tracks and a petroleum pipeline.

The ISA provides results obtained through field review, historic record research, and record review. Record review included Federal ASTM Standard, State ASTM Standard, Federal ASTM Supplemental, State or Local ASTM Supplemental, and Brown Fields Databases. The database research included lists of known or suspected contaminated sites, known handlers or generators of hazardous waste, known waste disposal facilities, and permitted underground storage tanks. Historical records were reviewed to identify potential environmental concerns based on past use of the property. These records included historical aerial photographs, topographic maps, fire insurance maps, and city directories.

For further assessment of the potential environmental conditions, a reconnaissance of the study area was performed from the public right-of-way. The reconnaissance includes conditions such as storage, disposal and treatment of solid and/or hazardous materials, storage tanks and other chemical containers, odors, pools of liquid, staining, drains, sumps, pits, ponds, lagoons, septic systems, wells, unusual soil disturbance, stressed vegetation, and electrical transformers.

The ISA identified the following RECs as likely present within the project area, with recommendation for additional assessment:

Aerially Deposited Lead (ADL). It is likely present along the roadway and highway shoulders. A survey was proposed where soils will be disturbed by construction activities.

Agriculture Pesticide. Its presence issues are identified based on a field reconnaissance of the environmental footprint and on historical research (aerial photographs and topographic maps). Several properties have supported orchards and other agricultural activities. Signs of agricultural row cropping are evident in aerial photographs at several locations along SR-138 as early as 1953 and as recently as 2008. A shallow soil samples (at 6" and 18") is to be collected concurrently with ADL survey, and analyzed for organo-chlorine pesticides.

Lead-Based Paint (LBP). Its presence is anticipated given the fact that many structures/bridges/roadways located along the proposed right-of-way are constructed pre-1978. Since bridges/roadways will require modification/demolition as part of the project, a comprehensive Lead-Based Paint Pre-Demolition Survey was required to be completed prior to the disturbance of painted surfaces to determine lead content. Any confirmed LBP materials that will be disturbed, causing the paint to flake or peel, should be removed and disposed of in accordance with applicable regulations, including Occupational Safety and Health Administration (OSHA) guidelines.

Asbestos Containing Materials (ACMs). The presence of this material is usually anticipated with all structures regardless of age. A comprehensive Asbestos Hazard Emergency Response Act (AHERA)-level Asbestos Pre-Demolition Survey will be performed prior to demolition or alteration of any structure as part of the project. Measures to minimize harm recommended in that investigation would be incorporated into the project.

In addition, the ISA identifies parcels within the study area that were considered RECs. However, the proposed construction will not impact any of the parcels. No further site investigations are required for these parcels.

A petroleum pipeline parallels and crosses a portion of SR 138. The pipeline is monitored by the owner for potential leaks (pressure drops), and none are currently known to exist in the area of the project. The active railroad tracks run roughly parallel to I-15 and intersect SR 138 approximately 0.25 miles west of I-15. However, the project does not include work within the railroad right-of-way.

Environmental Consequences

No-Build Alternative. Under the no-build alternative, the project site would not be disturbed, and no effects involving hazardous materials would occur.

Build Alternative. Detailed Site Investigation Reports (SIR) were prepared in November 2009 for Aerially Deposited Lead (ADL), Agricultural Pesticide, and Lead-Based Paint (LBP) and Asbestos Containing Materials (ACMs). Following is a summary of the findings of these reports:

Aerially Deposited Lead (ADL). The report indicates the soils in the project are considered non-hazardous with respect to lead. The soils may be used on the project site without restriction and/or may be relinquished to the contractor. A Lead Compliance Plan will be required for the handling of soils prior to beginning of construction.

Agriculture Pesticide. Several former and existing agricultural sites within the project area were tested for pesticides. Laboratory analysis indicates non-detectable concentrations of organo-chlorine pesticides. No special handling or disposal is necessary.

Lead-Based Paint (LBP). Analysis of paint samples was performed for stripes located at 5 bridges included in the widening of this project. Lead was found in yellow and white stripes material at a level that may qualify as hazardous. The location of the representative paint chip samples that exceed acceptable levels of lead and/or qualify as hazardous waste if stripped and disposed separately from the painted structural components are described below:

- Pine Lodge West, Yellow centerline traffic stripe
- Sheep Creek, Yellow centerline traffic stripe
- Cajon Creek, White traffic stripe
- California Aqueduct, Yellow centerline traffic stripe

The method of removal and disposal of the stripe will be determined during the design stage of the project.

Asbestos Containing Materials (ACMs). Materials that contain greater than one-percent asbestos was found in the rail/leveling shims of Cajon Creek Bridge, and Sheep Creek Bridge. Laboratory analysis indicates that the shim material contains between 60 to 70 percent asbestos. The material could be crushed by hand pressure, and are therefore considered a friable asbestos containing materials (ACM).

Identified asbestos containing material will be removed and disposed of by a qualified contractor prior to the demolition activities.

Avoidance, Minimization, and/or Mitigation Measures

- HW-1. Prior to demolition activities, a licensed asbestos abatement firm should be contracted to remove and dispose of ACM. This work should be completed in accordance with the South Coast Air Quality Management District (SCAQMD) guidelines.
- HW-2. Any traffic striping and/or pavement markers shall be removed and disposed of in accordance with Department's Special Provisions.
- HW-3. If hazardous wastes/materials and/or groundwater contamination is suspected during construction activities, the Department's Unknown Hazards Procedures will be implemented, the contractor shall stop work in the vicinity of the suspect find, cordon off the area and contact district construction hazardous waste coordinator, district environmental hazardous waste coordinator, maintenance hazardous spill coordinator and district Proposition 65 coordinator. Coordination with the appropriate regulatory agencies will be initiated immediately to develop an investigation plan and remediation plan for the expedited protection of public health and the environment.

Cumulative Impacts

The proposed project is consistent with state, regional and local planning for area transportation improvements. The cumulative impacts of hazardous waste of this project, when it is included with other projects in the area, are not expected to be significant with proper BMP's and measures to minimize harm.

2.2.6 Air Quality

Regulatory Setting

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. Under these laws, standards are set for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), Ozone (O₃) and particulate matter (PM), lead (Pb), and sulfur dioxide (SO₂).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels – first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and particulate matter (PM). California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as Southern California Association of Governments (SCAG) for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in “nonattainment” areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

Air Quality Report was completed for this project in July 2009. According to this report, Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The Report provides a description of the relevant characteristics of the Basin in which the project is located and offers an overview of conditions affecting pollutant ambient air concentrations in the Basin.

Most of the Basin is commonly referred to as the high desert because elevations range from approximately 2,000 to 5,000 feet above sea level. The Basin is characterized by extreme temperature fluctuations, strong seasonal winds, and clear skies. With respect to ozone, the greatest air pollution impacts throughout the Basin occur from June through September. This condition is generally attributed to the large amount of pollutant transport from within the South Coast Air Basin and San Joaquin Valley Air Basin to the Mojave Desert Air Basin.

The monitoring station located closest to the project site is the Phelan-Beekley road station (ARB Station No. 36207). The Phelan-Beekley station monitors O₃ only. The most representative climate monitoring station within the project vicinity that has accurately recorded and complete monitoring data is located in Victorville, which is the same general area as the project site. (See Figure 2-6 below for the location of both stations.) At the Victorville climate monitoring station, the average minimum and maximum January temperatures are 30 degrees and 59 degrees Fahrenheit, respectively, while the July average minimum and maximum temperatures increase to 61 degrees and 98 degrees Fahrenheit, respectively. The annual average precipitation is 5.6 inches.

Existing Air Quality Conditions: The project site is located in the western portion of the Mojave Desert Air Basin. The monitoring station located closest to the project site is the Phelan-Beekley Road station (ARB Station No. 36207), which is approximately 2.6 kilometers (1.6 miles) east of SR-138 along Phelan Road. The Phelan-Beekley Road station monitors O₃, but no other criteria pollutants. The closest monitoring station that monitors the remaining major criteria pollutants CO, NO₂, SO₂, PM₁₀, PM_{2.5}, is the Victorville–Park Avenue station (ARB Station No. 36306), which is located the nearby City of Victorville (See Figure 2-6 for the location of monitoring stations.) The existing air quality conditions in the project vicinity can be characterized by monitoring data collected at these stations. Table 2-22 presents air-monitoring data from the Phelan-Beekley Road and Victorville monitoring stations. As shown therein, both the 1-hour and 8-hour O₃ concentrations have exceeded state and federal standards during the 3-year reporting period. PM₁₀ concentrations have also exceeded state and federal standards. CO, NO₂, and PM_{2.5} concentrations remained below state and federal standards during the same 3-year reporting period.

Figure 2-6. Location of Air Quality Monitoring Stations in the Project Vicinity



Source: Department of Transportation, GIS Unit, February 2010

Table 2-22. Ambient Air Quality Monitoring Data – Phelan-Beekley Road and Victorville Monitoring Station

Pollutant Standards	2006	2007	2008
Ozone (O₃)			
Maximum 1-hour concentration (ppm)	0.137	0.119	0.130
Maximum 8-hour concentration (ppm)	0.111	0.095	0.105
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	25	18	32
NAAQS 8-hour (>0.08 ppm)	47	39	47
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.56	1.61	1.04
Number of Days Standard Exceeded			
NAAQS/CAAQS 8-hour (>9.0 ppm)	0	0	0
Nitrogen Dioxide (NO₂)			
Maximum 1-hour concentration (ppm)	0.079	0.071	0.074
Annual average concentration (ppm); CAAQS = 0.030 ppm	0.020	0.018	0.016
Number of Days Standard Exceeded^a			
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter (PM₁₀)^b			
National maximum 24-hour concentration (µg/m ³)	62.0	358.0	77.0
National second-highest 24-hour concentration (µg/m ³)	59.0	130.0	74.0
State maximum 24-hour concentration (µg/m ³)	56.0	339.0	72.0
State second-highest 24-hour concentration (µg/m ³)	53.0	126.0	69.0
National ^c annual average concentration (µg/m ³)	33.0	38.4	28.2
State ^d annual average concentration (µg/m ³)	30.5	36.0	N/A
Number of Days Standard Exceeded			
CAAQS 24-hour (>50 µg/m ³) ^e	2	4	2
NAAQS 24-hour (>150 µg/m ³) ^e	0	1	0
Particulate Matter (PM_{2.5})^b			
National maximum 24-hour concentration (µg/m ³)	22.0	28.0	13.0
National second-highest 24-hour concentration (µg/m ³)	19.0	19.0	12.0
National third-highest 24-hour concentration (µg/m ³)	19.0	18.0	12.0
National fourth-highest 24-hour concentration (µg/m ³)	18.0	17.0	11.0
National annual average concentration (µg/m ³)	10.4	9.7	N/A
State annual average concentration (µg/m ³)	10.3	9.7	N/A
Number of Days Standard Exceeded			
NAAQS 24-hour (>35 µg/m ³) ^{ef}	0	0	N/A

Sources: California Air Resources Board. CA Air Resources Board 2005, Environmental Protection Agency 2005

Notes: CAAQS = California ambient air quality standards.

NAAQS = National ambient air quality standards.

NA = Insufficient data available to determine the value.

^a Number of exceedances based on CAAQS applicable during period shown (0.25) ppm. Standard was changed to 0.18 ppm in February 2007, to be applied to 2007.

^b Measurements usually collected every 6 days.

^c National annual average based on arithmetic mean.

^d State annual average based on geometric mean.

^e Based on an estimate of how many days concentrations would have been greater than the standard.^f Number of exceedances based on NAAQS applicable during period shown (65 µg/m³). Standard was changed to 35 µg/m³ in November 2006 to be applied to 2007.

If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. The State of California has designated the western portion of the Mojave Desert Air Basin as being a nonattainment area for ozone, PM_{2.5}, and PM₁₀. The federal EPA has designated this area as being a nonattainment area (Moderate) for both ozone (8-hour standard) and PM₁₀ (See Table 2-23).

With respect to ambient Toxic Air Contaminants (TAC) pollutant concentrations, there are no MDAQMD or ARB TAC pollutant monitoring stations located within the Mojave Desert Air Basin.

Naturally occurring asbestos is present in approximately 44 of California's 58 counties. Asbestos is often found in serpentine rock and ultramafic rock near fault zones. Asbestos is a human health hazard when airborne. Asbestos fibers can be inhaled into lungs, causing inflammation and respiratory ailments and cancers. *A General Location Guide for Ultramafic Rock in California* (Department of Conservation 2000) indicates that there is no naturally occurring asbestos located near or on the project site.

Table 2-23. Attainment Status for Western Portion of Mojave Desert Air Basin

Pollutants	Status	
	Federal	State
Ozone	1-hour: N/A	1-hour: Nonattainment
	8-hour: Nonattainment, Moderate	Not yet classified for 8-hour standard
Particulate Matter (PM ₁₀)	Nonattainment, Moderate	Nonattainment
Particulate Matter (PM _{2.5})	Attainment/Unclassified	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment

Source: California Air Resources Board, CA Air Resources Board 2005, Environmental Protection Agency 2005

Environmental Consequences

No-Build Alternative. Under this alternative, there will be no improvements or modification to the state route within the project's limits. Lack of improvements would result in further deterioration of traffic flow and safety conditions. This alternative is not in concurrence with the Departments goals of improving this route, and fails to address the needs for improvement.

Build Alternative. The air quality effects related to regional operations emissions, localized operations emissions, construction emissions, and MSAT emissions are provided below.

Regional Air Quality Conformity

Phase I of the proposed project is fully funded and is in the 2008 Regional Transportation Plan and in Amendments 1 and 2 which was found to conform by SCAG on May 8, 2008, December 4, 2008 and December 3, 2009 respectively, and FHWA and FTA adopted the air quality conformity finding on June 5, 2008 and January 14, 2009 and January 23, 2010 respectively. This phase is also included in SCAG's financially constrained 2008 Regional Transportation Improvement Program and Amendment #08-01, page 14. The SCAG Regional

Transportation Improvement Program was found to conform by FHWA and FTA on November 17, 2008. The design concept and scope of Phase 1 is consistent with the project description in the 2008 RTP, the 2008 RTIP and the assumptions in the SCAG's regional emissions analysis.

Phase II of the proposed project is not yet fully funded for construction. However it is in the 2008 Regional Transportation Plan and in Amendments 1 and 2, which were found to conform by SCAG on May 8, 2008, December 4, 2008 and December 3, 2009 respectively, and FHWA and FTA adopted the air quality conformity finding on June 5, 2008, January 14, 2009 and January 22, 2010 respectively. Per SCAG on February 24, 2010 the project is modeled in SCAG's financially constrained 2008 Regional Transportation Improvement Program and Amendment 3, but it is not currently programmed. As stated, improvements to be constructed in Phase 2 are not currently fully funded for construction, however the Department is committed to securing the necessary funds for the construction of phase 2. It is anticipated that funding may be obtained from the State Transportation Improvement Program (STIP) and may also include funding from the Interregional Improvement Program (IIP). The design concept and scope of phase 2 is consistent with the project description in the RTP and the assumptions in the SCAG's regional emissions analysis at that time.

As such, it can be concluded that the project's operational emissions (which include the ozone precursor emissions ROG and NO_x) meet the transportation conformity requirements imposed by the EPA and MDAQMD. After the completion of the public circulation period of the environmental document, and the selection of the preferred alternative, a request will be submitted to Federal Highway Agency (FHWA) to obtain air quality conformity determination for the project.

Project Level Analysis

Although the proposed project is a conforming project for regional emissions, it requires both a CO and PM_{2.5}/PM₁₀ hot-spot analysis to determine any localized emissions effects. The potential for adverse local impacts for both pollutants is assessed below.

Localized CO Hot-Spot Evaluation. The project was evaluated using the CO analysis protocol, which was described earlier. The CO protocol includes two flowcharts that illustrate when a detailed CO analysis needs to be prepared. The first flowchart is used to ascertain if any analysis for new projects is needed. The questions (shown in the first flowchart) relevant to the project, and the answers to those questions, are as follows:

3.1.1: Is the project exempt from all emissions analyses?

Response: No, the project does not qualify for an exemption. As shown in Table 1 of the CO protocol (provided in Appendix A of the Air Quality Report), the proposed project does not fall into a project category that is exempt from all emissions analysis (proceed to 3.1.2).

3.1.2: Is the project exempt from regional emissions analyses?

Response: No, the project is not exempt from a regional emissions analysis. As shown in Table 2 of the CO protocol (provided in Appendix A of Air Quality Report), the proposed project does not meet the criteria of any of the project categories identified as exempt from regional emissions analysis (proceed to 3.1.3).

3.1.3: Is the project locally defined as regionally significant?

Response: Yes, the County defines the project as regionally significant (proceed to 3.1.4).

3.1.4: Is the project in a federal attainment area?

Response: No. The project alignment is located in the Mojave Desert Air Basin, which is a federal attainment/unclassified area with respect to CO; however, the Basin is classified nonattainment for pollutants O₃ and PM₁₀. If a project area is not classified attainment for all transportation-related criteria pollutants, the project is subject to a regional conformity determination (proceed to 3.1.5).

3.1.5: Is there a currently conforming RTP and RTIP?

Response: Yes, the SCAG 2008 RTP and SCAG 2008 RTIP were found to be conforming by FHWA on June 5, 2008 and November 17, 2008, respectively. In addition, 2008 RTP Amendment #1 and 2008 RTIP Amendment #08-01 were both found to be conforming by FHWA on January 14, 2009. The 2008 RTP amendment #2 was found to be conforming by FHWA in January 22, 2010. (proceed to 3.1.6).

3.1.6: Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?

Response: Yes, The proposed project is included in both the SCAG 2008 RTP under project ID number 34011 for construction Phase 1 and project ID number 4M07035 for construction Phase 2. Phase 1 is also included in the 2008 RTIP (proceed to 3.1.7).

3.1.7: Has the project design concept and/or scope changed significantly from that in the regional analysis?

Response: No, neither the project design concept nor scope has changed from that in the regional analysis (proceed to 3.1.9).

3.1.9: The conclusion from this series of questions and answers is that the project needs to be examined for its local air impacts (proceed to Section 4, Figure 3 of CO protocol.)

On the basis of the answers to the first flowchart, a second flowchart is used to determine the level of local CO impact analysis required for the proposed project.

The questions applicable to the project in the second flowchart and the answers to those questions are as follows.

Level 1: Is the project in a CO nonattainment area?

Response: No, as shown in Table 2-25 above, the western portion of the Mojave Desert Air Basin is classified as an attainment/unclassified area for the federal CO standards. A summary of the most recent 3 years of monitored CO data was presented above in Table 2-24. The table provides CO monitoring data collected at the Victorville monitoring station (ARB Station No. 36306).

Was the area redesignated as “attainment” after the 1990 Clean Air Act?

Response: No, this area (i.e., the western portion of the Mojave Desert Air Basin) has always been classified attainment/unclassified under the 1990 amendments to the Clean Air Act. As

such, this area was never redesignated as an attainment area after the 1990 Clean Air Act (proceed to Level 7).

Level 7: Does the project worsen air quality?

Response: No. According to the protocol, the following criteria should be used to determine whether a project is likely to worsen air quality for the area substantially affected by the project. As shown below, the project passes all criteria.

- **The project significantly increases the percentage of vehicles operating in cold-start mode. Increasing the number of vehicles operating in cold-start mode by as little as 2% should be considered potentially significant.** Implementation of the proposed project, which would realign and widen SR-138 from two to four lanes, would have no effect on the number of vehicles operating in the cold-start mode within the project limits of SR-138 or along any other roadway segment or intersection location.
- **The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5% should be considered potentially significant. Increasing the traffic volume by less than 5% may still be potentially significant if there is also a reduction in average speeds.** Project improvements would have no effect on AADT traffic volumes, as shown in Opening Year Mainline Traffic Volumes and Level of Service Data and Horizon Year Mainline Traffic Volumes and Level of Service Data (Table 2-16 and 2-17 in the Traffic and Transportation Section Pages 2-33, 2-34.)

SR-138 is the main link between high desert communities for interregional travelers within the project vicinity. Although the roadway is predicted to operate at very low Levels of Service in future years without development of the proposed project, traffic would not divert to other routes, as no other viable alternatives for travel exist within the project vicinity. Even without development of the proposed project, SR-138 would remain the shortest path for interregional travel, and as such, the demand to use it would still exist. As a result of this phenomenon, the travel demand volume is not predicted vary between the Build and No-Build alternatives. The Build alternative would simply handle a greater volume of vehicles and provide a better Level of Service.

- **The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.** With implementation of the proposed roadway improvements, the flow of traffic is expected to improve rather than degrade. Currently, the segment of SR-138 is only one lane in each direction. The proposed project would add one additional travel lane in each direction, thereby alleviating an existing traffic flow-impeding condition. As shown earlier in Opening Year Mainline Traffic Volumes and Level of Service Data and Horizon Year Mainline Traffic Volumes and Level of Service Data (referenced above), LOS conditions would improve considerably during opening year and horizon year with development of the proposed project.

Since the answer to the first Level 7 question is “no,” per the CO Protocol, the project is satisfactory and no further analysis is needed.

Because project implementation would not result in higher CO concentrations than those existing within the region at the time of attainment demonstration, on the basis of protocol analysis methodology, no further analysis is needed.

Localized PM_{2.5} and PM₁₀ Hot-Spot Evaluation. While most projects create particulate emissions during construction, construction activities lasting 5 years or less are considered temporary impacts under the EPA transportation conformity rule and are exempt. This project will be constructed in two phases. It is anticipated that the construction of each phase will be completed in two years. As such, hot-spot review is therefore limited to operational impacts.

The EPA has not specified a quantitative method for analyzing localized PM_{2.5} or PM₁₀ concentrations from operational traffic but released a qualitative guidance document titled *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas* in March 2006. A qualitative PM_{2.5} and PM₁₀ conformity review based on this most-recent EPA guidance is provided below.

EPA specifies in 40 CFR 93.123(b)(1) that only “projects of air quality concern” are required to undergo a PM_{2.5} and PM₁₀ hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM_{2.5} SIP as a localized air quality concern. A discussion of the proposed project compared to projects of air quality concern, as defined by 40 CFR 93.123(b)(1), is provided below:

- **New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.** The proposed project would realign and widen SR-138 from a two lane conventional highway to a four-lane expressway between PM 69.3/75.0 in Los Angeles County and PM 0.0/15.2 in San Bernardino County. This is not a new highway project, nor is it expanding an existing highway beyond its current limits. Furthermore, as shown in Opening Year Mainline Traffic Volumes and Level of Service Data and Horizon Year Mainline Traffic Volumes and Level of Service Data (referenced above), there would be no difference in total traffic volumes, or truck traffic volumes, under the Build and No-Build project alternatives at opening year or horizon year.
- **Projects affecting intersections that are at level –of –service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.** The Traffic Study Report prepared for the project identified 10 intersections likely to be substantially affected by the proposed project. Of these 10 intersections, 4 intersection locations would experience no change in LOS as a result of project development, and 6 intersections would experience an improvement in LOS at horizon year 2035. In addition, the project would have no effect on diesel vehicle traffic volumes along the project limits of SR-138, or along any other roadway segment.
- **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.** The proposed project has no bus or

rail terminal component, nor would it alter travel patterns to/from any existing bus or rail terminal.

- **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.** The proposed project would not expand any bus terminal, rail terminal, or related transfer point that would increase the number of diesel vehicles congregating at any single location.
- **Projects in or affecting locations, areas, or categories of sites that are identified in the PM_{2.5}- or PM₁₀-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.** The project site is not in or affecting an area or location identified in any PM₁₀ or PM_{2.5} implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

The discussion provided above indicates that the proposed project would not be considered a Project of Air Quality Concern, as defined by 40 CFR 93.123(b)(1). Therefore, a PM_{2.5} and PM₁₀ hot-spot evaluations are not required. It is unlikely that the proposed project would generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for PM_{2.5} and PM₁₀. Clean Air Act, 40 CFR Part 93.116, requirements are met without any explicit hot-spot analysis; and as such, the proposed project can be screened from further analysis.

Supplemental Analysis of Re-entrained Fugitive Dust. Fugitive dust emissions from vehicle travel on paved roads (i.e., re-entrained dust) can be calculated using the emission factor equation provided in the Fifth Edition of EPA's AP-42 emissions factor compilation document.⁶ The specific equation can be found in Section 13.2.1 of the AP-42 document, which has been included in Appendix A of the Air Quality Report. The emissions factor equation requires the input of several site-specific variables such as particle size multiplier, roadway silt loading factor, average vehicle weight, and rainfall correlation factor. The variables used in the analysis for the proposed project were obtained based on research conducted by Midwest Research Institute while they were performing California silt loading measurements.⁷

Based on the EPA's AP-42 emission factor equation, re-entrained roadway emissions of PM₁₀ and PM_{2.5} along the project limits of SR-138 (PM 69.3/75.0 in Los Angeles County and PM 0.0/15.2 in San Bernardino County) would be 0.09 tons per year and 0.01 tons per year, respectively, for both the Build and No-Build project alternatives, for Phase I; and for Phase II, 0.07 tons per year and 0.01 tons per year, respectively, for both the Build and No-Build project alternatives. Emissions would be the same under the Build and No-Build alternatives, because AADT (and related VMT) would be the same under both project alternatives.

Because project implementation would not result in higher emissions, and related concentrations, of re-entrained fugitive dust than under the No-Build Alternative, no further analysis is needed.

⁶ U.S. Environmental Protection Agency. Compilation of Air Pollutant Emission Factors, AP 42, Fifth Edition, Volume I, Chapter 13: Miscellaneous Sources, Section 13.2.1 Paved Roads, December 2003.

⁷ Muleski, Greg. Improvement of Specific Emission Factors (BACM Project No. 1), Final Report. Midwest Research Institute. March 29, 1996.

Construction Impacts

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly-emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the Environmental Protection Agency (EPA) to add 1.09 tonne (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 10) pertaining to dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, VOCs and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal Standards can contain up to 5,000 parts per million (ppm) of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and Air Resources Board regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO₂-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

Avoidance, Minimization, and/or Mitigation Measures

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in adverse or long-term conditions. The Department policy to reduce construction-period emissions by the greatest extent feasible requires implementation of effective and comprehensive avoidance and minimization measures, as identified below.

Exhaust Emissions. The project would conform to Department construction requirements, as specified in the Caltrans' Standard Specifications, Section 7-1.01F (Air Pollution Control): "The Contractor shall comply with all air pollution control ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 11017 of the Government Code." Exhaust emissions control measures may include, but are not limited to the following:

AQ-1. General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

AQ-2. All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

AQ-3. Use electricity from power poles, rather than temporary diesel or gasoline powered generators if or where feasible.

AQ-4. Use on-site mobile equipment powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.

AQ-5. Develop a construction traffic management plan that includes, but is not limited to: (1) consolidating truck deliveries; (2) providing a rideshare or shuttle service for construction workers; and (3) providing dedicated turn lanes for movement of construction trucks and equipment on-and off-site.

Particulate Emissions. The MDAQMD adopted Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area). The rule's purpose is to ensure that state and federal AAQS for PM₁₀ will not be exceeded due to man-made sources of fugitive dust within the Mojave Desert Planning Area (MDPA) and implement the control measures contained in the MDPA Federal PM₁₀ Attainment Plan. The proposed project would be required to implement control measures for each source of PM₁₀ emissions, as specified in the rule. The implementation of exhaust and fugitive dust emission control measures identified below would avoid and/or minimize any impacts to air quality.

The owner or operator of any construction/demolition source shall:

AQ-6. Use periodic watering for short-term stabilization of disturbed surface area to minimize visible AQ-fugitive dust emissions. For purposes of this rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;

AQ-7. Take actions sufficient to prevent project-related track out onto paved surfaces;

AQ-8. Cover loaded haul vehicles while operating on publicly maintained paved surfaces;

- AQ-9. Stabilize graded site surfaces upon completion of grading when subsequent visible fugitive dust emissions;
- AQ-10. Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours; and
- AQ-11. Reduce nonessential earth-moving activity under high wind conditions. For purposes of this rule, a reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.

Diesel Particulate-Related Health Risk during Construction. MDAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. Consequently, the estimation of diesel risks associated with construction activities would have no effect on humans.

Mobile-Source Air Toxics (MSAT)

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

With respect to the proposed project, the projected maximum annual average daily traffic (AADT) volumes of 21,300 and 33,200 at opening year 2015/2018 and horizon year 2035/2038, respectively, (see Table 2-16, 2-17) would be well below the 140,000 to 150,000 AADT criterion established by FHWA in its current guidance *Interim Guidance on Air Toxic Analysis in NEPA Documents* for projects considered to have higher potential for MSAT effects. As such, the proposed project is considered a project with low-potential MSAT effects.

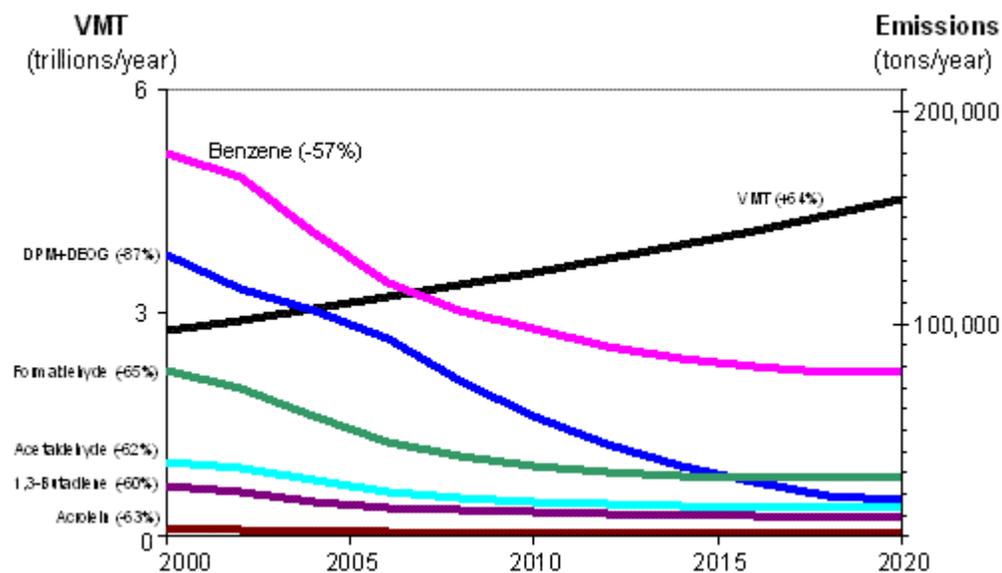
Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-

highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in Figure 2-7.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Figure 2-7. U.S Annual Vehicle Miles Traveled (VMT) vs. Mobile Source Air Toxics Emissions, 2000-2020



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: Highway Statistics 2000, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO₄ from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

Unavailable Information for Project Specific MSAT Impact Analysis. This document includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information. Although this analysis was developed for evaluating projects with regard to NEPA, the evaluation is also appropriate for evaluating MSAT under CEQA.

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure

modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. While the California-approved emissions factor model (CT-EMFAC) is capable of generating project-level emissions estimates, the remaining steps are encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **Dispersion.** The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, as well as the California model CALINE4, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

- **Exposure Levels and Health Effects.** Finally, even if concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of

or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes, particularly respiratory problems.⁸ Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

⁸ South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

Relevance of Unavailable or Theoretical Information for Impact Assessment. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

Project Impacts Related to MSAT Emissions. As stated earlier, the proposed project's projected maximum AADT volumes of 21,900 and 33,300 at opening year 2015 and horizon year 2035, respectively, would be well below the 140,000 to 150,000 AADT criterion established by FHWA for projects considered to have higher potential for MSAT effects. As such, the proposed project is considered a project with low-potential MSAT effects.

For both the No-Build and Build project alternative, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. With respect to the proposed project, VMT estimated for the Build alternatives is essentially the same as that for the No Build Alternative. This is due to the fact that SR-138 is the main link between the economic centers and rapidly developing high desert communities for interregional travelers within the project vicinity. Although the roadway is predicted to operate at very low Levels of Service in future years, traffic would not divert to other routes, as no other viable alternatives for travel exist within the project vicinity. Even without development of the proposed project, SR-138 would remain the shortest path for interregional travel, and as such, the demand to use it would still exist. As a result of this phenomenon, the travel demand volume is not predicted vary between the build and no-build alternatives. The build alternative would simply handle a greater volume of vehicles and provide a better Level of Service.

Because the estimated VMT under the Build and No-Build project alternatives would be essentially the same, it is expected there would be no appreciable difference in overall MSAT emissions between the project alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project Build alternative will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under the Build alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Build alternative when compared to the No Build alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-build alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build alternative could be higher relative to the No Build alternative, but this could be offset due to increases in speeds

and reductions in congestion (which are associated with lower MSAT emissions). However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels

Climate Change

Climate change is analyzed in Chapter 2 under "Climate Change (CEQA)". Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

Cumulative Impacts

Cumulative impacts include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel outside the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, impact would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature.

Additional projects in the area might increase VMTs and possibly, pollutant emissions. However, there are three major control programs that will contribute to the reduction of pollutant emissions: exhaust standards, cleaner burning fuels, and motor vehicle I/M programs.

With respect to emissions that may contribute to exceeding state and federal standards, a CO hot spot screening was performed using the CO Protocol. The results of this analysis demonstrated the proposed project would not have potential to result in a meaningful increase of CO concentrations, and therefore do not present a substantial cumulative impact. In addition, due to the project's relatively small scale and the fact that the project would not result in any new trip generation, the contribution to the cumulative air emissions is not "cumulatively considerable."

In addition, the proposed project would not result in any new trip generation, and as such, would not result in increases of criteria pollutants that include ozone precursors and particulate matter. The localized PM_{2.5} and PM₁₀ Hot-Spot Evaluation shows that project would not be a "project of air quality concern" with respect to localized particulate concentrations.

And finally, Phase 1 and Phase 2 of the project are included in the conforming SCAG 2008 RTP, 2008 RTP amendment #1, and 2008 RTP amendment #2. Phase 1 is included in the conforming SCAG 2008 RTIP amendment #08-01.

Potential impacts of this project would be less than significant. The cumulative impacts of air quality, when included with other projects in the area, are not expected to be significant with proper BMP's and measures to minimize harm.

2.2.7 Noise

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2-24 lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

Table 2-24. Activity Categories and Noise Abatement Criteria

Activity Category	NAC, Hourly A- Weighted Noise Level, dBA $L_{eq}(h)$	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	–	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Table 2-25 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Table 2-25. Noise Levels of Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft) Commercial Area	70	Vacuum Cleaner at 3 m (10 ft)
Heavy Traffic at 90 m (300 ft)	60	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office
Quiet Urban Nighttime	40	Dishwasher Next Room
Quiet Suburban Nighttime	30	Theater, Large Conference Room (Background)
Quiet Rural Nighttime	20	Library
	10	Bedroom at Night, Concert Hall (Background)
	0	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

In accordance with the Department’s *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department’s *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost per benefited residence

Affected Environment

Information in this section is obtained from the Noise Study Report and Abatement Decision Report (NADR) that were prepared for the project in June 2009. A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Land uses in the project area were categorized by land use type, activity category as defined in Table 2-28, and the extent of frequent human use. As stated in the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Although all developed land uses are evaluated in this analysis, the focus is on locations of frequent human use that would benefit from a lowered noise level. Also, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

Residences were identified as Activity Category B land uses in the project area. A few commercial uses in the area were identified as Activity Category C land uses. Majority of commercial land uses are found in the Pinon Hill area along SR-138, which only make up a small percentage of the total land area. The geometry of the project relative to nearby existing and planned land uses was also identified. There were 82-modeled receptors for both Land Use Activity Category B and C. Traffic noise was evaluated under existing conditions, predicted design year conditions with no-project, and predicted design year conditions with the project alternative. The existing noise level ranged from 38 dBA to 69 dBA.

Environmental Consequences

No Build Alternative. Impacts on noise levels due to the increase in traffic will not be changed under the no-build conditions.

Build Alternative. The total number of representative receivers is included in Table 2-26 for each modeled receiver location. (See also Appendix G, Receivers and Sound Walls Locations) The traffic noise modeling results indicate that traffic noise levels at the affected receivers are predicted to range from 43.6 to 73.6 dBA $L_{eq}(h)$ in the design year with the project. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range between 2.3 and 8.4 dBA.

The traffic noise levels at 12 receivers are predicted to approach or exceed the NAC. Two receivers, MR_11 and MR_31 are identified as Land Use Category C (Commercial) and the other ten receivers, FR_20, FR_23, FR_08, MR_28, FR_09, MR_32, MR_35, FR_12, FR_39, and FR_41 are identified as Land Use Category B (Residential).

A detailed modeling analysis was conducted to measure the noise level reduction associated with the construction of barriers located at the right-of-way. Noise abatement in the form of sound walls were considered for four receivers; FR_23, MR_28, MR_32, and FR_12. A total of four sound walls with the range of 8-foot high to 16-foot high, BFR_23, BFR_12, BMR_28, and BMR_32, were evaluated for each affected receiver location. Sound walls were found to be feasible achieving a minimum reduction of 5 dBA. Noise abatement was not considered at the other receivers due to access constraints. The residential and commercial properties identified have driveways directly accessing the highway.

Table 2-26. Predicted Noise Analysis and Barrier Analysis

Receptor #, Type of Land Use, and # of Units R-Residential C-Commercial			Existing Noise Level (dBA)	Predicted Noise Level Without Project (dBA)	Predicted Noise Level with Project (dBA)	Predicted Noise Level with Abatement and Barrier Insertion Loss (I.L.) (dBA)										Reasonable and Feasible
						8 Feet		10 Feet		12 Feet		14 Feet		16 Feet		
						L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	
FR_19	R	1	40.8	45.9	48.1											
FR_20	R	1	59.7	63.0	65.9											
FR_21	R	1	55.0	59.7	62.6											
FR_22	R	2	50.0	54.1	57.0											
MR_07	C		60.8	65.8	68.2											
MR_08	C		62.3	67.5	69.5											
FR_23	R	1	61.2	66.3	68.7	62.6	6	60.2	9	58.5	10	57.2	12	56.2	13	No
MR_09	R	2	54.5	59.0	62.1											
MR_10	C		58.1	62.7	66.2											
MR_12	R	2	54.1	57.7	60.0											
MR_11	C		64.7	68.8	73.1											
MR_13	C		52.2	55.7	55.5											
FR_28	R	1	53.0	56.3	58.7											
FR_29	R	3	47.8	51.3	51.4											
FR_24	R	1	38.5	41.2	43.6											
FR_27	R	1	53.3	56.5	59.4											
MR_14	C		56.4	60.1	62.8											
FR_30	R	3	44.6	48.9	50.5											
MR_01	R	1	49.5	53.4	55.1											
MR_15	C		57.6	62.1	63.8											
FR_31	R	1	44.5	48.4	50.5											
MR-16	C		56.7	61.8	63.4											
MR_17	C		48.1	51.5	52.1											
FR_32	R	1	45.4	48.2	49.8											
FR_25	R	1	59.5	61.6	65.1											
FR_26	R	2	45.2	46.6	47.6											
MR_18	R	3	46.4	47.9	49.0											
MR_19	R	1	50.4	52.5	53.2											
FR_33	R	1	49.1	51.0	51.8											
MR_20	R	1	43.3	45.4	46.3											
FR_34	R	2	49.9	52.2	53.2											

⁹ For locations with noise impact requiring abatement consideration based on approaching or exceeding NAC.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Receptor #, Type of Land Use, and # of Units R-Residential C-Commercial			Existing Noise Level (dBA)	Predicted Noise Level Without Project (dBA)	Predicted Noise Level with Project (dBA)	⁹ Predicted Noise Level with Abatement and Barrier Insertion Loss (I.L.) (dBA)										Reasonable and Feasible
						8 Feet		10 Feet		12 Feet		14 Feet		16 Feet		
						L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	
FR_35	R	2	49.8	51.9	53.8											
MR_21	R	1	49.7	51.4	52.4											
FR_36	R	3	61.1	63.2	64.2											
FR_01	R	2	55.5	57.0	58.5											
FR_02	R	1	55.1	58.0	60.9											
MR_22	C		58.0	61.0	62.8											
MR_02	R	7	52.7	55.2	57.6											
MR_23	C		60.7	62.4	63.8											
FR_37	R	1	54.3	57.6	59.4											
FR_03	R	1	53.5	56.9	59.4											
MR_03	R	2	57.9	61.2	63.7											
FR_04	R	3	55.7	57.2	58.3											
FR_05	R	1	57.9	61.0	63.5											
MR_24	C	1	47.9	50.2	50.7											
MR_25	C		50.4	53.4	55.5											
MR_26	R	1	50.5	52.4	54.7											
FR_38	R	1	44.1	46.2	48.7											
MR_27	C		69.0	71.3	71.3											
MR_04	R	4	57.7	59.1	62.0											
FR_08	R	1	61.0	62.2	65.6											
MR_28	R	1	59.5	60.9	66.1	61.3	5	58.5	8	56.7	9	55.5	11	54.4	12	No
MR_29	R	1	55.6	57.1	58.4											
MR_05	R	2	61.3	62.9	64.9											
FR_07	R	1	55.8	57.0	60.1											
FR_09	R	2	60.8	62.3	65.8											
MR_30	R	1	55.9	57.3	59.8											
MR_31	C		68.9	70.0	73.6											
FR_10	R	1	60.8	62.5	65.0											
MR_32	R	1	65.4	66.6	69.6	62.0	8	60.8	9	59.9	10	59.3	10	58.7	11	No
MR_33	R	2	56.0	57.4	59.5											
MR_34	R	1	53.3	55.5	57.5											
FR_11	R	1	55.7	56.8	59.5											
MR_35	R	1	63.3	63.9	68.2											

Receptor #, Type of Land Use, and # of Units R-Residential C-Commercial			Existing Noise Level (dBA)	Predicted Noise Level Without Project (dBA)	Predicted Noise Level with Project (dBA)	⁹ Predicted Noise Level with Abatement and Barrier Insertion Loss (I.L.) (dBA)										Reasonable and Feasible
						8 Feet		10 Feet		12 Feet		14 Feet		16 Feet		
						L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	L _{eq} (h)	I.L	
FR_12	R	1	62.3	63.6	67.0	61.5	6	59.8	7	58.5	9	57.9	9	57.4	10	No
MR_36	R	2	52.5	54.6	56.6											
FR_13	R	1	57.1	60.2	62.5											
FR_14	R	1	54.6	57.1	59.0											
MR_37	C		63.3	65.9	68.5											
FR_15	R	1	56.5	58.7	61.4											
FR_16	R	1	54.5	56.9	60.0											
MR_38	R	1	56.5	58.7	61.4											
FR_17	R	1	49.7	52.0	54.2											
FR_06	R	1	49.7	52.0	54.2											
MR_39	R	1	54.5	56.9	60.0											
FR_18	R	2	51.7	54.0	57.0											
MR_06	R	1	52.4	54.4	56.3											
FR_39	R	1	64.4	66.5	67.3											
FR_41	R	2	61.3	63.6	65.8											
MR_40	R	1	55.3	57.7	59.0											
MR_41	R	1	56.0	61.1	62.3											
MR_42	C		56.8	61.6	63.8											

For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated based on 2007 cost estimates. The reasonableness of a sound wall was determined by comparing the estimated cost of the project against the total reasonable allowance. The total reasonable allowance was determined based on the number of benefited residences multiplied by the reasonable allowance per residence. Of the four sound walls considered, none met the reasonable allowance. The estimated construction cost for each sound wall height was found to exceed the total reasonable allowance at all affected receiver locations.

The preliminary noise abatement decision presented here is based on preliminary project alignments and profiles, which may be subject to change during final design. As such, the physical characteristics of noise abatement described herein also may be subject to change. A final decision to construct noise abatement will be made upon completion of the project design and the public involvement processes.

Under CEQA, the assessment entails looking at the setting of the noise impact and how large or any perceptible noise increase would be in the given area. Key consideration includes the uniqueness of the setting, the sensitive nature of the noise receptors the magnitude of the noise

increase, the number of residences affected and the absolute noise level. Table 2-26 indicates that the vast majority of the affected receptors remain below the NAC for residences.

Construction Impacts

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 2-27 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Table 2-27. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	85
Bulldozers	85
Heavy Trucks	84
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82
Scrapers	85

Source: FHWA RCNM User's Guide January 2006

Cumulative Impacts

The cumulative noise impacts from the proposed project, when it is included with other projects in the area, would not expose persons or result in the generation of noise levels in excess of standards established in the local general plan or noise ordinance, or other applicable agency regulations.

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14-8.02, "Noise Control," which states that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications. Further, measures will be implemented that would minimize the temporary noise impacts from construction.

Avoidance, Minimization, and/or Mitigation Measures

Noise-1. All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.

Noise-2. As directed by Caltrans, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

Noise-3. As directed by the Department, the contractor will provide one Type 1 sound level meter and one acoustic calibrator to be used by the Department until contract acceptance. The contractor shall provide training by a person trained in noise monitoring to one Department employee designated by the Engineer. The sound level meter must be calibrated and certified by the manufacturer or other independent acoustical laboratory before delivery to the Department. An annual recalibration by the manufacturer or other independent acoustical laboratory must also be provided. The sound level meter must be capable of taking measurements using the A-weighting network and the slow response settings. The measurement microphone must be fitted with a windscreen. The Department returns the equipment to the contractor at contract acceptance.

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in the Threatened and Endangered Species section [2.3.5]. Wetlands and other waters are also discussed in section [2.3.2].

Affected Environment

A Natural Environmental Study (NES) was completed for the project in November 2009. The project occurs from an elevation of 3,109 feet to 4,800 feet, with an elevation of 3,109 ft above mean sea level (amsl) at the eastern end of the proposed project area, and 3,402 ft amsl at the western end of the proposed project area. The habitat ranges from a broad desert bajada from PM 0.0 to around PM 5.8 and then enters Cajon Canyon in the foothills of the San Gabriel Mountains. The soils on site range from coarse sands to sandy, gravelly, or rocky loams. Following is a discussion of the natural environment riparian vegetation and other predominant plant communities in the project area:

Southern Willow Scrub: Southern willow scrub is a tall riparian scrub community, which is dominated by various willows in the form of large shrubs to small trees. Within the proposed project area, southern willow scrub can be found within Cajon Creek. It is dominated by black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*) with scattered Fremont cottonwoods (*Populus fremontii*), with an understory consisting of mule fat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), tarragon (*Artemisia dracuncululus*), and various annuals.

Mule Fat Scrub: Mule fat scrub is a low-growing scrub community, is similar to southern willow scrub, and is adapted to floodplains. This community typically occurs in areas with lower levels of moisture than southern willow scrub, and is overwhelmingly dominated by mule fat. This community occurs within the proposed project area, intermingled as an

understory to southern willow scrub. It also occurs within the Cajon Creek flood plain, south and west of the Cajon Creek Bridge.

Joshua Tree Woodland: Joshua tree woodland is a vegetation community that occurs on sandy, loamy, or gravelly, well-drained gentle alluvial slopes. The dominant species is Joshua tree (*Yucca brevifolia*) and typically has a co-dominance with such species as creosote bush (*Larrea tridentata*) or California juniper (*Juniperus californica*). Associated species within this community occurring within the proposed project area include creosote bush, California buckwheat (*Eriogonum fasciculatum*), cheesebush (*Hymenoclea salsola*), bladder sage (*Salazaria mexicana*), and winter fat (*Krascheninnikovia lanata*). Understory species within this habitat include Indian ricegrass (*Achnatherum hymenoides*), devil's lettuce (*Amsinckia tessallata*), and brittle bush (*Encelia actoni*). This habitat type occurs within the western-most portion of the proposed project area from approximately LA PM 69.3 to LA PM 72.5.

California Juniper/Joshua Tree Woodland: California juniper/Joshua tree woodland has a co-dominance of California juniper with Joshua trees, and has an understory comprised of various shrub species. Associated species within this community include California juniper, bladder sage, winter fat, rubber rabbitbrush (*Ericameria nauseosa*), big sagebrush (*Artemisia tridentata*), horsbrush (*Tetradymia axillaris*), spineless horsebrush (*Tetradymia canescens*), and cheesebush. The majority of the species occurring within the Juniper/Joshua tree woodland habitat, also occur within the Joshua tree woodland that occurs farther west, within the proposed project area; however, the very high density of California junipers sets these two vegetation communities as separate communities.

Semidesert Chaparral: Semidesert chaparral occurs along the desert transitional portions of the western Transverse Ranges in California, bordering the Mojave and Colorado deserts (Holland and Keil). The dominant species typically occurring within this community include manzanita (*Arctostaphylos pungens*), desert ceanothus (*Ceanothus greggii*), California buckwheat (*Eriogonum fasciculatum*), desert scrub oak (*Quercus johntuckeri*), and skunkbrush (*Rhus trilobata*). Semidesert chaparral occurs within the eastern portion of the proposed project area. Species occurring within the proposed project area within this vegetation community include manzanita (*Arctostaphylos*), skunkbrush (*Rhus trilobata*), big sagebrush (*Artemisia tridentata*), interior goldenbush (*Ericameria linearifolia*), rubber rabbitbrush (*Ericameria nausea*), chamise (*Adenostoma fasciculatum*), Mexican elderberry *Sambucus mexicanus*, honeysuckle (*Lonicera subspicata*), yerba santa (*Eriodictyon trichocalyx* var. *trichocalyx*), chaparral mallow (*Malacothamnus fasciculatus*), bush poppy (*Dendromecon rigida*), California buckwheat (*Eriogonum fasciculatum*), deer brush (*Ceanothus integerrimus*), holly-leaved cherry (*Prunus ilicifolia*), Joshua tree (*Yucca brevifolia*), and Our Lord's candle (*Yucca whipplei*).

Wildlife: A variety of amphibian, reptile, raptor, songbird, and small and large mammal species exist in the project area. Connectivity corridors are used by wildlife for three purposes: migration, as part of their home range (day use/foraging), and for dispersal of young adults into adjacent habitats (gene flow). The project region does not support populations of migratory mammals and connectivity corridors on SR 138 would not serve to facilitate migratory movement. However, connectivity corridors along SR 138 would likely provide an important connection across the home range of resident large mammals, and provide a route for dispersal of young adults in these populations.

Environmental Consequences

No Build Alternative. No adverse effects on the natural communities would occur under the no-build alternative.

Build Alternative. Riparian vegetation in the form of southern willow scrub and mule fat scrub occurs within Cajon Creek wash. The project scope includes the widening of Cajon Creek Bridge. Direct impact to this vegetation would be avoided, as widening work would be conducted from the currently existing bridge structure. Permanent impacts would consist of a small amount of additional shading resulting from the increase in the size of the bridge structure.

Between approximately one and two-thousand Joshua trees are located within the proposed project footprint and are anticipated to be impacted by the construction of the roadway widening. Coordination on the relocation of the trees took place with San Bernardino County on September 29, 2009, and with CDFG on November 18, 2009. Surveying, marking and relocation of the trees will take place according to the requirements of CDFG.

Even though many of the groups of wildlife may be affected by the construction of this project, medium to large mammals are more susceptible to changes in connectivity corridors. Medium and large mammal species are generally highly mobile, traveling distances from several hundred meters to several miles. Reptile and small mammal species may travel shorter distances than larger mammals. A connectivity corridor that functions well for larger mammals will likely also function well for reptiles and smaller mammals. Raptor and songbird species do not require a terrestrial crossing and will likely not experience any long-term effects from the proposed project. They may be temporarily effected by noise and dust associated with construction activities, but these effects are not expected to be significant or permanent.

Two wildlife crossing structures have been proposed to offset habitat fragmentation that could potentially occur as a result of the proposed project, and to maintain connectivity between habitat communities associated with the San Gabriel Mountains, and those associated with Mojave Desert, at lower elevations. Both structures are proposed within the portion of the proposed project, which is located within FS land. (For location of wildlife crossings, see Figure 2-8 and Figure 2-9 below, and Figure 1-3A, 1-3B in Section 1.4 Project Description and Alternatives.) These structures would be designed to meet standards set forth through coordination with a USFS biologist, to the maximum extent practicable. A Wildlife crossing study will be funded by the Department and conducted by USFS personal to evaluate under-crossings as connectivity corridors for local wildlife and determine to what extent these corridors mitigate the effects of the widening and straightening of SR 138.

Avoidance, Minimization, and/or Mitigation Measures

Bio-1. Construct two Wild Life Crossings.

Bio-2. Conduct Wildlife study to monitor movement of wildlife across the highway, and the utilization of the crossing.

Bio-3. Project design shall include only widening of the bridge deck, and would not involve increase in size of bridge pilings.

Bio-4. Vegetation removal shall be limited to the project footprint. Vegetation removal within footprints shall footprints shall be minimized to the extent practicable.

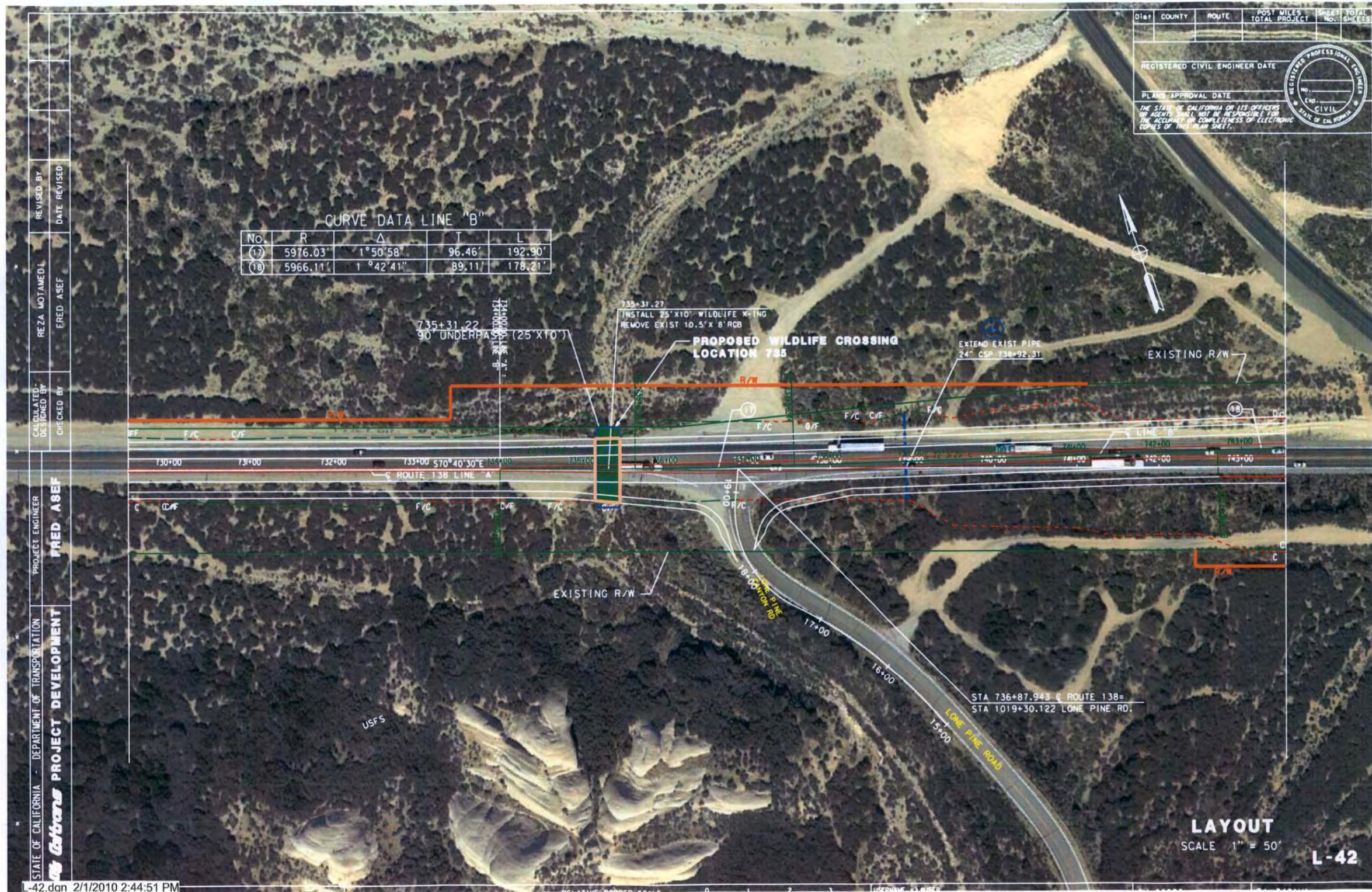
Bio-5. Follow the appropriate process for the relocation of Joshua trees in coordination with the CAFG.

Bio-6. Compensatory Mitigation: Impacts to riparian vegetation would be offset through compensation as required with CDFG 1602 Streambed Alteration Agreement process at a minimum of a 1:1 ratio.

Cumulative Impacts

The Natural Communities study area was discussed in the affected environment and environmental consequences for this resource. With the implementation of minimization, avoidance and compensation measures, the proposed project impact will be insignificant. In addition, the project is located within open space and rural area with limited development. There is no other planned development within the project area; therefore cumulative effects to the natural environment are not expected to occur.

Figure 2-9. Proposed Wildlife Crossing Location #735



2.3.2 Wetlands and Other Waters of the United States

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If DFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

Affected Environment

A Natural Environmental Study (NES) was completed for the project in November 2009. The proposed project includes the widening of several bridges, and the construction of new culverts and the extension of existing culverts. A jurisdictional delineation was completed in September

of 2009, to identify areas affected by the project that are potential ACOE Jurisdictional Waters of the U.S (WUS), and Waters of the State, which are regulated under the jurisdiction of CDFG and RWQCB.

U.S. Army Corps of Engineers Jurisdiction. Permanent direct impact on a total Of 1.039 acres of WUS was identified to occur within the proposed project area. These 1.039 acres of WUS were analyzed and identified as non-wetland WUS. Sample plots were taken within Cajon Creek and Sheep Creek.

The entire 1.039 acres of WUS occurring within the proposed project area consisted of ephemeral drainage courses. These drainage courses total 12,942 linear feet. Three separate watersheds occur within the proposed project area. These watersheds consist of Antelope-Fremont Valleys, Mojave, and Santa Ana. (See Figure 2-10 for location of watersheds)

The proposed project would impact 0.552-acre of WUS within the Antelope-Fremont Valleys watershed. This watershed contains several sub-watersheds, which consist Grandview Canyon, Mescal Creek, Jesus Canyon, Le Montaine Creek, Eller Slough, Black Mountain-Frontal El Mirage Lake, El Mirage Lake, and Sheep Creek. Within the proposed project area, the Mojave watershed consists of the Horse Canyon-Fremont Wash sub-watershed. The proposed project would impact 0.123-acre of WUS within the Mojave watershed. The proposed project would impact 0.364-acre of WUS within the Santa Ana watershed. These impacts would take place within the Upper Cajon Wash and Lower Cajon Wash sub-watersheds.

Regional Water Quality Control Board Jurisdiction. A total Of 1.039 acres of Waters of the State under RWQCB jurisdiction were identified to occur within the proposed project area. These 1.039 acres of Waters of the State occurring within the proposed project area consisted of ephemeral drainage courses.

Impacts within the Antelope-Fremont Valleys watershed and the Mojave watershed would be regulated under the jurisdiction of the Lahontan Regional Water Quality Control Board. Impacts within the Santa Ana watershed would be regulated under the jurisdiction of the Santa Ana Regional Water Quality Control Board.

California Department of Fish and Game Jurisdiction. Within the project area there is a total of 2.682 of CDFG jurisdictional areas, including 2.656 acres of non-vegetated streambed, and 0.026-acre of southern willow scrub.

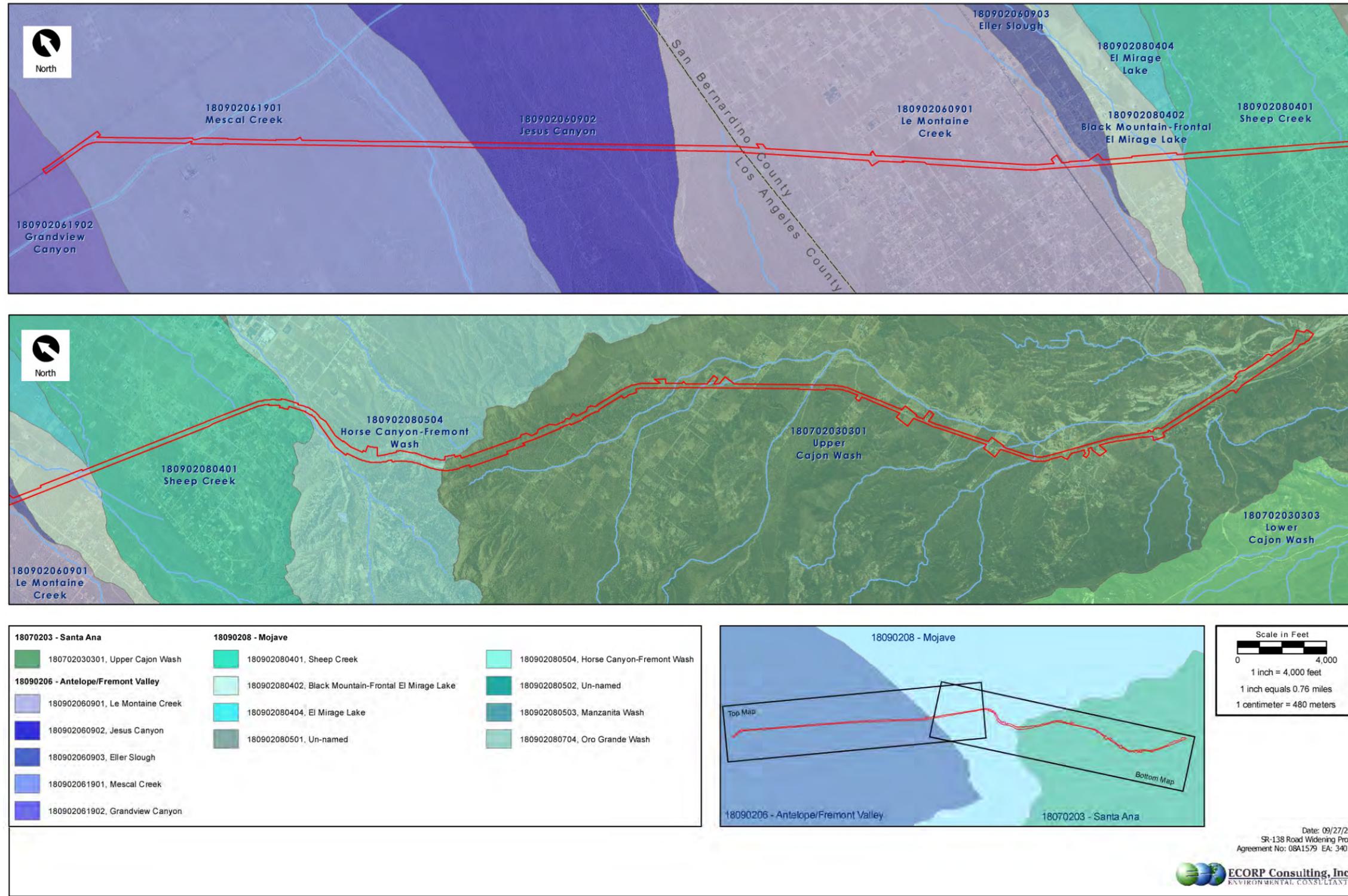
Environmental Consequences

No-Build Alternative. There will be no impacts to any jurisdictional waters under the no-build conditions.

Build Alternative.

The proposed project would impact 0.552-acre of WUS under ACOE and RWQCB Jurisdictions within the Antelope-Fremont Valleys watershed. The impacts will result from widening of the facility, and raising the profile of the roadway segment located in Los Angeles County. This would eliminate existing dips and accommodates a new drainage system consisting of culverts and ditches to convey the flows from one side of the highways to the other. Impacts within this watershed would be regulated under the jurisdiction of the Lahontan Regional Water Quality Control Board. ACOE requires an individual permit for activities affecting an area equal to or in excess of 0.5 acre of WUS. If an impact of less than 0.5 acres

Figure 2-10. Project Area Watersheds



Source: Jurisdictional Delineation Report, September 2009

cannot be achieved through design measures, then an individual 404 permit will be required for work within this watershed.

As a result of the widening of the roadway and drainage system, the proposed project would impact 0.123-acre of WUS within the Mojave watershed. Impacts within this watershed would also be regulated under the jurisdiction of the Lahontan Regional Water Quality Control Board.

The proposed project would also impact 0.364-acre of WUS within the Santa Ana watershed. These impacts would take place within the Upper Cajon Wash and Lower Cajon Wash sub-watersheds. Impacts within the Santa Ana watershed would be regulated under the jurisdiction of the Santa Ana Regional Water Quality Control Board.

A Nationwide 404 permit will be required for the impacts within the Mojave and Santa Ana watersheds. Consultation with the ACOE was initiated by requesting the agency to be a cooperating agency for the preparation of this document. The agency was consulted on the purpose and need of the project, alternative analysis for the preparation of Individual 404 permits, and the preparation of the Jurisdictional Delineation (JD). Records of consultations are included in the project file. Alternative selection process including alternatives considered and withdrawn is described in Chapter 1, section 1.3.4 of this document. Additional consultation with the agency will take place during the design stage of the project to obtain the agency concurrence on the JD and obtain the required permits.

Section 401 Water Quality Certification will also be required for this project from the applicable RWQCBs. Project impacts to 2.656 acres CDFG Jurisdictional area includes a total of 2.63acres of non-vegetated streambed, and 0.026-acre of southern willow scrub occurring within Cajon Creek. A Section 1602 Streambed Alteration Agreement (SAA) will be required from CDFG to regulate the impact to 2.656 acre of CDFG jurisdictional areas. The need for the permit was identified in consultation with CDFG. Coordination with the agencies will take place during the design stage of the project to obtain the required permits.

Avoidance, Minimization, and/or Mitigation Measures

All avoidance, minimization and mitigation measures identified in the regulatory process to protect WUS will be adhered to in the construction of the project. Regulatory requirements for this project include the following:

- Bio-7. Section 404 permit applications shall be submitted to the ACOE. The project will mitigate for any impacts associated with WUS.
- Bio-8. In conjunction with the 404 permits, Section 401 application shall be submitted to the applicable RWQCBs.
- Bio-9. Construction activities must demonstrate compliance with National Pollutant Discharge Elimination System (NPDES) Permit regulated by Section 402 of the Clean Water Act.
- Bio-10. Submit applications for 1602 Streambed Alteration Agreement with CDFG. Mitigation to project related impacts will be in accordance with agency requirements.

Cumulative Impacts

The study area was discussed in the affected environment and environmental consequences sections for this resource. The acreage of impact to the WUS is minimal. With the implementation of avoidance, minimization measures, it is anticipated that the project will not

adversely impact the WUS. The project is within a rural area with limited development. The project is located within an area that is designated as open space and rural living. There are no plans for development within the project area, and no future plans are anticipated. Therefore, this project will not contribute to cumulative impacts to this resource.

2.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species Section [2.3.5] in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. (see also 50 CFR Part 402). The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the California Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Affected Environment

A Natural Environmental Study (NES) was completed for the project in November 2009. Table 2-28 describes species of special interest that have the potential to occur within the project area, as they are listed in the California Natural Diversity Data Base (CNDDB) for the Devore, Cajon, Phelan, Telegraph Peak, and Mescal Creek USGS quads. Surveys were also conducted of these plant species. Plants that were observed during surveys are shown in the table as present.

Short-joint Beavertail: Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) is a small, spreading cactus species, and typically occurs within chaparral, Joshua tree woodland, Mojave desert scrub, and Pinyon-juniper woodland. Short-joint beavertail was found within chaparral habitat in the eastern portion of the proposed project area during 2009 late-blooming season rare plant surveys.

Table 2-28. Summary of Special Interest Plant Species with Potential to Occur Within Project Vicinity

Scientific Name	Common Name	Status	General Habitat Description	Potential to Occur	Rationale
<i>Lilium parryi</i>	Lemon Lily	SSC, CNPS 1B.2	Riparian forest, meadows and seeps	Low	Riparian scrub is present within the eastern portion of the proposed project area.
<i>Calochortus palmeri</i> var <i>palmeri</i>	Palmer's Mariposa Lily	SSC, CNPS 1B.2	Chaparral, lower montane coniferous forest, meadows and seeps	Moderate	Chaparral is present within the eastern portion of the proposed project area.
<i>Calochortus plummerae</i>	Plummer's Mariposa Lily	SSC, CNPS 1B.2	Chaparral, coastal scrub, lower montane coniferous forest, meadows and seeps	Moderate	Chaparral is present within the eastern portion of the proposed project area.
<i>Opuntia basilaris</i> var <i>brachyclada</i>	Short-joint Beavertail	SSC, CNPS 1B.2	Chaparral, Joshua tree woodland, Mojave desert scrub, pinyon and juniper woodland	Present	Short-joint beavertail was observed near the eastern portion of the project footprint, and associated habitat occurs throughout much of the proposed project area.
<i>Linanthus concinnus</i>	San Gabriel Linanthus	SSC, CNPS 1B.2	Chaparral, lower montane coniferous forest, upper montane coniferous forest	Moderate	Chaparral is present within the eastern portion of the proposed project area.

Legend:

- SSC: Federal Species of Special Concern
- CSC: State (California) Species of Special Concern
- CNPS: California Native Plant Society Sensitive Species

Source: Natural Environment Study, November 2009

Lemon Lily. Lemon lily (*Lilium parryi*) is a bulbiferous herb that typically occurs within upper montane coniferous forest, lower montane coniferous forest, meadows and seeps, and riparian forest. Lemon lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, nor during vegetation inventories taken within the riparian habitat within Cajon Creek, with respect to 2006, 2007, and 2008 least Bell's vireo surveys; and 2007 and 2008 arroyo toad surveys.

Palmer's Mariposa Lily. Palmer's mariposa lily (*Calochortus palmeri* var *palmeri*) is a bulbiferous herb that typically occurs within chaparral, lower montane coniferous forest, and

meadows and seeps. Plummer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys.

Plummer's Mariposa Lily. Plummer's mariposa lily (*Calochortus plummerae*) is a bulbiferous herb that typically occurs within chaparral, lower montane coniferous forest, coastal scrub, and valley and foothill grassland. Plummer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys.

San Gabriel Linanthus. San Gabriel linanthus (*Linanthus concinnus*) is an annual herb that typically occurs within chaparral, lower montane coniferous forest, and in rocky openings in upper montane coniferous forest. San Gabriel linanthus was not observed within the proposed project area during 2009 late-blooming season rare plant surveys.

Environmental Consequences

Short-joint Beavertail: Several short-joint beavertail cacti occur within the cut and fill line for the proposed project. These individuals would be directly affected by project construction activities.

Lemon Lily. Lemon lily was not observed within the proposed project area during late-season 2009 rare plant surveys, impacts to this species are not expected to occur at this time. However, suitable habitat for lemon lily is located within the proposed project area and it consists of southern willow scrub located within Cajon Creek.

Palmer's Mariposa Lily. Palmer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, impacts to this species are not expected to occur at this time.

Plummer's Mariposa Lily. As Plummer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, impacts to this species are not expected to occur at this time.

San Gabriel Linanthus. As San Gabriel linanthus was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, impacts to this species are not expected to occur at this time.

Avoidance, Minimization, and/or Mitigation Measures

Short-joint Beavertail:

Bio-11. Short-joint beavertail cacti, which would be directly impacted by construction of the proposed project, would be relocated outside of the proposed project impact area prior to the on-set of construction activities.

Lemon Lily. Lemon lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, no avoidance and minimization measures are proposed for this species at this time.

Palmer's Mariposa Lily. Palmer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, no avoidance and minimization measures are proposed for this species at this time.

Plummer's Mariposa Lily. As Plummer's mariposa lily was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, no avoidance and minimization measures are proposed for this species at this time.

San Gabriel Linanthus. As San Gabriel linanthus was not observed within the proposed project area during 2009 late-blooming season rare plant surveys, no avoidance and minimization measures are proposed for this species at this time.

Bio-12. Impacts to riparian areas will be avoided to the maximum extent practicable. Efforts will be coordinated with ACOE, RWQCB, and CDFG during the aquatic permitting process.

Cumulative Impacts

The resource study area was discussed in the affected environment and environmental consequences sections. The analysis indicates that only the Short-joint Beavertail species of interest has the potential of being affected by the proposed project. However, with the implementation of applicable avoidance and minimization measures, impacts to all plant species is not expected to result from the construction of the proposed project. In addition, there are no other planned developments within the project area. Cumulative impacts are not anticipated on these resources within the area of the project.

2.3.4 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA Fisheries) and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses the potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other special status animal species and discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Federal Endangered Species Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- California Endangered Species Act
- Sections 1601-1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

In addition to state and federal laws regulating impacts to wildlife, there are often local regulations (example: county or city) that need to be considered when developing projects. If work is being done on federal land (BLM or Forest Service, for example), then those agencies' regulations, policies, and Habitat Conservation Plans are followed.

Affected Environment

A Natural Environmental Study (NES) was completed for the project in November 2009. Suitable habitat for the state and federal listed or sensitive species exists within the project area. Table 2-29 describes animal species of special interest that have the potential to occur within the project area, as they are listed in the California Natural Diversity Data Base

Table 2-29. Summary of Special Interest Animal Species With Potential to Occur Within Project Vicinity

Scientific Name	Common Name	Status	General Habitat Description	Potential to Occur	Rationale
<i>Cnemidophorus tigris multiscutatus</i>	Coastal Western Whiptail	CSC	Chaparral, coastal sage scrub	Present	Chaparral is present within the eastern portion of the proposed project area.
<i>Phrynosoma coronatum blainvillei</i>	San Diego Horned Lizard	CSC	Chaparral, coastal sage scrub	Present	Chaparral is present within the eastern portion of the proposed project area.
<i>Thamnophis hammondi</i>	Two-striped Garter Snake	CSC	Chaparral, riparian woodland forest and scrub	High	Riparian scrub is present within the eastern portion of the proposed project area.
<i>Toxostoma lecontei</i>	LeConte's Thrasher	CSC	Desert scrub	Moderate	Desert scrub is present within the western portion of the proposed project area.
<i>Asio otus</i>	Long-eared Owl	CSC	Woodlands and forests	Moderate	Riparian scrub is present within the eastern portion of the proposed project area.
<i>Dendroica petechia brewsteri</i>	Yellow Warbler	CSC	Riparian scrub	Moderate	Riparian scrub is present within the eastern portion of the proposed project area.

Legend:

SSC: Federal Species of Special Concern CSC: State (California) Species of Special Concern

Source: Natural Environmental Study, November 2009

(CNDDB) for the Devore, Cajon, Phelan, Telegraph Peak, and Mescal Creek USGS quads. Surveys were also conducted of each species to determine presence or absence.

San Diego Horned Lizard. The San Diego horned lizard (*Phrynosoma coronatum blainvillei*) is a small flat-bodied lizard species with horn-like scales protruding from the head and shoulders (California Reptiles and Amphibians 2009). The coloration is typically cryptic, and can vary to blend with background coloration. The main diet of San Diego horned lizards consists of harvester ants. The presence of harvester ant colonies can reveal the presence of suitable habitat. San Diego horned lizard was observed within chaparral habitat within the proposed project area, during 2009 late-blooming rare plant surveys.

Two-striped Garter Snake. The two-striped garter snake is a slim-bodied, fast-moving snake species, whose diet primarily consists of amphibians. The primary coloration is olive to brownish to gray, with yellow stripes running down the lateral length of the body. Small dark spots run down the dorsal portion of the body, giving a speckled appearance. The two-striped garter snake was not observed during any of the focused or wildlife surveys performed for the proposed project area.

Coastal Western Whiptail. The coastal western whiptail is a very distinct, highly active lizard species that is highly active and rarely sits still. It is an insectivorous species, which is often observed actively foraging. Its markings consist of eight light-colored stripes, which appeared checkered by crossbars. The throat is a pale whitish color with black spots. The coastal western whiptail was observed during several focused surveys for various species, and is considered present throughout the eastern portion of the proposed project area.

Burrowing Owl. Burrowing owls are found in a wide range of habitats that are characterized by low growing vegetation and the presence of burrows. These habitats include grasslands, scrublands, deserts, agricultural lands, golf courses, drainage ditches, earthen berms, and unpaved airfields. Burrowing owls normally use burrows made by other mammals, such as ground squirrels or badgers, but may also use man-made structures such as culverts, debris piles, or openings beneath cement or asphalt pavement (The California Burrowing Owl Consortium 1993).

Focused spring nesting season surveys have not been conducted for the burrowing owl; however, burrowing owls or their sign have not been detected during 2000 or 2002 desert tortoise surveys; 2004 Mohave ground squirrel surveys; 2006, 2007, or 2008 least Bell's vireo surveys; 2007 or 2008 arroyo toad surveys; or 2009 late blooming period rare plant surveys.

Vaux's swift. Vaux's swift (*Chaetura vauxi*), a CSC, is smaller than the more common white-throated swift (*Aeronautes saxatalis*), with a tail that is not pronounced during flight (Sibley 2005). The coloration is typically pale grayish to buff overall.

Tricolored Blackbird. The tricolored blackbird (*Agelaius tricolor*), a State (California) Species of Special Concern, nests in colonies on reeds in marshy riparian areas. The physical appearance is very similar to that of the red-winged blackbird (*Agelaius phoeniceus*), varying with white median coverts, versus the yellow coverts of the red-winged blackbird.

Loggerhead Shrike. The loggerhead shrike (*Lanius ludovicianus*), a State (California) Species of Special Concern, is a mid-sized predatory bird species feeding primarily on insects, small bird species, and rodents. Its appearance is gray overall with black wing and tail feathers, a broad black mask, and white wing bars. It has a recurved bill, aiding in its predatory habits.

Le Conte's Thrasher. Le Conte's thrasher (*Toxostoma lecontei*) is a State Species of Special Concern. The Le Conte's thrasher is characterized as a sandy-colored, 10-inch long bird with a black tail, unspotted breast and belly, with a long decurved bill and dark eyes. Le Conte's thrasher is a widespread, but rare permanent resident in the western and southern San Joaquin Valley, upper Kern River Basin, Owens Valley, Mojave Desert, and Colorado Desert in southwestern United States. It occurs primarily in Joshua tree habitat with scattered shrubs, and may be found in desert wash, desert scrub, desert succulent scrub, and alkali desert scrub habitats. The Le Conte's thrasher primarily feeds on a variety of insects and other terrestrial arthropods, and occasionally on seeds, small lizards, and other small invertebrates. The Le Conte's thrasher uses its bill to dig and probe the soil to forage.

Focused surveys have not been conducted for the Le Conte's thrasher; however, this species was not detected during 2000 or 2002 desert tortoise surveys; 2004 Mohave ground squirrel surveys; 2006, 2007, or 2008 least Bell's vireo surveys; 2007 or 2008 arroyo toad surveys; or 2009 late-blooming period rare plant surveys.

Long-eared Owl. The long-eared owl was not observed during any of the focused or wildlife surveys performed for the proposed project area.

Yellow Warbler. The yellow warbler (*Dendroica petechia*), a CSC, is a bright yellow warbler species, standing out with high contrast against its riparian habitat. Adult males have bright red streaks on the breast, and are easily discernible from the slightly drabber females. This is also the only yellow bird species with bright yellow spots on the tail feathers. The yellow warbler was recorded as an incidental observation during 2008 spring nesting season least Bell's vireo surveys.

Environmental Consequences

San Diego Horned Lizard. Proposed project impacts to the coastal western whiptail would result as direct loss of chaparral habitat. However, vegetation removal would be limited to the project footprint, and would be minimized to the maximum extent practicable.

Two-striped Garter Snake. The two-striped garter snake was not observed during any of the focused or wildlife surveys performed for the proposed project area. The proposed project impacts to riparian areas where it could be found would be avoided to the maximum extent practicable. The proposed project is not expected to impact the two-striped garter snake.

Coastal Western Whiptail. Proposed project impacts to the coastal western whiptail would result as direct loss of chaparral habitat. However, vegetation removal would be limited to the project footprint, and would be minimized to the maximum extent practicable.

Burrowing Owl. The project includes widening of bridges and roadway, extending existing culverts, and the construction of new culverts within La County segment of the project. As a result of the construction of this project, it is anticipated that impacts will be minimal for the species, with the implementation of avoidance and minimization measures.

Vaux's swift. Vaux's swift was observed foraging within the proposed project area, during 2006 LBV surveys. Direct impacts to the Vaux's swift are not anticipated, through the implementation of the aforementioned avoidance and minimization measures.

Tricolored Blackbird. This bird was observed during 2007 arroyo toad surveys approximately 1000 ft south of the proposed project area, within a spring-fed wetland containing cattails. Based on surveys including 2006, 2007, and 2008 LBV surveys; 2007 and 2008 arroyo toad surveys; and the Jurisdictional Delineation, this wetland appears to be the nearest suitable habitat for tricolored blackbird. As this species was observed approximately 1000 ft south of the proposed project area, no impacts are anticipated to result from the construction of the proposed project.

Loggerhead shrike. The bird was observed foraging within the proposed project area during 2006 LBV surveys. Proposed project impacts to the loggerhead shrike would result as direct loss of foraging habitat.

Le Conte's Thrasher. The proposed project area contains moderate habitat for Le Conte's thrasher. Based on the implementation of the avoidance and minimization measures, project impacts are anticipated to be minimal for the species.

Long-eared Owl. The proposed project is not expected to impact the long-eared owl as the long-eared owl was not observed during any of the focused or wildlife surveys performed for the proposed project area. The proposed project impacts to riparian areas would be avoided to the maximum extent practicable.

Yellow Warbler. Widening of Cajon Creek Bridge would only involve the widening of the bridge deck, and not involve increase in size of bridge pilings, thus minimizing direct impacts to Cajon Creek and associated riparian vegetation. Impacts to the yellow warbler are not expected to occur as a result of the construction of the proposed project.

Avoidance, Minimization, and/or Mitigation Measures

There are no compensation measures required for the Coastal Western Whiptail, San Diego Horned Lizard, and Two-striped Garter Snake. Vegetation removal measure implemented for the protection of the Natural Environment will help minimize and avoid measure to the species.

Burrowing Owls. The following measures will be implemented to avoid and minimize impacts to this species:

- Bio-13. Pre-construction surveys for burrowing owls would take place within 30 days prior to the on-set of proposed project construction activities.
- Bio-14. If burrowing owls are found on site during the pre-construction sweep, coordination with CDFG will be conducted to determine the appropriate avoidance and minimization measures required for the project.
- Bio-15. A Burrowing Owl Mitigation and Monitoring Plan would need to be submitted to CDFG for review and approval prior to passive relocation of owls. Following are measures that could be included in the mitigation and monitoring plan:
 - All burrowing owls associated with occupied burrows, that will be directly impacted (temporarily or permanently) by the project shall be passively relocated and measures shall be implemented to avoid the take of owls.
 - Occupied burrows shall not be disturbed during the nesting season of February 1 and August 31, unless a biologist can verify through non-invasive methods that either the owls have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent flight.
 - Owls must be passively relocated from any occupied burrows that will be impacted by project activities, by a qualified biologist. Suitable habitat must be available adjacent or near the disturbance site or artificial burrows would need to be provided nearby. Once the biologist has confirmed that the owls have left the burrow, burrows would be excavated using hand tools and filled to prevent reoccupation.
 - All passive relocation shall be approved by CDFG. The permitted biologist shall monitor the relocated owls a minimum of three days per week for a minimum of

three weeks. A report summarizing the results of the relocation and monitoring shall be submitted to CDFG within 30 days following completion of the relocation and monitoring of the owls.

Bio-16. Compensatory Mitigation: As compensation for any direct loss of occupied burrowing owl nesting and foraging habitat, the Department shall mitigate by acquiring and permanently protecting known burrowing owl nesting and foraging habitat at a ratio determined by CDFG.

Vaux's swift. No compensatory mitigation is proposed for Vaux's swift at this time. The following measures will be implemented:

Bio-17. Avoid the take of active nests. All nests will be excluded from bridge structures that will be affected by project construction prior to the migratory bird nesting period (February 1 through September 1). An onsite biological monitor will coordinate during construction activities in the nesting season to ensure that active nests are not taken.

Tricolored Blackbird As this species was observed approximately 1000 ft south of the proposed project area, it is anticipated that this species will be completely avoided by the proposed project.

There are no compensation measures required for Long-eared Owl, Yellow Warbler, loggerhead shrike, and Le Conte's Thrasher. The following measures will be implemented to avoid and minimize impacts to these species:

Bio-18. Vegetation removal shall be limited to the project footprint. Vegetation removal within footprints shall be minimized to the extent possible.

Bio-19. A pre-construction sweep will be conducted within 48 hours prior to commencement of the project activities to ensure the avoidance of Le Conte's thrasher and other nesting birds within the project impact area, and to avoid or relocate any nests found. All required measures should be implemented pursuant to the Federal Migratory Bird Treaty Act (MBTA).

Cumulative Impacts

Even though some species of interest were present during surveys, it is not anticipated that there will be direct impacts to any of the species. The study area was discussed in the affected environment and environmental consequences sections for these species. Some of the habitats may be affected by the project. However, given the wide distribution of desert scrub habitats throughout the region, and that the proposed project impacts to vegetation would be minimized to the maximum extent practicable, the proposed project is not expected to have effects on any of the species. There are no planned developments within the project area. Given the rural and open designation of the project area, it is anticipated that limited development of the area will occur in the near future. Therefore, cumulative impact on these resources is not expected to occur.

If burrowing owls were to be located within the proposed project area during pre-construction surveys, the aforementioned avoidance and minimization efforts and compensatory mitigation would be implemented; thus, cumulative effects to the burrowing owl are not expected to occur as well.

2.3.5 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

A Natural Environmental Study (NES) was completed for the project in November 2009. Suitable habitat for the state and federally threatened least Bell's vireo, state species of special concern and federally endangered arroyo toad exists and state threatened Mohave ground squirrel, exists within the project area. (Table 2-30) Surveys were conducted for each species to determine presence or absence.

Least Bell's Vireo. Suitable habitat for the least Bell's Vireo (LBV) within the proposed project area consists of southern willow scrub located within Cajon Creek. Protocol Surveys were conducted during May, June, and July of 2006 by Sapphos (Appendix E of the NES); and in May, June, and July of 2007 and April, May, June, and July 2008 by ECORP were found to have negative results.

Arroyo Toad. The arroyo toad (AT) is a moderate-sized (2.2-2.9 in snout to vent length), light-olive green to gray to tan-brown toad with small, oval parotoid glands, and a light-colored "v" shaped stripe between the eyelids. This species usually lacks a mid-dorsal stripe, which helps to distinguish it from similar species such as the western toad (*Bufo boreas*) (Stebbins

2003). Undersurfaces are creamy to dirty white, but never blotched, mottled, or spotted with dark markings. The iris is dark brown with scattered gold iridophores on the upper and lower portions of the iris. ECORP conducted protocol breeding season surveys for AT in April, May, and June of 2007; and in March, April, May, and June of 2008. Each of the 2007 and 2008 surveys were found to have negative results.

Table 2-30. Summary of Threatened or Endangered Species with Potential to Occur Within Project Vicinity

Scientific Name	Common Name	Status	General Habitat Description	Potential to Occur	Rationale
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	FE, SE	Riparian scrub	Moderate	Riparian scrub is present within the eastern portion of the proposed project area.
<i>Bufo californicus</i>	Arroyo toad	FE, CSC	Sandy washes with associated riparian scrub	Moderate	Sandy washes with associated riparian scrub are present within the eastern portion of the proposed project area, within Cajon Creek.
<i>Gopherus agassizii</i>	Desert tortoise	FT, ST	Creosote Bush Scrub, Joshua Tree Woodland	Not expected	Joshua tree woodland is present within the western portion of the proposed project area; however, the construction of the California Aqueduct has created a geographical barrier between the proposed project area and the currently known existing population.
<i>Spermophilus mohavensis</i>	Mohave ground squirrel	ST	Joshua Tree Woodland	Present	Mohave ground squirrel is considered present through records reported on the CNDDDB and through discussions with CDFG.

Legend:

FE: Federal Endangered Species FT: Federal Threatened Species
 ST: State (California) Threatened Species SE: State (California) Endangered Species

Source: Natural Environment Study, November 2009

Desert tortoise. The desert tortoise is a state and federally threatened species and has been observed just outside the proposed project area. The desert tortoise is a large, herbivorous reptile found in portions of California, Arizona, Nevada, and Utah deserts. In California, the desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave desert scrub, and the lower Colorado River Valley subdivision of the Sonoran desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from 2 to 8 inches, with a relatively high diversity of perennial plants and production of ephemeral streams. Soils must be friable enough for digging of burrows and firm enough to prevent burrows from collapsing. In California, the desert tortoise is typically associated with gravelly flats or sandy soils with some clay. They are occasionally found in windblown sand or rock terrain. Live desert tortoise have been found at an elevation of 2,225 m (7,300 ft), but the most favorable habitat occurs at elevations of 305 m to 915 m (1,000 ft to 3,000 ft). Desert

tortoises are most active in California during spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert.

Desert tortoise reproduction typically begins in late March or early April when copulation is likely to occur. Eggs are laid in early summer (late May to July). Clutches average five eggs (range 1 to 8) and take three to four months to hatch. Nests are often constructed at the entrance to burrows. Lack of rainfall and consequent scarcity of annual plants may result in reproductive failure. In addition, desert tortoise are undergoing a population decline due to off-road vehicle use, competition with livestock, disease (including upper respiratory tract disease), predation (an estimated 50% by ravens), deliberate killing by humans, and general forms of harassment such as collecting without a permit. This species is also experiencing habitat loss and degradation (BLM, 2000).

No desert tortoises were observed, nor sign was detected, during surveys in Spring 2000 (Appendix J of the NES) and 2002 (Appendix K of the NES). The project site contains approximately 10 miles of potential habitat consisting of California juniper/Joshua tree woodland and Joshua tree woodland; however, these areas have been largely fragmented from known occupied habitat by the construction of the California Aqueduct, which functions as a geographical barrier.

Mohave ground squirrel. The Mohave ground squirrel is characterized as a pink-brown ground squirrel of rather small size, without distinctive stripes or spots. The tail is moderately furred but flattened. The Mohave ground squirrel hibernates during cold months and generally emerges in March in the southern Mojave Desert or as late as May in the northern Mojave Desert (Jameson and Peeters, 1988). The primary threat to the Mohave ground squirrel is degradation of habitat, predation by domestic and feral cats and dogs, urbanization, mortality on paved and dirt roads, agricultural development, mining and mineral development, off-highway vehicles, military development, and sheep and cattle grazing (BLM, 2000).

Focused surveys for Mohave ground squirrels were conducted from June 27 through July 2, 2000 (Appendix L of the NES). These surveys were conducted for another District 8 project that overlaps the limits of this project. These surveys were conducted according to a modified March 2000 CDFG survey protocol. The modification extended the trapping season until mid-July and consisted of trapping at each appropriate site for five consecutive days. This modification was approved by Becky Jones of CDFG. No MGS were captured during the aforementioned 2000 surveys; however, presence of this species will be inferred based on the fact that the CNDDDB revealed records of occurrence for MGS near the SR-18/SR-138 interchange. Conversations were also held between Caltrans and CDFG, which discussed the presence of MGS in the project area. MGS habitat exists from the western boundary of the proposed project area, west of the SR-18/SR-138 interchange in Los Angeles County, to approximately PM 72.5 in Los Angeles County.

San Bernardino Kangaroo Rat (SBKR). SBKR is a subspecies of Merriam's kangaroo rat, a small gray-brown rodent species. Its general habitat description includes floodplains and river terraces with large open spacing between shrubs, and friable soils, in which it constructs its burrows.

Environmental Consequences

Least Bell's Vireo (LBV). Suitable riparian habitat of the species is present within the footprints of the project. However, project design and construction will ensure that impacts to riparian areas will be avoided to the maximum extent practicable, as would be coordinated with ACOE, RWQCB, and CDFG during the aquatic permitting process.

Protocol Surveys for the LBV were conducted based on recommendations of the resource agencies. As 2006, 2007, and 2007 focused surveys for the LBV were negative, and proposed project impacts to riparian areas would be avoided to the maximum extent practicable, the proposed project is not expected to impact the LBV. A Not Likely to Adversely Affect determination concurrence was received from USFWS on December 30, 2009 for the federal and state listed as endangered LBV. A copy of this letter is included in Chapter 3 of this document.

Arroyo Toad. Suitable habitat for the AT within the proposed project area is located within Cajon Creek. Work to widen the bridge would be avoiding habitats to the maximum extent practicable.

The California Natural Diversity Database (CNDDDB) reports the closest known occurrence of AT to approximately 1.5 mi downstream from the proposed project site, within Cajon Creek. Proposed Critical Habitat for the species is located approximately 4 mi downstream of the proposed project area, per the Revised Critical Habitat for the Arroyo Toad.

ECORP Consulting Inc. conducted protocol breeding season surveys for AT in April, May, and June of 2007; and in March, April, May, and June of 2008. Each of the 2007 and 2008 surveys were found to have negative results. Although suitable AT foraging habitat occurs near the SR-138 Cajon Creek bridge, little to no breeding habitat exists within the proposed project area. The hydrologic character of Cajon Creek varies greatly from known occupied downstream locations and Proposed Critical Habitat, where hydrologic conditions are more favorable and characteristic of AT breeding habitat.

A Not Likely to Adversely Affect determination concurrence was received from USFWS on December 30, 2009. A copy of this letter is included in Chapter 3 of this document.

Desert tortoise. As the desert tortoise was not observed within the proposed project area during surveys in Spring 2000 and 2002, and the California Aqueduct acts as a geographical barrier between the proposed project area and known occupied habitat, and with the implementation of the avoidance and minimization measures, the construction of the proposed project is not expected to have an impact on the desert tortoise.

Based on a phone conversation with Ray Bransfield of the USFWS, which took place on May 26, 2009, and an inter-agency meeting conducted on September 22, 2009, Concurrence of a Not Likely to Adversely Affect Determination would be issued for the desert tortoise associated with the proposed project. A "Not Likely to Adversely Affect" Determination Letter was sent to the USFWS Ventura Field Office on October 6, 2009. The agency concurred with the determination in a letter received on December 30, 2009. Copies of the both letter is located in Chapter 3 of this document.

The CDFG issued a Letter of Concurrence, dated November 26, 2002, which states: "The Department concurs that the project should not have an impact on desert tortoise, provided the

measures outlined in the Findings and Recommendations section of the report are followed.” The Findings and Recommendations section of the report are referenced in Appendix K of the NES, and is summarized in the Avoidance, Minimization, and/or Mitigation Measures of this section. A 2081 permit is not needed for the desert tortoise as a “No Effect” determination concurrence letter was obtained from SDFG for this species. A copy of this letter is placed in Chapter 3 of this document.

Mohave ground squirrel. The widening of the highway will impact approximately 60 acres of suitable MGS habitat. Coordination on September 2009 with CDFG resulted in development of required measures to compensate for the loss on habitats and avoid impacts to the species. Further coordination will take place between the Department and CDFG during the design stage to obtain a 2081 permit for impacts to the state threatened species.

San Bernardino Kangaroo Rat. A habitat assessment and USFWS protocol trapping survey was conducted for SBKR between May 16 and May 21, 2004. A second habitat assessment was conducted on January 4, 2007. These habitat assessments and trapping surveys were found to have negative results. The proposed project is not expected to impact SBKR.

Avoidance, Minimization, and/or Mitigation Measures

Least Bell’s Vireo (LBV). No compensatory mitigation for the LBV is proposed at this time.

Bio-20. As an avoidance measure, impacts to riparian areas shall be avoided to the maximum extent practicable.

Bio-21. As required by the USFWS, pre-construction surveys for LBV would be conducted within one year of the on-set of construction activities associated with the proposed project. If LBV were to be detected during these pre-construction surveys, Section 7 consultation would be reinitiated.

Arroyo Toad. The following avoidance and minimization efforts for the AT are proposed for implementation within Cajon Creek, per discussion with the UFWS through the informal Section 7 Consultation process:

Bio-22. Pre-construction surveys for AT would be conducted within one year of the on-set of construction activities associated with the proposed project. If AT were to be detected during these pre-construction surveys, Section 7 consultation would be reinitiated.

Bio-23. Exclusionary fencing, which will also denote the site as an environmentally sensitive area, would be installed to prevent arroyo toads from entering the proposed project site during construction activities.

Bio-24. Biological monitoring would be conducted during construction activities by a USFWS-authorized arroyo toad biologist.

Bio-25. Proposed project impacts to riparian areas would be avoided to the maximum extent practicable.

Bio-26. Vegetation removal would be minimized to the maximum extent practicable.

Bio-27. All applicable Best Management Practices (BMPs) in the Caltrans Construction Site Best Management Practices Manual (2003) would be followed. The contractor would be required to submit a Storm Water Pollution Prevention Plan (SWPPP) to address

water quality protection. Periodic monitoring by Caltrans Stormwater unit would assess the effectiveness of the BMPs.

- Bio-28. Construction activities would cease in rainy weather conditions.
- Bio-29. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into washes or culverts that cross the project area.
- Bio-30. Raw cement/concrete or washing thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic-life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering washes or culverts that cross the project area.
- Bio-31. No equipment maintenance/parking or fueling shall be done within or near any stream, harbor or channel margin, including drainages and washes, where petroleum products or other pollutants from equipment shall enter these areas under any flow condition.
- Bio-32. Excess materials, debris and trash shall be controlled on site and removed as soon as possible.
- Bio-33. Caltrans Standard Specifications dust control measures shall be implemented.
- Bio-34. Any temporary disturbance to the bank or channel shall be re-contoured to existing conditions.

Desert Tortoise. No compensatory mitigation for the desert tortoise is proposed as part of this project. The following avoidance and minimization efforts are proposed for the desert tortoise, per the “Report of Findings for the Desert Tortoise Focused Survey, State Route 138, Los Angeles County, California”, dated October 2002 (Appendix J of the NES):

- Bio-35. Construction activities would be limited to previously established access roads and to areas that would be directly impacted by the proposed project footprint.
- Bio-36. Vegetation removal would be minimized to the maximum extent practicable.
- Bio-37. A desert tortoise clearance survey would take place within any suitable desert tortoise project. habitat occurring on site, prior to the on-set of construction activities associated with the proposed
- Bio-38. A USFWS Authorized biologist would remain on-call during all proposed project-related construction activities.

Mohave ground squirrel.

Although complete avoidance of Mohave ground squirrel is not possible, early consultation with CDFG resulted in the development of the following proposed avoidance and minimization measures:

- Bio-39. All personnel involved in the construction project shall receive Mohave ground squirrel protection training. Training shall include discussion of the fragility of desert habitats, the importance of the Mohave ground squirrel to the environment, the protections afforded to the Mohave ground squirrel by the California Endangered

Species Act, and the correct protocol to follow should Mohave ground squirrel be encountered.

- Bio-40. Pre-construction surveys will be conducted to locate and avoid Mohave ground squirrels that may be present within the project area.
- Bio-41. Monitoring shall take place to avoid any direct take of individual Mohave ground squirrels that may enter the project site during construction activities.
- Bio-42. No firearms or pets shall be allowed at the work area. Firearms carried by authorized security and law enforcement personnel are exempt from this term and condition.
- Bio-43. Minor changes may develop through coordination efforts with CDFG as a portion of the 2081 Permit process, which will be obtained after completion of the final environmental document.
- Bio-44. **Compensatory Mitigation:** Permanent impacts to Mohave ground squirrel habitat would likely be mitigated at a ratio of 3:1 through consultation with CDFG during an inter-agency meeting held on September 22, 2009.

San Bernardino Kangaroo Rat. As the 2004 habitat assessment and trapping surveys and the 2007 habitat assessment for SBKR were negative, the proposed project is not expected to impact SBKR. No compensatory mitigation is proposed for SBKR at this time.

Cumulative Impacts

The Threatened and Endangered Species study area was discussed in the affected environment and environmental consequences for this resource. As all surveys for the Least Bell's Vireo and Arroyo Toad were negative, and proposed project impacts to riparian areas would be avoided to the maximum extent practicable, effects are not expected to result from the construction of the proposed project. The project is located within a rural setting with limited development. The land use is designated mostly as open space and rural living. Impact due to planned developments is not anticipated. This project will not result in cumulative impact to Least Bell's Vireo and Arroyo Toad.

As the desert tortoise was not observed within the proposed project area during surveys in Spring 2000 and 2002, and the California Aqueduct acts as a geographical barrier between the proposed project area and known occupied habitat, and the aforementioned avoidance and minimization measures would be implemented, cumulative impacts to this species are not expected to result from the construction of the proposed project at this time, as well.

As the 2004 habitat assessment and trapping surveys and the 2007 habitat assessment for SBKR were negative, effects to the SBKR are not expected to result from the construction of the proposed project. As a result of this finding, cumulative impact analysis on this species is not required.

With the implementation of avoidance and minimization measures, in addition to the compensation of impacted suitable Mohave ground squirrel habitat at a 3:1 ratio, impacts to this species are not expected to result from the construction of the proposed project. No additional projects are planned within the project area. Cumulative impacts on this species and its habitats are also not expected.

2.3.6 Invasive Species

Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Affected Environment

According to the Natural Environmental Study (NES) completed for the project in November 2009, roadsides vegetation typically includes non-native, invasive species. Several non-native species are present within the roadsides of the proposed project area, including tumbleweed (*Amaranthus albus*), Sahara mustard (*Brassica tournefortii*), perennial mustard (*Hirschfeldia incana*), Russian thistle (*Salsola tragus*), Spanish broom (*Spartium junceum*), red-stemmed filaree (*Erodium cicutarium*), saltcedar (*Tamarix ramosissima*), common rip-gut grass (*Bromus diandrus*), and red brome (*Bromus madritensis* ssp. *rubens*).

Environmental Consequences

The project will create a considerable area of disturbed soil that may be susceptible to the spread of invasive species. All possible measures will be utilized to prevent or minimize the spread of such species in the project area. Landscaping or erosion control will not utilize any of the species on the California list of noxious weeds.

Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the following measures will be implemented:

- Bio-45. The landscaping and erosion control included in the project will not use species listed as noxious weeds.
- Bio-46. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

Cumulative Impacts

With the implementation of avoidance and minimization measures, it is not anticipated that the construction of the project will have adverse impacts resulting from the spread of invasive species. In addition, there are no other planned developments in the project area. The project will not contribute to cumulative impacts of spreading invasive species.

2.4 Climate Change (CEQA)

Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHG related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year; however, in order to enact the standards California needed a waiver from the U.S. Environmental Protection Agency (EPA). The waiver was denied by EPA in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that EPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 mpg fuel economy standard for automobiles and light duty trucks which will take effect in 2012. On June 30, 2009 EPA granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Climate change and GHG reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency (EPA) to regulate GHG as a pollutant under the Clean Air Act (*Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497 (2007)). The court ruled that GHG does

fit within the Clean Air Act's definition of a pollutant, and that the EPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)--in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

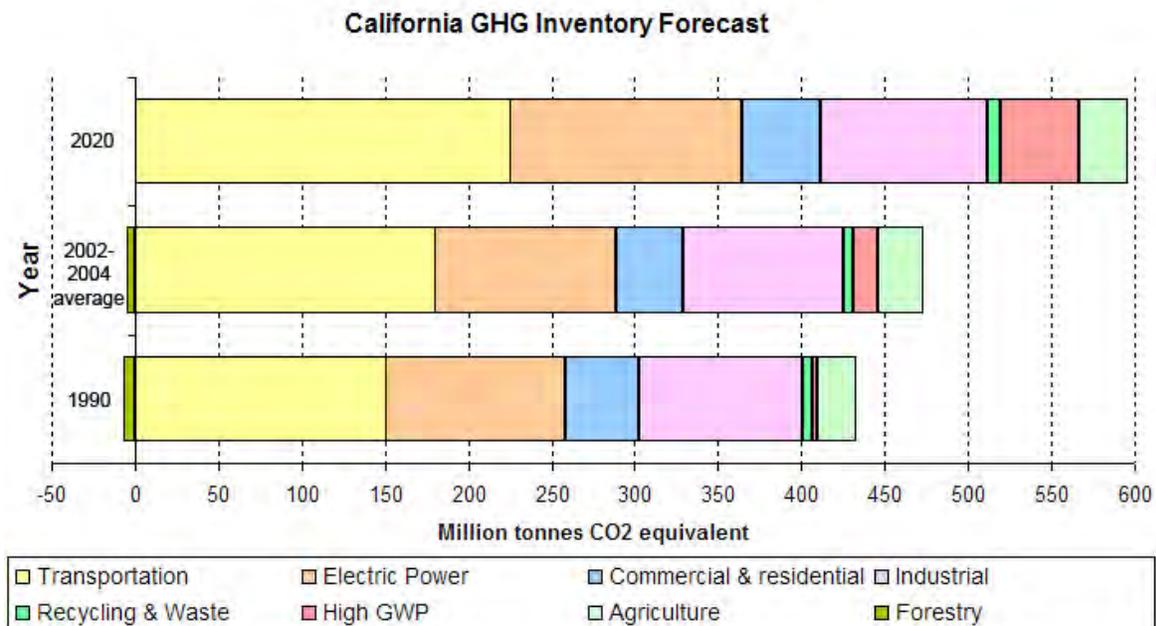
These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.¹⁰

According to Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate change in CEQA Documents (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(i)(1) and 15130. To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

As part of its supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the GHG inventory for California (June 26, 2008). Below is a graph from that update that shows the total GHG emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

¹⁰ <http://www.epa.gov/climatechange/endangerment.html>

Figure 2-11. California Greenhouse Gas Inventory



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation (see Climate Action Program at Caltrans (December 2006), Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006. This document can be found at <http://www.dot.ca.gov/docs/ClimateReport.pdf>

Project Analysis

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO₂, may be reduced.

The purpose of the proposed project is to alleviate existing and future traffic congestion along SR-138 between SR-18 and I-15 during peak hours. The proposed project would not generate new vehicular traffic trips since it would not construct new homes or businesses. An estimate of horizon years 2035 (Phase I) and 2038 (Phase II) AADT, VMT, and peak-hour LOS along the SR-138 project limits is provided below in Table 2-31. As shown therein, the proposed project would result in improved peak-hour LOS during horizon years 2035 and 2038 under the Build Alternative when compared to No-Build Alternative.

Table 2-31. Horizon Year Project Limits AADT, VMT, and Peak-Hour LOS

Development Phase/Project Alternative	AADT Average Along Roadway Segment	Daily VMT	Peak-hour LOS Range
Phase I Horizon Year 2035			
No-Build Alternative	26,633	327,586	E to F
Build Alternative	26,633	327,586	B to C
Phase II Horizon Year 2038			
No-Build Alternative	29,420	253,012	F
Build Alternative	29,420	253,012	C

Source: Air Quality Analysis Report, July 2009

Using the CT-EMFAC emissions inventory compilation model, CO₂ emissions that would occur as a result of vehicular travel along the SR-138 project limits were estimated under Build and No-Build conditions (i.e., VMT and travel speeds). As shown in Table 2-32, CO₂ emissions are anticipated to marginally increase at opening year for both project phases under the Build condition when compared to No-Build. However, at horizon years 2035 and 2038, CO₂ emissions are anticipated to be lower for both project phases, under the Build condition when compared to No-Build.

Table 2-32. Future Year Tons per Day CO₂ Emissions

Evaluation Year ^a	Daily CO ₂ Emissions (US Tons)					
	Phase I			Phase II		
	No-Build	Build	Project Effect	No-Build	Build	Project Effect
Existing Year	145.21			79.40		
Opening Year	157.81	158.33	0.52	91.07	91.48	0.41
Horizon Year	225.96	223.08	(2.88)	178.10	173.75	(4.35)

^a Existing Year evaluation year is 2008. Phase I Opening Year and Horizon Year are 2015 and 2035, respectively. Phase II Opening Year and Horizon Year are 2018 and 2038, respectively.

Source: ICF Jones & Stokes, June 2009: CT-EMFAC output sheets are provided in Appendix A of Air Quality Analysis Report.

Source: Air Quality Analysis Report, July 2009

In addition, as shown above in Table 2-33, the Build Alternative would reduce congestion and improve LOS, as evidenced by improved GHG emissions. Relieving congestion by enhancing operations and improving travel times in high-congestion travel corridors would lead, in general, to reductions in GHG emissions. The modeling output provided in Table 2-34 reflects the beneficial effect of improved traffic flow and average travel speed that would occur under the Build Alternative at horizon years 2035 and 2038.

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

It is proposed as part of this project to rehab deteriorating sections of the existing pavement in order to improve ride quality and to reduce future need for frequent maintenance. Detailed stage construction plan will be developed in design phase for the project. The roadway will be open to traffic at all times. For the temporary limited, short-term impacts on traffic during construction, the Department will prepare a Traffic Management Plan (TMP) to be implemented in order to minimize localized congestion and travel delays. In addition, the construction contractor will be required to comply with all South Coast Air Quality Management District's rules, ordinances, and regulations in regards to air quality restrictions.

CEQA Conclusion

Based on the above, it is the Department's determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding the project's direct impact and its contribution on the cumulative scale to climate change. However, as previously stated, the Department does anticipate a reduction in greenhouse gas emissions in the horizon year with the project when compared to the horizon year without the project. Nonetheless, the Department is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016.¹¹ As shown on the figure below, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of

¹¹ Governor's Strategic Growth Plan, Fig. 1 (<http://gov.ca.gov/pdf/gov/CSGP.pdf>)

strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

As part of the Climate Action Program at Caltrans (December 2006, <http://www.dot.ca.gov/docs/ClimateReport.pdf>), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by EPA and CARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the UC Davis.

Figure 2-12. Outcome of Strategic Growth Plan

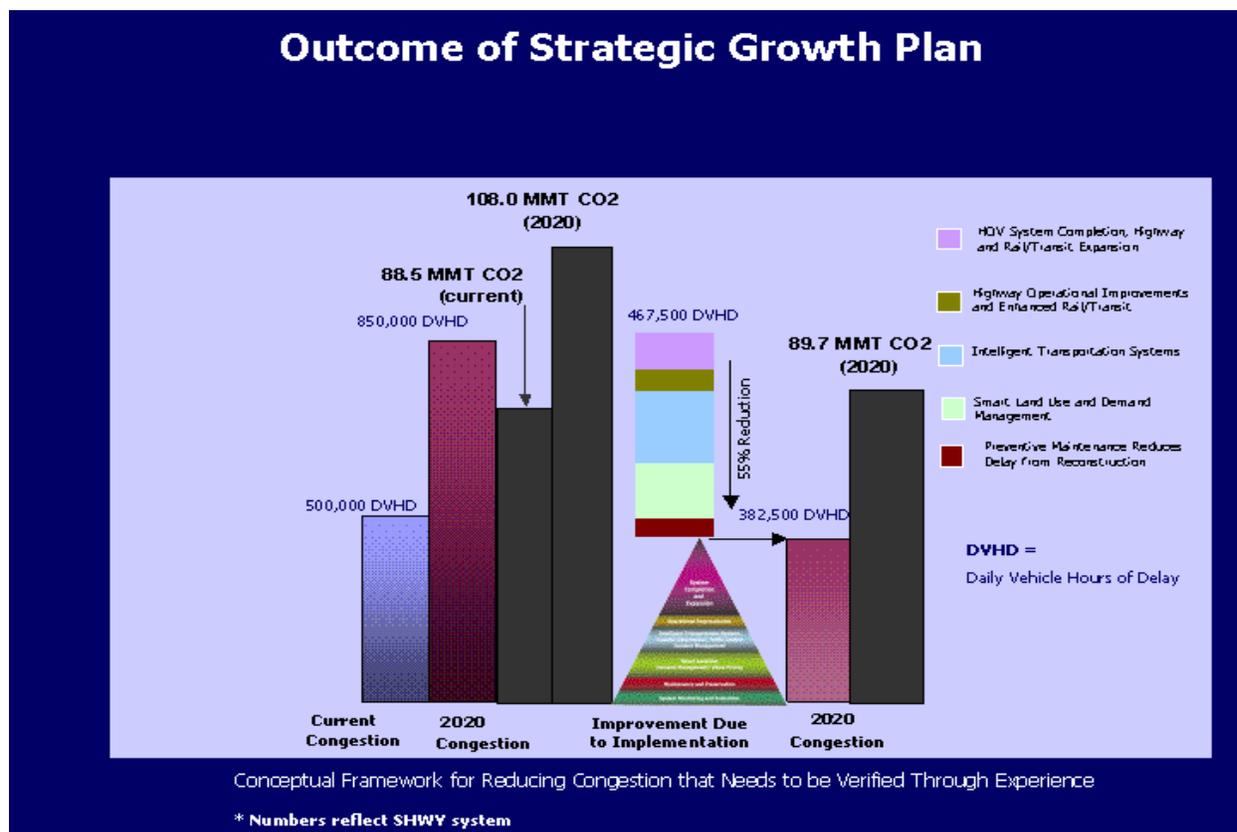


Table 2-33 summarizes the Department and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. For more detailed information about each strategy, please see

Table 2-33. Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & Greenhouse Gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement		0.0065
				B20 B100	0.0045	0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67

Climate Action Program at Caltrans (December 2006); it is available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>. To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

AQ-12. According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with South Coast Air Quality Management District's rules, ordinances, and regulations in regards to air quality restrictions. Two lanes will be open to traffic at all times during construction.

Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects. On November 14, 2008, Governor Schwarzenegger signed Executive Order S-13-08 which directed a number of state agencies to address California’s vulnerability to sea level rise caused by climate change.

The California Resources Agency (now the Natural Resources Agency, (Resources Agency)), through the interagency Climate Action Team, was directed to coordinate with local, regional, state and federal public and private entities to develop a state Climate Adaptation Strategy. The Climate Adaptation Strategy will summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts and then outline solutions that can be implemented within and across state agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy, Resources Agency was directed to request the National Academy of Science to prepare a *Sea Level Rise Assessment Report* by December 2010 to advise how California should plan for future sea level rise. The report is to include:

- relative sea level rise projections for California, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- the range of uncertainty in selected sea level rise projections;

- a synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems;
- a discussion of future research needs regarding sea level rise for California.

Furthermore Executive Order S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. However, all projects that have filed a Notice of Preparation, and/or are programmed for construction funding the next five years (through 2013), or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data. (Executive Order S-13-08 allows some exceptions to this planning requirement.). Phase 1 of this project is scheduled for construction funding within the next 5 years. This is an inland project that occurs from an elevation of 3,259 feet to 4,800 feet, and is not in an area that is vulnerable to future sea level rise. This project should be exempt from considering these planning guidelines.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted as part of Governor's Schwarzenegger's Executive Order on Sea Level Rise and is mobilizing to be able to respond to the National Academy of Science report on *Sea Level Rise Assessment*, which is due to be released by December 2010.

On August 3, 2009, Natural Resources Agency in cooperation and partnership with multiple state agencies, released the 2009 California Climate Adaptation Strategy Discussion Draft, which summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats. The release of the draft document set in motion a 45-day public comment period. Led by the California Natural Resources Agency, numerous other state agencies were involved in the creation of discussion draft, including Environmental Protection; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The discussion draft focuses on sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. The strategy is in direct response to Gov. Schwarzenegger's November 2008 [Executive Order S-13-08](#) that specifically asked the Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. As data continues to be developed and collected, the state's adaptation strategy

will be updated to reflect current findings. A revised version of the report was posted on the Natural Resource Agency website on December 2, 2009; it can be viewed at: <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change impacts, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise

3 COMMENTS AND COORDINATION

3.1 Introduction

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, interagency coordination and consultation meetings, and Public Information meetings. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

3.2 Consultation and Coordination with Public Agencies

Consultation with several agencies occurred in conjunction with the preparation of the technical reports and Initial Study/Environmental Assessment for this project. Information on formal and informal consultation is included in the respective sections of this document. Copies of formal consultation letters are included at the end of this chapter. Following is a list of these agencies according to the area of resources:

Biological Resources:

- U.S Army Corps of Engineers (ACOE) regarding impacts to waters of the U.S. ACOE is a cooperating agency for this project. ACOE agreed to be a Cooperating agency on August 12, 2009 and provided consultation on the purpose and need of the project, alternative analysis, and information for the preparation of the WUS Jurisdictional Delineation WUS required for the 404 Permits during phone conversations and emails during the months of August and September of 2009.
- U.S. Fish and Wildlife Service (USFW) for informal Section 7 consultation regarding impacts to Federally listed endangered species. A "Not Likely to Adversely Affect" Determination Letter for LBV, AT, and DT was sent to the USFWS Ventura Field Office on October 6, 2009. A "Not Likely to Adversely Affect" Determination Concurrence Letter for LBV, AT, and DT was received on December 30, 2009. Copies of these letters are included in this chapter.
- U.S Forest Service (USFS) regarding impacts to wildlife corridors and the proposed wildlife studies and wildlife crossings.
- California Department of Fish and Game (CDFG) regarding impacts to Joshua trees relocation on November 18, 2009 to discuss conditions of type and methods for relocation of Joshua trees. Consultation also took place regarding surveys for State listed endangered species, species of interest, and streambed alterations. In a meeting in September 22, 2009 CDFG provided consultation regarding the compensation for impacted species and habitats.
- County of San Bernardino regarding the County Ordinance protecting Joshua trees. A meeting was held with the county on September 29, 2009. County representatives indicated that the county will not hold the state to the ordinance and left it to the state to determine strategy to avoid and minimize impacts to the trees.

Cultural Resources:

- State Historic Preservation Officer (SHPO) regarding historic and cultural resources within the area of the project
- Native American Heritage Commission and other Tribes, Groups, and Individuals regarding Native American cultural resources in the project vicinity.

Air Quality:

- A meeting was held with the SCAG Transportation Conformity Working Group (TCWG) on March 2009 to review the PM Hot Spot Analysis for the project. TCWA concurred with this determination in its meeting on March 24, 2009. A copy of the TCWG Project-Level PM Hot Spot Analysis Project Lists is included.

Planning and Funding:

- County of San Bernardino is involved in all design review processes through working with Planning and Design Units of the Department.
- San Bernardino Associated Governments (SANBAG) regarding initiation, planning and funding of the project.

3.3 Public Participation

3.3.1 Public Information Meetings

The Department Project Management and Design groups held several meetings with local citizens, business owners, local elected officials, and privet groups. Public meetings were also held in various communities along SR-138. The meetings were held to provide information to the public, receive comments and respond to questions and concerns, and to and help gain support for the project. Information presented included purpose and need, design alternatives, schedules, safety, and impact to the communities.

An area wide Public Information Meetings was held for this project at Pinon Mesa Middle School on December 11, 2002. The public has expressed a general support of the project. An Open Forum Public Hearing will be held for this project during the Draft Environmental Document circulation period.

3.3.2 Public Circulation

The approved Draft Environmental document will be circulated to all agencies that will be affected by this project. At the same time, it will also be made available to the general public for a period of 30 days. Comments and responses to comments will be included in the final environmental document for this project.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



In Reply Refer To:
FWS-SB/LA-10B0059-10I0111 (CFWO)
2010-I-0127 (VFWO)

December 30, 2009

Craig Wentworth
Senior Environmental Planner
Department of Transportation
464 W. Fourth Street, 6th Floor
San Bernardino, California 92401-1400

Subject: Informal Section 7 Consultation for the State Route 138 Widening Project, San Bernardino and Los Angeles Counties, California

Dear Mr. Wentworth:

This letter is in response to your correspondence, dated October 6, 2009, requesting our concurrence with your determination that the proposed State Route 138 (SR-138) Widening Project is not likely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and arroyo toad (*Anaxyrus (Bufo) californicus*) and the threatened desert tortoise (*Gopherus agassizii*) in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.).

The project is receiving Federal funding through the Federal Highway Administration (FHWA); the California Department of Transportation (Caltrans) has assumed FHWA's responsibilities under the Act for this consultation in accordance with section 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users 2005, as described in the National Environmental Policy Act Delegation Pilot Program Memorandum of Understanding between FHWA and Caltrans (effective July 1, 2007) and codified in 23 U.S.C. 327(a)(2)(A).

The proposed project is located along SR-138 between Los Angeles County post mile (PM) 69.4 and San Bernardino County PM 15.2, a total distance of 20.8 miles. Implementation of the project as proposed will result in the widening of the existing two-lane facility to four lanes with a median left turn lane, and realignment of portions of the mainline. The project will result in the addition of two 12-foot lanes in each direction, an 8-foot outside shoulder lane in each direction, and 14-foot median left turn lane. The portions of SR-138 proposed for realignment are located from approximately 0.6 mile west of Avalon Road to approximately 0.5 mile west of Sheep



Craig Wentworth

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Creek Road, a total distance of 1.5 miles, and approximately 0.3 mile east of State Route 2 to approximately 0.5 mile west of Hess Road, a total distance of 2.0 miles.

Construction activities associated with the project include grading, cutting slopes, importing clean fill, compacting, trenching, and paving. The majority of fill would likely be from the slope cutting activities on-site. A contractor-supplied material site would likely supplement the remaining fill requirements of the project and will be cleared environmentally by the contractor. Equipment proposed for use in the construction of the proposed project includes graders, back hoes, loaders, dump trucks, cement trucks, water trucks, and paving equipment. Various support vehicles and equipment will be used as needed.

To address wildlife connectivity, the proposed 20.8-mile road project will incorporate a minimum of 24 culverts with a minimum diameter of 36 inches, which Caltrans considers to be large enough to act as wildlife undercrossings for small animals. In addition, to facilitate wildlife movement within the boundaries of San Bernardino County National Forest, Caltrans proposes to construct two natural stream bottom undercrossings at locations identified as important for wildlife connectivity by the U.S. Forest Service. A 15-foot high by 25-foot wide bottomless underpass will be installed at PM 7.63. The existing 8-foot by 10.5-foot reinforced concrete box culvert at PM 13.93 will be replaced with a 9-foot by 25-foot bottomless culvert. The proposed project will also widen existing bridges at Sheep Creek (PM 3.62), Pine Lodge West Overhead (PM 14.27), Pine Lodge East Overhead (PM 14.76), and Cajon Creek Bridge (PM 14.93).

To the northwest, the project passes through a broad desert bajada dominated by Joshua tree woodland and California juniper habitats. The project continues through semidesert chaparral and enters Cajon Canyon in the foothills of the San Gabriel Mountains. Southern willow scrub and mulefat scrub habitats occur at the southeastern end of the project within Cajon Creek. Approximately 1.039 acres of jurisdictional waters of the United States and 2.682 acres of streambed under the jurisdiction of the California Department of Fish and Game occur in the project area, including 0.026 acre of southern willow scrub. Impacts to riparian vegetation will be off-set at a minimum 1:1 ratio.

The least Bell's vireo and arroyo toad are known to occur in the vicinity of the proposed project. Least Bell's vireos have been reported approximately 0.80 mile north and 2.25 miles south of the proposed project in Cajon Creek. Five records of arroyo toads occur within Cajon Creek south of the proposed project, with the closest being approximately 1.10 miles south. Suitable habitat for these species occurs within Cajon Creek at the southeastern terminus of the proposed project area. Protocol surveys for the least Bell's vireo were conducted for the project in 2006, 2007, and 2008 with negative results. Protocol surveys for the arroyo toad were conducted for the project in 2007 and 2008 with negative results.

Craig Wentworth

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In addition, habitat that is potentially suitable for desert tortoises exists in the vicinity of the proposed project; however, this habitat is fragmented and isolated from current populations of the desert tortoise as a result of the construction of the California Aqueduct and is considered to be unoccupied and non-recoverable without the facilitated reintroduction of the species. Protocol surveys for the desert tortoise were conducted within the limits of the proposed project in 2000 and 2002 with negative results.

Caltrans has incorporated the following measures into the project design to avoid impacts to federally listed species. Caltrans and the U.S. Fish and Wildlife Service (Service) agreed to slightly modify measure 11; the modified measure is contained herein.

- 1) All applicable best management practices in the Caltrans Construction Site Best Management Practices Manual (2003) will be followed. The contractor is required to submit a storm water pollution prevention plan to address water quality protection. Periodic monitoring by Caltrans Stormwater unit will assess the effectiveness of the best management practices.
- 2) Construction activities will cease in rainy weather conditions.
- 3) No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature will be allowed to enter into or be placed where it may be washed by rainfall or runoff into washes or culverts that cross the project area.
- 4) Raw cement/concrete or washing thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life, resulting from project related activities will be prevented from contaminating the soil and/or entering washes or culverts that cross the project area.
- 5) No equipment maintenance/parking or fueling will be done within or near any stream, harbor or channel margin, including drainages and washes, where petroleum products or other pollutants from equipment may enter these areas under any flow condition.
- 6) Excess materials, debris and trash will be controlled on site and removed as soon as possible.
- 7) Dust control measures will be implemented (Caltrans Standard Specifications).
- 8) Any temporary disturbance to the bank or channel will be recontoured to existing conditions.

Craig Wentworth

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- 9) Prior to implementation, a Caltrans biologist will be notified to assess, identify and approve project access roads, equipment staging and storage and vehicle parking areas. These areas will occur only on paved areas or in previously disturbed areas. Disturbed areas will contain little or no native vegetation. Disturbance to native vegetation will be minimized to the maximum extent possible.
- 10) Protocol surveys will be conducted for the least Bell's vireo and arroyo toad within one year prior to commencement of vegetation clearing and construction activities for the proposed project. If listed species are observed within the project impact area or close enough to the project area that they could be affected by construction activities such as noise and lighting, Caltrans will re-initiate consultation with the Service to address unanticipated effects to the species.
- 11) Biological monitoring will be conducted during construction activities by a Service-authorized arroyo toad biologist.
- 12) Prior to vegetation removal or construction activities, a small animal exclusion fence which will also denote the site as an environmentally sensitive area, will be installed around the impact area in areas with suitable habitat for arroyo toads. A pre-construction survey for arroyo toads within the exclusion fence will be completed within one week prior to initiation of construction. The fence will be removed promptly upon completion of the project. If arroyo toads are observed within the small animal fencing, Caltrans will re-initiate consultation with the Service to address unanticipated effects to the species.

Because these measures have been incorporated into the project, we concur with your determination that the proposed project is not likely to adversely affect the desert tortoise, least Bell's vireo, and arroyo toad. Consequently, further consultation pursuant to section 7(a)(2) of the Act is not required. If new information reveals effects of the agency action that may affect listed species in a manner or to an extent not previously considered or this action is subsequently modified in a manner that was not considered in this assessment, Caltrans must contact the Service as soon as possible to determine whether additional consultation would be appropriate.

This document does not authorize take under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712). To avoid violation of the Migratory Bird Treaty Act, Caltrans will avoid take of active nests. All nests will be excluded from bridge structures that will be affected by project construction prior to the nesting period. An on-site biological monitor will coordinate during construction activities in the nesting season to ensure that active nests are not taken.

The Service recommends that Caltrans conduct a focused survey for federally endangered slender-horned spinyflower (*Dodecahema leptoceras*) within areas of suitable habitat in the project impact area during the species April to June blooming period. If the slender-horned spinyflower is observed within the project impact area, we recommend that Caltrans re-initiate consultation with our agency.

Craig Wentworth

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Thank you for your coordination on this project. If you have any questions, please contact Sally Brown of the Carlsbad Fish and Wildlife Office at (760) 431-9440, extension 278 regarding the least Bell's vireo and arroyo toad or Michael Glenn of the Ventura Fish and Wildlife Office at (805) 644-1766, extension 328 regarding the desert tortoise.

Sincerely,

A handwritten signature in cursive script that reads "Raymond Bransfield". The signature is written in dark ink and is positioned above the printed name.

Raymond Bransfield
Senior Biologist

DEPARTMENT OF TRANSPORTATION
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October 6, 2009

Mr. Carl Benz
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Dear Mr. Benz

The California Department of Transportation (Caltrans), as the National Environment Policy Act lead agency, requests a concurrence of a *not likely to adversely affect* determination for the least Bell's vireo (*Vireo bellii pusillus*), arroyo toad (*Bufo californicus*), and desert tortoise (*Gopherus agassizii*) for a proposed project on State Route 138 (SR-138) in San Bernardino (SB) and Los Angeles (LA) Counties from LA post mile (PM) 69.4 to SB PM 15.2. The project is located at the coordinates 34.25'24.55" North/ 117.36'49.71" West (NAD 83).

Caltrans, as project proponent, would widen the existing 2-lane facility to 4 lanes with a median left turn lane and realign portions of the mainline. The widening will consist of two 12-foot lanes in each direction, an 8-foot outside shoulder lane in each direction, and a 14-foot median left turn lane.

The realigned portions of SR-138 will be as follows:

- Approximately 0.6 mile west of Avalon Road to approximately 0.5 mile west of Sheep Creek Road, which is 1.5 miles in total distance.
- Approximately 0.3 miles east of SR-2 to about 0.5 miles west of Hess Road, which is 2.0 miles in total distance.

The project involves the extension of several culverts along SR-138 and widening of 6 structures. The structures are as follows:

- California Aqueduct (#53-2174)
- Sheep Creek Bridge (#54-0810)

- Cajon Mount Underpass (#54-1056)
- Pine Lodge West Overhead (#54-1056)
- Pine Lodge East Overhead (#54-1057)
- Cajon Creek Bridge (#54-0561)

Historically occupied, potentially suitable to marginally suitable, habitat for the desert tortoise exists within or near the proposed project action area; however, this habitat is considered to be fragmented and isolated from current populations of desert tortoise, as a result of the construction of the California Aqueduct, and is therefore considered to be currently unoccupied, and would be non-recoverable without the facilitated re-introduction of the species.

A U.S. Fish and Wildlife Service (USFWS) protocol survey for the desert tortoise was conducted, on June 17-19, 2002, with negative results.

A USFWS protocol survey for the desert tortoise was also conducted for the SR-138 Truck Climbing Lane Project, an earlier project that is located within the limits of the 2-4 Lane Widening Project, on August 22 and 28, 2000, also with negative results.

Since the project will only affect suitable habitat for the desert tortoise that is considered currently unoccupied, and non-recoverable without the facilitated re-introduction of the species, the construction of the proposed project is not likely to adversely affect the survival of the desert tortoise as a species.

Potentially suitable habitat for the least Bell's vireo and arroyo toad occurs within Cajon Creek, near the eastern terminus of the proposed project area. This habitat would be avoided to the maximum extent practicable through project design. Widening of Cajon Creek Bridge would only involve the widening of the bridge deck, and would not involve the increase in size of bridge pilings, thus minimizing direct impacts to Cajon Creek and associated riparian vegetation.

USFWS protocol surveys for the LBV were conducted during May, June, and July of 2006; in May, June, and July of 2007; and in April, May, June, and July of 2008. Each of the 2006, 2007, and 2008 surveys were found to have negative results.

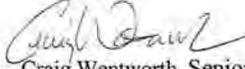
USFWS protocol breeding season surveys for arroyo toad were conducted in April, May, and June of 2007; and in March, April, May, and June of 2008. Each of the 2007 and 2008 surveys were found to have negative results.

Since consecutive surveys of suitable habitat for the least Bell's vireo and arroyo toad were found to have negative results, and suitable habitat would be avoided to the maximum extent practicable through project design, the construction of the proposed project is not likely to adversely affect the survival of the least Bell's vireo or arroyo toad, as a species.

If any of these species are detected within the proposed project action area, section 7 Consultation will be reinitiated.

If there are any questions please contact Zackry West of my staff, at (909) 383-6332, or myself.

Sincerely,



Craig Wentworth, Senior Environmental Planner
909-383-6936
Biological Studies and Permits Branch
District 08/San Bernardino

Enclosures: *CSW*

Report of Findings for the Desert Tortoise Focused Survey State Route 138, Los Angeles County, California

Desert Tortoise Survey Report, State Route 138, San Bernardino County, California

State Route 138 Four-Lane Widening Project: Results of Protocol Surveys for Least Bell's Vireo (EA 3401U0), Biological Technical Report

Least Bell's Vireo Report for SR-138 Widening Project, LA P.M. 69.4-75.0, SBD P.M. 0.0-4.6, San Bernardino County, CA, August 31, 2007

Least Bell's Vireo Report for SR-138 Widening Project, LA P.M. 69.4-75.0, SBD P.M. 0.0-4.6, San Bernardino County, CA, April, 2009

Arroyo Toad Report for SR-138 Widening Project, LA P.M. 69.4-75.0, SBD P.M. 0.0-4.6, San Bernardino County, CA, August 31, 2007

Arroyo Toad Report for SR-138 Widening Project, LA P.M. 69.4-75.0, SBD P.M. 0.0-4.6, San Bernardino County, CA, April, 2009

DEPARTMENT OF TRANSPORTATION

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May 7, 2009

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
California Office of Historic Preservation
1416 Ninth Street, Room 1442
Sacramento, CA 95814

08-SBd-138-PM 0.0/15.2
07-LA-138-PM 69.4/74.9
Widen State Route 138 from
SR-18 To Interstate-15, San
Bernardino and Los Angeles
Counties
EA 3401U

Subject: Determinations of Eligibility and notification of Finding of No Adverse Effect with Standard Conditions (ESA) for the California Department of Transportation (Caltrans) State Route 138 (SR-138) Widening Project from SR-18 To Interstate-15, San Bernardino and Los Angeles Counties, California.

Dear Mr. Donaldson:

Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans) have proposed a project to widen the existing State Route 138 (SR-138) facility in San Bernardino and Los Angeles counties to a 4-lane highway with a 4-foot median buffer. Other project features include horizontal realignment of the highway; drainage improvements; construction of wildlife crossings at two locations; and structure (bridge) widening at five locations. This consultation is undertaken in accordance with the Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation (PA), executed January 1, 2004.

Section 106 activities to date for this undertaking include a Historic Property Survey Report (HPSR, May 2009), which documents the identification and evaluation of cultural resources within the project's Area of Potential Effects (APE), located in Attachment A of the enclosed HPSR.

Consultation and identification efforts for the proposed undertaking (summarized on page 1-6 in the HPSR) resulted in the identification of six (6) cultural resources in the APE:

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Milford Wayne Donaldson
May 7, 2009
Page 2

One (1) property that was previously determined eligible for or listed in the NRHP:

- CA-SBR-7694H is the LADWP Boulder Dam - Los Angeles 287.5 kV Transmission Line. Determined Eligible for the NRHP on February 16, 1994 under Criteria A and C.

Two (2) properties that were previously determined ineligible for the NRHP in 2001 as a result of a previous Caltrans study:

:

- CA-SBR-10328H Borrow Pit Dump (Map Reference 5).
- CA-SBR-10329H is a historic period refuse dump (Map Reference 3).

Three (3) properties that have not been previously evaluated and were evaluated as part of this study:

- 10559 Highway 138 (Commercial building, Map Reference 1)
- 951 Highway 138 (Commercial Building, Map Reference 2)
- 4911 Highway 138 (Residence, Map Reference 4)

Pursuant to Stipulation VIII.C.5 of the Section 106 PA, your concurrence with the following eligibility determinations is requested:

The following three (3) properties are not eligible for listing in the NRHP due to lack of significance:

- 10559 Highway 138 (Commercial building, Map Reference 1)
- 951 Highway 138 (Commercial Building, Map Reference 2)
- 4911 Highway 138 (Residence, Map Reference 4)

Pursuant to Stipulation X.B.2 of the Section 106 PA, Caltrans is notifying SHPO that the project will result in the finding of **No Adverse Effect with Standard Conditions (ESA)**. An Environmentally Sensitive Area (ESA) will be established for the following Historic Property, which is the only Historic Property within the APE (See ESA Action Plan, HPSR Attachment E):

- CA-SBR-7694H is the LADWP Boulder Dam - Los Angeles 287.5 kV Transmission Line (Map Reference 6). Determined Eligible for the NRHP on February 16, 1994 under Criteria A and C. This linear resource passes over the SR-138 alignment. Two transmission line towers are located within the APE for the current project. The towers will be avoided and protected in place by designation of an ESA around the base of each tower.

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July 14, 2009

Ms. Susan Stratton
Supervisor, Section 106 Review Unit
California Office of Historic Preservation
1416 Ninth Street, Room 1442
Sacramento, CA 95814

08-SBd-138-PM 0.0/15.2
07-LA-138-PM 69.4/74.9
Widen State Route 138 from
San Bernardino and Los
Angeles Counties
EA 3401U

Dear Ms. Stratton:

The California Department of Transportation (Caltrans) Cultural and Community Studies Office, Division of Environmental Analysis, sent the following document to the State Historic Preservation Officer (SHPO) on behalf of FWHA in accordance with the NEPA Delegation Pilot Program Section 6005 MOU:

Historic Property Survey Report (HPSR) for the California Department of Transportation State Route 138 (SR-138) Widening Project from SR-18 To Interstate-15, San Bernardino County, California (May 2009)

The SHPO received this document on May 12, 2009 per log entered in the Office of Historic Preservation (OHP) database (OHP Reference No. FHWA090512A). The 30-day review period ended on June 11, 2009. Since 30 days for comment have now passed, Caltrans is hereby informing all concerned parties that we are proceeding forward with the undertaking per stipulation XIa-b of the Section 106 Programmatic Agreement (PA) executed January 1, 2004.

If you need any additional information, please do not hesitate to contact me at (909) 383-6933 or by email at Christie_Hammond@dot.ca.gov. Thank you for your assistance with this undertaking.

Sincerely,

A handwritten signature in cursive script that reads "Christie Hammond".

CHRISTIE HAMMOND
Office Chief
Environmental Support/Cultural Studies

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**TCWG Project-Level
PM Hot Spot Analysis Project Lists**

Review of PM Hot Spot Interagency Review Forms

March 2009	Determination
RIV011232	Not a POAQC - Hot Spot analysis not required.
SBD 4M07035 and 34011	Not a POAQC - Hot Spot analysis not required.
Exhibit	
SBD 08-2000049 and SDB97147	Not a POAQC - Hot Spot analysis not required.
Exhibit	
SBD 20041201 (updated)	Not a POAQC - Hot Spot analysis not required.
Exhibit (updated)	
SBD 200417	Not a POAQC - Hot Spot analysis not required.
Exhibit	
SBD 200078 (updated)	Not a POAQC - Hot Spot analysis not required.
Exhibit (updated)	
SBD 200064	Not a POAQC - Hot Spot analysis not required.
Exhibit	
SBD No RTIP ID Cullen-Vailley	Not a POAQC - Hot Spot analysis not required.
Exhibit	
LALS06	Not a POAQC - Hot Spot analysis not required.

4 LIST OF PREPARERS

- Maisoon Afaneh, Associate Environmental Planner, Generalist

The following also contributed to the document:

- Zackry West, Associate Environmental Planner, Biologist
- Andrew Walters, Associate Environmental Planner, Architectural Historian
- Gabriel Duff, Associate Environmental Planner, Archeologist
- Edison Jaffery, Transportation Engineer, Air Quality Specialist
- Hoang Pham, Transportation Engineer, Noise Specialist
- Rosanna Roa, Transportation Engineer, Hazardous Waste Specialist
- Fred Asef, Transportation Engineer, Project Engineer
- Roy King, Transportation Engineer, Hydraulics
- Ragaei Ayoub, Transportation Engineer, Storm Water Design
- John Stanton, Landscape Associate
- Lam D Nguyen, Transportation Engineer, Traffic Operations

5 DISTRIBUTION LIST

A copy of this IS/EA will be distributed to the federal, state, regional, and local agencies, and utility providers listed below. In addition, a CD copy of the document will also be provided to property owners who maybe directly affected by the proposed project. A hard copy will be provided to property owners upon request.

FEDERAL AND STATE AGENCIES

Jim Bartel
U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, CA 92011

Carl Benz
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura CA, 93003

Veronica Chan
U.S. Army Corps of Engineers
Los Angeles District-Regulatory Division
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Los Angeles, CA 90053-2325

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U.S. Forest Services
Front Country Ranger District
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Lytle Creek, CA 92358

Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

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Region 6, Inland Deserts Regional Office
3602 Inland Empire Blvd. Suite C-22
Ontario, CA 91764

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California Department of Fish and Game
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Department of Water Resources
PO Box 942836
Sacramento, CA 94236

Lahontan Regional Water Quality Board
Victorville Branch Office
14440 Civic Drive, Suite 200
Victorville, CA 92392-2359

Santa Ana Regional Water Quality Board
3737 Main Street, Suite 500
Riverside, CA 92501-3348

California Transportation Commission
1120 N Street, Room 2221 (MS-52)
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California Department of Transportation
Post Office Box 942874 Mail Station 27
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Transportation Planning
Department of Public Work
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San Bernardino, CA 92415

Ellen Pollema
San Bernardino Associated Governments
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Snowline Unified School District
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Phelan, CA 92371

Phelan Sheriff Department
4050 Phelan Road
Phelan, CA 92371

Southern California Rail Authority
700 Flower Street, Suite 2600
Los Angeles, CA 90017

County of Los Angeles
Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012

UTILITY COMPANIES

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Verizon
Attention LaVerne Bullard
16071 Mojave Drive, Bldg. A
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The Gas Company
Attention Frank Vargas
1981 W. Lugonia Avenue
Redlands, CA 92374-9796

Sprint
Attention Lynn Durrett
282 S. Sycamore Street
Rialto, CA 92376

AT&T
Attention Walter Werstiuk
22311 Brookhurst St., Suite 203
Huntington Beach, CA 92646

Southwest Gas
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Victorville, CA 92392-0919

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Southwest Gas Corporation
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Las Vegas NV 89150-0101

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Phelan, CA 92329-4049

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Appendix A: CEQA Checklist

CEQA Environmental Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures under the appropriate topic headings in Chapter 2. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. POPULATION AND HOUSING: Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. RECREATION:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XV. TRANSPORTATION/TRAFFIC: Would the project:

a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVI. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix B: Resources Evaluated relative to Section 4(f)

Appendix B: Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

There are no existing or planned publicly owned parks, recreation areas, or wildlife or waterfowl refuges within or immediately adjacent to the disturbance limits of the proposed project that would trigger Section 4(f) 23 cfr 774 provisions.

The Historic Property Survey Report (HPSR) prepared for this project identifies the LADWP Boulder Dam - Los Angeles 287.5 kV Transmission Line site (CA-SBR-7694H) is a Historic Property within the project area. The Transmission Line crosses SR138 diagonally at approximately PM 14.5. At this location, there is one transmission tower located approximately 30 feet up the hillside on the south side of the highway, and another tower located approximately 30 feet down the roadway slope on the north side of the highway. At both tower locations a retaining wall will be constructed as part of the project on the roadway side of the tower in order to avoid all physical impacts to the transmission towers and lines. The retaining walls will be approximately 8 feet high and 240 feet long. An ESA will be located around the base of both towers to ensure that no adverse effects will occur during construction of the wall and the project. Since the towers will be avoided and protected in place, a determination of a Finding of No Adverse Effect with Standard Conditions- ESAs was made for the project.

There is no potential for indirect effect to the property due to the proximity of the historic property to the project area. The surrounding area has already been substantially altered through previous transportation projects and recent improvements to the railroad lines that pass through the area. The portion of the transmission line within the APE has suffered a loss of integrity of setting, and the construction of the proposed project will not potentially affect the setting of the property.

The proposed project does not use the property and its proximity to the property will not cause a constructive use of the transmission tower and power lines because the proximity impacts will not substantially impair the protected activities, features, or attributes of the Historic Property.

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Appendix C: Title VI

DEPARTMENT OF TRANSPORTATION

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*Flex your power!
Be energy efficient!*

August 25, 2009

**TITLE VI
POLICY STATEMENT**

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in blue ink that reads "Randell H. Iwasaki".

RANDELL H. IWASAKI
Director

Appendix D: Environmental Commitments Record

Environmental Commitments Record

SR 138 Widening Project

SBD-138-PM (0.0/R15.2), LA-138-PM (69.3/74.9)

EA 3401U0

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Community Impacts						
Com-1	Prepare staging plan that will ensure access to homes and businesses is available at all times with minimum disruption of traffic flow and increase in delays.	Design/RE	PS&E, Construction		Department Protocol	
Com-2	Design a public campaign through which the public is will advised of construction plans that may have impacts on traffic.	Public Affairs/RE	Pre-Construction		Department Protocol/CIA	
Com-3	Keep emergency services providers informed of changes in traffic plans, and continue coordination on traffic management over the entire period of construction.	RE	Pre-Construction		Department Protocol/CIA	
Relocation and Real Property Acquisition						
RRA-1	All property owners shall be compensated for the acquired property as required by Federal regulation.	Right of Way	Final Design		Federal Act	
Utilities/Emergency Services						
U/ES-1	The Department will coordinate with the affected utility companies during the final design phase of the project to insure that services are not impacted.	Design/RE	PS&E, Construction			
U/ES-2	A Comprehensive Transportation Management Plan (TMP) will be prepared to minimize traffic inconveniencies due to construction activities. The plan will include coordination with emergency	TDM/RE/Public Relations	PS&E, Construction		CIA	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	services providers in the case of any road closures.					
Traffic & Transportation						
Tran-1	A comprehensive Transportation Management Plan (TMP) will be required to minimize the traffic impact due to construction activities. A detailed TMP will be developed during the PS&E phase of the project. Some of the general elements that will be included are Public Awareness Campaign (PAC), Construction Zone Enhancement Enforcement Program (COZEEP) and Enhanced COZEEP, Portable Changeable Message Signs (PCMS), Caltrans Highway Information Network (CHIN), and Radar Speed Message Sign	TDM/RE/Public Relations	PS&E, Construction		CIA	
Visual/Aesthetics (Landscape)						
Phase 1 Measures						
Land-1	Project construction shall retain the maximum amount of existing vegetation by minimizing the amount of clearing and earthwork. During construction, Environmentally Sensitive Area (ESA) fencing shall be provided around trees and vegetation to be preserved and around the transmission line steel tower.	Design/RE	PS&E, Construction		VIA	
Land-2	The restoration of mountain and desert scrub vegetation shall include replanting of native vegetation on disturbed sites (including staging areas, borrow pits, and other areas of surface disturbance) and preventing soil loss and erosion on shoulders and slopes. Plant materials used for restoration and landscaping shall be indigenous to the area.	Design/RE	PS&E, Construction		VIA	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	Hydroseeding and seedling planting shall occur in the early fall, just prior to the rainy season.					
Land-3	The retaining wall proposed around the transmission line steel tower should be treated to break up the expanse of the concrete wall plane and show a more natural cut rock surface, reflective of the surrounding area. This may be achieved using Formliner to add a surface texture to the wall or use of mechanically stabilized earth (MSE) modular concrete block facing unit wall with a buff color.	Cultural/Design/RE	PS&E, Construction		VIA	
Land-4	A vista point shall be developed at the intersection of SR 138 and Lone Pine Canyon Road, to provide a rest stop or turnout where travelers and visitors may get a closer and longer look at the Mormon Rocks near the highway.	Design/RE	PS&E, Construction		VIA	
Land-5	After cutting of rock outcroppings along the highway, the rock faces shall be provided with a similar surface as the Mormon Rocks formation, as possible. This will include over excavation to create vertical ridges, provision of a relatively smooth finish on the rock surface with shallow horizontal groves, and rock rounding to eliminate hard edges.	Design/RE	PS&E, Construction		VIA	
Land-6	Slopes shall be designed at lower grades to reflect the natural terrain. Disturbed or manufactured slopes shall be landscaped with native vegetation to reflect vegetation in the surrounding area and to mask the hard lines created by engineered cuts and embankments.	Design/RE	PS&E, Construction		VIA	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Land-7	The bridge structures, signs and other highway appurtenances to be replaced shall be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance their compatibility with the rural community and mountain or desert landscape. Specifically, call box signs to be relocated shall consist of brown signs and green call boxes to reflect the natural landscape.	Design/RE	PS&E, Construction		VIA	
Land-8	Where existing developments abut the highway, the highway pavement shall be blocked by planting trees and shrubs between the setback areas (front yards, parking areas, etc.) and the highway to reduce permanent views of the highway pavement.	Environmental/Design/RE	PS&E, Construction		VIA	
Land-9	Joshua trees that would be removed shall be replanted away from the proposed pavement areas within the existing right-of-way. If on-site relocation is not feasible, Caltrans shall contact the San Bernardino County Building and Safety Office for a list of residents willing to adopt and care for the relocated trees. Transplantation standards shall follow best nursery practices.	Environmental/Design/RE	PS&E, Construction		VIA/NES	
Phase 2 Measures						
Land-10	Project construction shall retain the maximum amount of existing vegetation by minimizing the amount of clearing and earthwork. During construction, Environmentally Sensitive Area (ESA) fencing shall be provided around trees and vegetation to be preserved.	Environmental/Design/RE	PS&E, Construction		VIA/NES	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Land-11	The restoration of desert scrub vegetation shall include replanting of native vegetation and Joshua trees on disturbed sites (including staging areas, borrow pits, and other areas of surface disturbance) and preventing soil loss and erosion on shoulders and slopes. Plant materials used for restoration and landscaping shall be indigenous to the area. Hydroseeding and seedling planting shall occur in the early fall, just prior to the rainy season.	Environmental/Design/RE	PS&E, Construction		VIA/NES	
Land-12	Joshua trees that would be removed shall be replanted away from the proposed pavement areas. If on-site relocation is not feasible, Caltrans shall contact the San Bernardino County Building and Safety Office for a list of residents willing to adopt and care for the relocated trees. Transplantation standards shall follow best nursery practices.	Environmental/Design/RE	PS&E, Construction		VIA/NES	
Land-13	The bridge structures, signs and other highway appurtenances shall be selected for their form, scale, color, aesthetic treatment, spacing, and configuration to enhance their compatibility with the rural community and desert landscape. Specifically, call box signs to be relocated shall consist of brown signs and green call boxes to reflect the natural landscape.	Design/RE	PS&E, Construction		VIA	
Cultural Resources						
Cult-1	Prior to any construction or construction related activity, the ESA will be delineated in the field by the placement of temporary fencing. An approved archaeological (architectural historian) and Native	RE/Cultural	Pre-Construction		HPSR	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	American Cultural Monitors shall monitor installation of fencing and all construction related activities.					
Cult-2	Contractor shall remove the temporary fencing and construction equipment/material at the conclusion of construction under the supervision of the approved monitors.	RE/Cultural	Pre-Construction		HPSR	
Cult-3	If buried cultural materials are encountered during construction, work in the area would halt until a Department archaeologist can evaluate the nature and significance of the find. A Native American Monitor shall be present during all ground disturbing activities to prevent any impact to any unknown cultural resources.	RE/Cultural	Pre-Construction		HPSR	
Cult-4	If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code 5097.98.	RE/Cultural	Pre-Construction		HPSR	
Cult-5	The Department shall be responsible for the upkeep of the California Historical Landmark (NO.577) "Mormon Trail Monument".	Design/Maintenance	After Construction		HPSR	
Water Quality and Stormwater Runoff						
SW-1	Existing vegetation will be preserved in place when possible.	Storm Water/RE/Biologist	Construction		SWDR	
SW-2	Fiber rolls will be placed along the contours of the new slopes at appropriate intervals.	Storm Water/RE	Construction		SWDR	
SW-3	Bio-swales will be constructed. When possible, they will be constructed early in	Storm Water/RE	Construction		SWDR/Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	the construction stages to also function as a construction BMP.					
SW-4	Rock slope protection will be constructed as part of the project. It will be put in place as soon as possible during construction to prevent scour of upstream facilities.	Storm Water/RE/Biologist	Construction		SWDR/Permits	
SW-5	Construction entrance and exit will be protected to prevent tracking soil onto adjoining roadways. Temporary Potable Concrete washout devices will be implemented to contain concrete waste.	Storm Water/RE/Biologist	Construction		SWDR/Permits/ NES	
SW-6	The contractor will develop a separate SWPPP that will detail all construction storm water pollution protection measures that will be used on the project. The SWPPP will be consistent with the Department's State Water Resources Control Board permit. This plan would incorporate the resource agency approved methodology as well as all other appropriate techniques for reducing impacts to water quality.	Storm Water/RE	Construction		SWDR/State Laws and Regulations	
Geology/Soils/Seismic/Topography						
Soil-1	Install brow ditch, erosion mats at the entire slope face, or install asphalt concrete dikes at the top of embankments, as recommended by District Landscape Architects for the various slopes.	Design/RE	Construction		Geotechnical Report	
Soil-2	At the Mormon Rocks cut location, a 4.5 m wide catchment area should be graded between the toe of the cut and the edge of the traveled way. The catchments area should be graded uniformly from the edge of shoulder to the toe of cut, and the toe of	Design/RE	Construction		Geotechnical Report	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	the cut slope should be 0.5 m below the edge of traveled way.					
Soil-3	Construction of the proposed bridge improvements and/or structures replacement may require additional subsurface exploration during the design stage that would permit assessment of seismic effects such as liquefaction. All improvements would be designed to resist the maximum credible earthquake without collapse, structural damage or traffic obstruction.	Design/RE	Construction		Geotechnical Report	
Soil-4	Blasting shall conform to standard specifications and control measures so it will not cause damage to nearby buildings and bridges, including any highway fixtures. It shall also be controlled so it will not cause undue annoyance to the nearby residents or danger to the employees on the project. Traffic controls shall be coordinated with the District's Traffic Management Unit to ensure safety and reduce construction impacts on traffic.	Design/RE	Construction		Geotechnical Report	
Paleontology						
Paleo-1	<u>Monitoring:</u> A qualified principal paleontologist that meets the qualifications of the Department will be assigned to the project. The principal investigator will be responsible to implement the mitigation plan and maintain professional standards of work, including monitoring, reporting, and recovering of resources. The principal investigator will designate the project team to include a qualified field supervisor and qualified monitors.				Paleontological Identification and Evaluation Report. Paleontological Mitigation Plan.	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Paleo-2	<p><u>Construction Phase:</u> The Contractor shall provide the Resident Engineer with a schedule of ground-disturbing activities to be conducted within the project limits in writing at least 15 working days prior to construction and update the schedules as needed. The Resident Engineer will make arrangements for the Paleo Monitoring Team to be at the work sites in accordance with these requirements. Qualified monitors will perform full-time monitoring of construction grading and excavation in the sensitive formations outline above. Personnel must be on call to respond to unanticipated discoveries in other portions of the project area.</p>	RE/Cultural	Pre-Construction/ Construction		(PIR/PER/PMP)	
Paleo-3	<p><u>Communication:</u> Monitors will act to protect potentially significant paleontological resources (including direct notification to construction personnel on site to redirect earthmoving to permit recovery of potentially significant fossils) and by notifying the earthmoving contractor's job supervisor and the paleontological field supervisor of the find. The monitor will estimate the time required to recover the fossil as part of that notification. If work will be diverted for more than two hours or if the construction personnel are not cooperative with the monitor, the paleontological field supervisor will discuss the situation with the Resident Engineer. The Resident Engineer will make final decisions regarding formal Suspend Work orders and disputes between parties.</p>	RE/Cultural	Pre-Construction/ Construction		(PIR/PER/PMP)	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Paleo-4	<u>Training:</u> All project personnel shall receive training prior to commencement of work. Paleontological Personnel will receive a copy of the paleontological resources management plan, daily forms and appropriate maps. In addition, all paleontological personnel will receive any mandated safety training and environmental awareness training before performing any field work on the project. Construction Field Personnel, including all earthmoving personnel and their supervisors, shall be required to attend presentation by the principal paleontologist on possible paleontological resources.	RE/Cultural	Pre-Construction/ Construction		(PIR/PER/PMP)	
Paleo-5	<u>Discovery and Recovery:</u> When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program will be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will then be deposited in a scientific institution with paleontological collections.		Construction		(PIR/PER/PMP)	
Paleo-6	<u>Reports:</u> A weekly email summary will be submitted to the Resident Engineer. If fossils are recovered, additional documentation regarding lab work will also be incorporated. These records and the field notes will be used to prepare a monthly letter report. The monthly reports	RE/Cultural	Construction		(PIR/PER/PMP)	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	will summarize the monitoring activities of the previous period, discoveries made, progress of lab work. Upon conclusion of earthmoving, a Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.					
Hazardous Waste/Materials						
HW-1	Prior to demolition activities, a licensed asbestos abatement firm should be contracted to remove and dispose o ACM. This work should be completed in accordance with the South Coast Air Quality Management District (SCAQMD) guidelines.	Contractor/RE	Pre-Construction		Department Protocol/Site Investigation Reports (SIR)	
HW-2	Any traffic striping and/or pavement markers shall be removed and disposed of in accordance with Department's Special Provisions.	Contractor/RE	Pre-Construction		Department Protocol / SIR	
HW-3	If hazardous wastes/materials and/or groundwater contamination is suspected during construction activities, the Department's Unknown Hazards Procedures will be implemented, the contractor shall stop work in the vicinity of the suspect find, cordon off the area and contact district construction hazardous waste coordinator, district environmental hazardous waste coordinator, maintenance hazardous spill coordinator and district Proposition 65 coordinator. Coordination with the appropriate regulatory agencies will be initiated immediately to develop an investigation plan and remediation plan for the expedited protection of public health and the environment.	Constructor/RE	Construction		Department Protocol / ISA	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Air Quality						
AQ-1	General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.	Contractor/RE	Construction		AQ Analysis Report/AQMD Rules	
AQ-2	All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.	Contractor/RE	Construction		AQ Analysis Report	
AQ-3	Use electricity from power poles, rather than temporary diesel or gasoline powered generators if or where feasible.	Contractor/RE	Construction		AQ Analysis Report	
AQ-4	Use on-site mobile equipment powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.	Contractor/RE	Construction		AQ Analysis Report	
AQ-5	Develop a construction traffic management plan that includes, but is not limited to: (1) consolidating truck deliveries; (2) providing a rideshare or shuttle service for construction workers; and (3) providing dedicated turn lanes for movement of construction trucks and equipment on-and off-site.	Contractor/RE	Construction		AQ Analysis Report	
AQ-6	Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. For purposes of this rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered	Contractor/RE	Construction		AQ Analysis Report/AQMD	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	sufficient to maintain compliance;					
AQ-7	Take actions sufficient to prevent project-related track out onto paved surfaces;	Contractor/RE	Construction		AQ Analysis Report	
AQ-8	Cover loaded haul vehicles while operating on publicly maintained paved surfaces;	Contractor/RE	Construction		AQ Analysis Report/AQMD	
AQ-9	Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions;	Contractor/RE	Construction		AQ Analysis Report/AQMD	
AQ-10	Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours; and	Contractor/RE	Construction		AQ Analysis Report/AQMD	
AQ-11	Reduce nonessential earth-moving activity under high wind conditions. For purposes of this rule, a reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance	Contractor/RE	Construction		AQ Analysis Report/AQMD	
AQ-12	According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with South Coast Air Quality Management District's rules, ordinances, and regulations in regards to air quality restrictions. Two lanes will be open to traffic at all times during construction.	Contractor/RE	Construction		Climate Change-AQ Analysis Report/AQMD	
Noise						
Noise-1	All equipment will have sound-control devices that are no less effective than those	Contractor/RE	Construction		Noise Study Report	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	provided on the original equipment. No equipment will have an unmuffled exhaust.					
Noise-2	As directed by the Department, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.	Contractor/RE	Construction		Noise Study Report	
Noise-3	As directed by the Department, the contractor will provide one Type 1 sound level meter and one acoustic calibrator to be used by the Department until contract acceptance. The contractor shall provide training by a person trained in noise monitoring to one Department employee designated by the Engineer. The sound level meter must be calibrated and certified by the manufacturer or other independent acoustical laboratory before delivery to the Department. An annual recalibration by the manufacturer or other independent acoustical laboratory must also be provided. The sound level meter must be capable of taking measurements using the A-weighting network and the slow response settings. The measurement microphone must be fitted with a windscreen. The Department returns the equipment to the contractor at contract acceptance.	Contractor/RE	Construction		Noise Study Report	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Biological Environment						
Natural Communities:						
Bio-1	Construct two Wild Life Crossings at two locations	Design/RE/Biologist	Design/ Construction		NES/Agreement with FS	
Bio-2	Provide funding to FS to conduct Wildlife study to monitor movement of wildlife across the highway, and the utilization of the crossing.	Design/RE/Biologist	Design/ Construction		NES/Agreement with FS	
Bio-3	Project design shall include only widening of the bridge deck, and would not involve increase in size of bridge pilings.	Design/RE/Biologist	Design/ Construction		NES	
Bio-4	Vegetation removal shall be limited to the project footprint. Vegetation removal within footprints shall be minimized to the extent practicable.	Design/RE/Biologist	Design/Pre-Construction, Construction		NES/ Permits	
Bio-5	Follow appropriate process for the relocation of Joshua trees, in coordination with CDFG.	Design/RE/Biologist	Design/Pre-Construction, Construction		NES/ Permits	
Bio-6	Compensatory Mitigation: Impacts to riparian vegetation would be offset through compensation as required with CDFG 1602 Streambed Alteration Agreement process at a minimum of a 1:1 ratio.	Design/RE/Biologist	Design/ Construction		NES/ Permits	
Waters of the United States/ Waters of the State						
Bio-7	Section 404 permits applications shall be submitted to the ACOE.	Biologist	Design/ Construction		NES/ Permits	
Bio-8	In conjunction with the 404 permits, Section 401 application shall be submitted to the applicable RWQCBs.	Biologist	Design/ Construction		NES/ Permits	
Bio-9	Construction activities must demonstrate compliance with National Pollutant Discharge Elimination System (NPDES) Permit regulated by Section 402 of the	Biologist/RE	Design/ Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	Clean Water Act.					
Bio-10	Submit applications for 1602 Streambed Alteration Agreement with CDFG.	Biologist	Design/ Construction		NES/ Permits	
Plant Species						
Bio-11	Short-joint beavertail cacti, which would be directly impacted by construction of the proposed project, would be relocated outside of the proposed project impact area prior to the on-set of construction activities.	RE/Biologist	Design/ Construction		NES/ Permits	
Bio-12	Impacts to riparian areas will be avoided to the maximum extent practicable. Efforts will be coordinated with ACOE, RWQCB, and CDFG during the aquatic permitting process.	RE/Biologist	Design/ Construction		NES/ Permits	
Animal Species						
Bio-13	Burrowing Owls. -Pre-construction surveys for burrowing owls would take place within 30 days prior to the on-set of proposed project construction activities.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-14	- If burrowing owls are found on site during the pre-construction sweep, coordination with CDFG will be conducted to determine the appropriate avoidance and minimization measures required for the project.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-15	<p>- A Burrowing Owl Mitigation and Monitoring Plan would need to be submitted to CDFG for review and approval prior to passive relocation of owls. Following are measures that could be included in the mitigation and monitoring plan:</p> <ul style="list-style-type: none"> • All burrowing owls associated with occupied burrows, that will be directly impacted (temporarily or permanently) by the project shall be passively relocated and measures shall be implemented to avoid the take of owls. • Occupied burrows shall not be disturbed during the nesting season of February 1 and August 31, unless a biologist can verify through non-invasive methods that either the owls have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent flight. • Owls must be passively relocated from any occupied burrows that will be impacted by project activities, by a qualified biologist. Suitable habitat must be available adjacent or near the disturbance site or artificial burrows would need to be provided nearby. Once the biologist has confirmed that the owls have left the burrow, burrows would be excavated using hand tools and filled to prevent reoccupation. • All passive relocation shall be approved by CDFG. The permitted biologist shall 	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
	monitor the relocated owls a minimum of three days per week for a minimum of three weeks. A report summarizing the results of the relocation and monitoring shall be submitted to CDFG within 30 days following completion of the relocation and monitoring of the owls.					
Bio-16	Compensatory Mitigation: As compensation for any direct loss of occupied burrowing owl nesting and foraging habitat, Caltrans shall mitigate by acquiring and permanently protecting known burrowing owl nesting and foraging habitat at a ratio determined by CDFG.	Biologist	Prior to end of construction		NES/ Permits	
Bio-17	Other Species: - Avoid the take of active nests. All nests will be excluded from bridge structures that will be affected by project construction prior to the migratory bird nesting period (February 1 through September 1). An onsite biological monitor will coordinate during construction activities in the nesting season to ensure that active nests are not taken.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-18	- Vegetation removal shall be limited to the project footprint. Vegetation removal within footprints shall be minimized to the extent practicable, and it will be coordinated with ACOE, RWQCB, and CDFG during the aquatic permitting process.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-19	2. A pre-construction sweep will be conducted within 48 hours prior to commencement of the project activities to ensure the avoidance of Le Conte's thrasher and other nesting birds within the project impact area, and to avoid or relocate any nests found. All required measures should be implemented pursuant to the Federal Migratory Bird Treaty Act (MBTA).	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Threatened and Endangered Species						
Bio-20	Least Bell's Vireo (LBV) As an avoidance measure, impacts to riparian areas shall be avoided to the maximum extent practicable.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-21	As required by the USFWS, pre-construction surveys for LBV would be conducted within one year of the on-set of construction activities associated with the proposed project. If LBV were to be detected during these pre-construction surveys, Section 7 consultation would be reinitiated.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-22	Arroyo Toad Pre-construction surveys for AT would be conducted within one year of the on-set of construction activities associated with the proposed project. If AT were to be detected during these pre-construction surveys, Section 7 consultation would be reinitiated.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-23	Exclusionary fencing, which will also denote the site as an environmentally sensitive area, would be installed to prevent arroyo toads from entering the proposed project site during construction activities.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-24	Biological monitoring would be conducted during construction activities by a USFWS-authorized arroyo toad biologist.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-25	Proposed project impacts to riparian areas would be avoided to the maximum extent practicable.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-26	Vegetation removal would be minimized to the maximum extent practicable.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-27	All applicable Best Management Practices (BMPs) in the Caltrans Construction Site Best Management Practices Manual (2003) would be followed. The contractor would be required to submit a Storm Water Pollution Prevention Plan (SWPPP) to address water quality Caltrans Stormwater unit would assess the effectiveness of the BMPs.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-28	Construction activities would cease in rainy weather conditions.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-29	No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into washes or culverts that cross the project area.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-30	Raw cement/concrete or washing thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic-life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering washes or culverts that cross the project area.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-31	No equipment maintenance/parking or fueling shall be done within or near any stream, harbor or channel margin, including drainages and washes, where petroleum products or other pollutants from equipment shall enter these areas under any flow condition.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-32	Excess materials, debris and trash shall be controlled on site and removed as soon as possible.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-33	Caltrans Standard Specifications dust control measures shall be implemented.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	
Bio-34	Any temporary disturbance to the bank or channel shall be re-contoured to existing conditions.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-35	Desert tortoise. 1. Construction activities would be limited to previously established access roads and to areas that would be directly impacted by the proposed project footprint.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-36	2. Vegetation removal would be minimized to the maximum extent practicable.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-37	3. A desert tortoise clearance survey would take place within any suitable desert tortoise habitat occurring on site, prior to the on-set of construction activities associated with the proposed project.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-38	4. A USFWS Authorized biologist would remain on-call during all proposed project-related construction activities.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-39	Mohave ground squirrel. 1. All personnel involved in the construction project shall receive Mohave ground squirrel protection training. Training shall include discussion of the fragility of desert habitats, the importance of the Mohave ground squirrel to the environment, the protections afforded to the Mohave ground squirrel by the California Endangered Species Act, and the correct protocol to follow should Mohave ground squirrel be encountered.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	
Bio-40	2. Pre-construction surveys will be conducted to locate and avoid Mohave ground squirrels that may be present within the project area.	RE/Biologist	Design/Pre-Construction/Construction		NES/ Permits	RE/Biologist

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party/Monitor	Timing/ Phasing	Task Completed (Sign and Date)	Commitment Source	Comments
Bio-41	3. Monitoring shall take place to avoid any direct take of individual Mohave ground squirrels that may enter the project site during construction activities.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	RE/Biologist
Bio-42	4. No firearms or pets shall be allowed at the work area. Firearms carried by authorized security and law enforcement personnel are exempt from this term and condition.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	RE/Biologist
Bio-43	5. Minor changes may develop through coordination efforts with CDFG as a portion of the 2081 Permit process, which will be obtained after completion of the final environmental document.	RE/Biologist	Design/Pre-Construction/ Construction		NES/ Permits	RE/Biologist
Bio-44	Compensatory Mitigation: Permanent impacts to Mohave ground squirrel habitat would likely be mitigated at a ratio of 3:1 through consultation with CDFG during an inter-agency meeting held on September 22, 2009.	Biologist	Prior to end of construction		NES/Permits	
Invasive Species						
Bio-45	The landscaping and erosion control included in the project will not use species listed as noxious weeds.	RE/Biologist	Design/ Construction		NES/ Permits	
Bio-46	In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.	RE/Biologist	Design/ Construction		NES/ Permits	

Appendix E: List of Acronyms

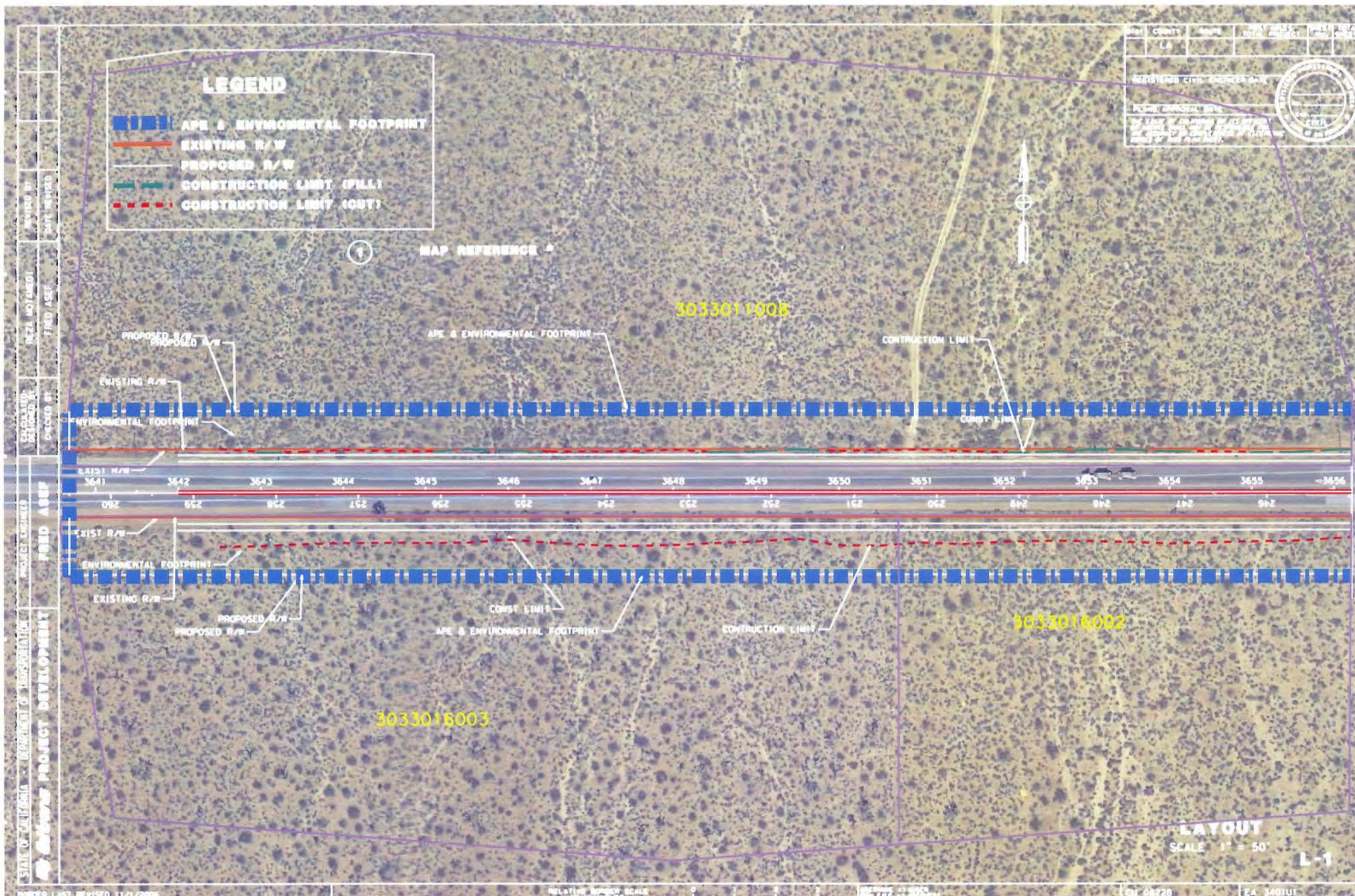
ACOE	U.S. Army Corps of Engineers
ADA	Americans with Disabilities Act
ADL	Aerially Deposited Lead
ADT	Average Daily Traffic
APE	Area of Potential Effects
BMP	Best Management Practices
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CO	Carbon monoxide
DSA	Disturbed Soil Area
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HDM	Highway Design Manual
I-15	Interstate 15
IRRS	Interregional Road System
IS/EA	Initial Study/Environmental Assessment
ISA	Initial Site Assessment
ITIP	Interregional Transportation Improvement Program
$L_{eq(h)}$	Equivalent Sound Level over one hour
LOS	Level of Service
MSAT	Mobile-Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NB	Northbound
ND	Negative Declaration
NEPA	National Environmental Policy Act
NO ₂	Nitrogen dioxide
O ₃	Ozone
PA	Programmatic Agreement
PDT	Project Development Team
PM	Particulate matter
PRC	Public Resources Code
RL	Rural Living
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Boards
SB	Southbound
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SHPO	State Historic Preservation Officer
SR	State Route
STIP	State Transportation Improvement Program
SWPPP	Storm Water Pollution Prevention Plan
TMP	Transportation Management Plan
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
WUS	Waters of the U.S

Appendix F Preliminary Layout Plans

A. Los Angeles County Project limits

B. San Bernardino County Project Limits

A. Los Angeles County Project limits



LEGEND

- APE & ENVIRONMENTAL FOOTPRINT
- EXISTING R/W
- PROPOSED R/W
- - - CONSTRUCTION LIMIT (FILL)
- - - CONSTRUCTION LIMIT (CUT)

DATE	COUNTY	SCOPE	PROJECT NO.	PROJECT NAME	SCALE	DATE
	LA					

REGISTERED CIVIL ENGINEER STATE OF CALIFORNIA
 PLAN NUMBER: 3033016002
 I AM AN ENGINEER IN THE STATE OF CALIFORNIA AND I HEREBY CERTIFY THAT I AM THE DESIGNER OF THIS PLAN AND THAT I AM A MEMBER OF THE CALIFORNIA SOCIETY OF PROFESSIONAL ENGINEERS.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 FRED ASHF
 PROJECT NO. 0822B
 DRAWING NO. EA 3401U1
 SHEET NO. 1 OF 1
 REVISIONS:
 1. 08/22/09
 2. 02/16/10



DATE	QUANTITY	ROUTE	POST MILE / TOTAL MILE (CL)	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVAL DATE	

I, **[Signature]**, a duly Licensed Professional Engineer in the State of California, hereby certify that I am the author of the above described plans and that I am a duly Licensed Professional Engineer in the State of California.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER: **FRED ABB**
 CHECKED BY: **FRED ABB**
 DESIGNED BY: **REZA MOHAMEDI**
 REVISIONS BY: **DATE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California High-Speed Rail Authority
 PROJECT: PROJECT DEVELOPMENT
 PROJECT NUMBER: FRED A51F
 CALCULATED BY: CHOCER A1
 DESIGNED BY: CHOCER A1
 CHECKED BY: CHOCER A1
 DATE: 08/24/2010
 REVISIONS BY: CHOCER A1
 DATE: 08/24/2010

DIST.	COUNTY	ROUTE	POST MILE TOTAL	STATION	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE: _____
 PLANS APPROVED DATE: _____
 THE STATE OF CALIFORNIA IN ITS SOLE JUDICIAL AND LEGAL CAPACITY AS EVIDENCED BY THE SEAL OF THE REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA.



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STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION
NEW PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASHF
 CALCULATED BY
 DESIGNED BY
 CHECKED BY
 REG'D. (NOT NEEDED)
 FRED ASHF
 REVISED BY
 DATE REVISED

PLAN	COUNTY	ROUTE	SHEET NO.	TOTAL SHEETS	DATE	PROJECT

REGISTERED CIVIL ENGINEER STATE OF CONNECTICUT
 FRED ASHF
 LICENSE NO. 10123
 EXPIRES 12/31/2011



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STATE OF CALIFORNIA
ARBON
 DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED A SEF
 CAL QUALIFIED
 REGISTERED BY
EXCEED, INC.
 REG. NO. 47460
 EXPIRES
 12/31/2011
 REVISED BY
 DATE REVISED

DATE	COUNTY	ROUTE	POST MILE	PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
FRED A SEF
 No. 47460
 State of California
 Civil



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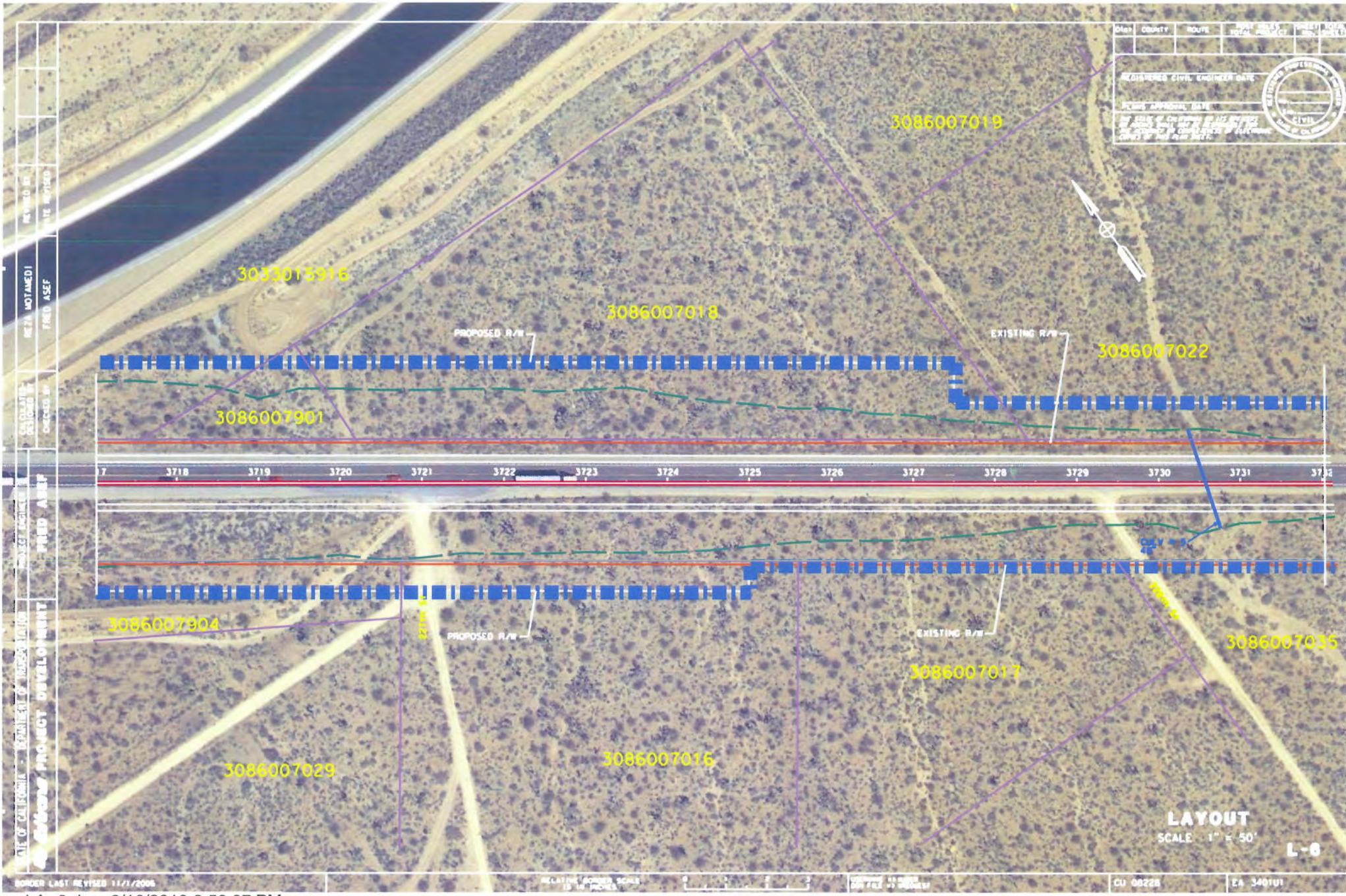
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 PROFESSIONAL SEAL
 CIVIL ENGINEER
 STATE OF CALIFORNIA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CALIFORNIA PROJECT DEVELOPMENT
 PROJECT NUMBER: 3086007018
 PROJECT LOCATION: [REDACTED]
 CHECKED BY: [REDACTED]
 DESIGNED BY: [REDACTED]
 REVIEWED BY: [REDACTED]
 DATE REVISION: [REDACTED]

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California Project Development

BORDER LAST REVISED 11/7/2008

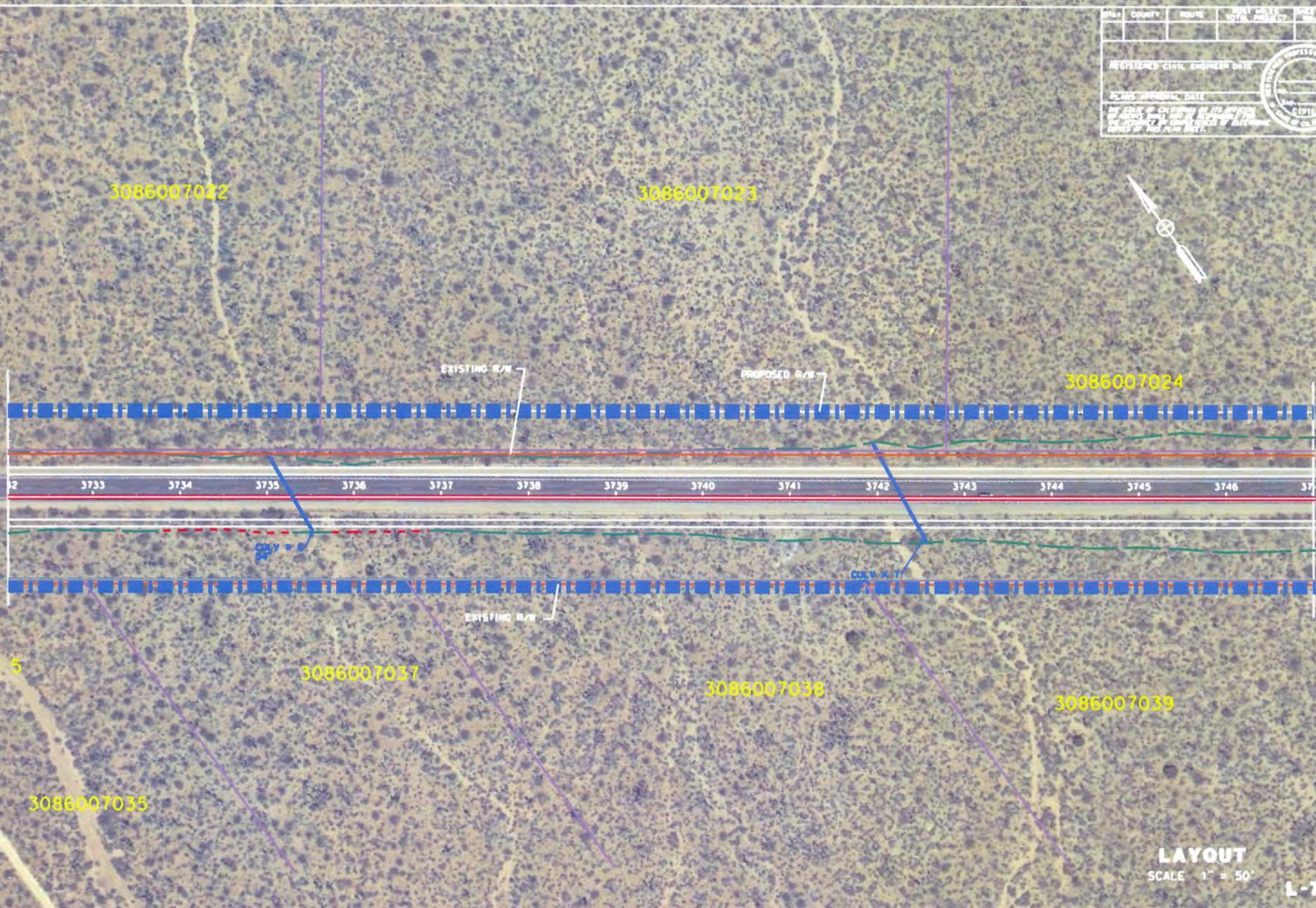
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PROJECT ENGINEER
FRED AEF

CALCULATED/DESIGNED BY
CHUCK ST

AREA NOTIFIED
FRED AEF

REVISED BY
DATE REVISED



Plan	County	Route	Sheet	Scale	Project
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>For every set of drawings of this project, the engineer shall file a statement of his/her name and address with the State Board of Civil Engineers, State of California.</small>					



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RELATIVE BORDER SCALE
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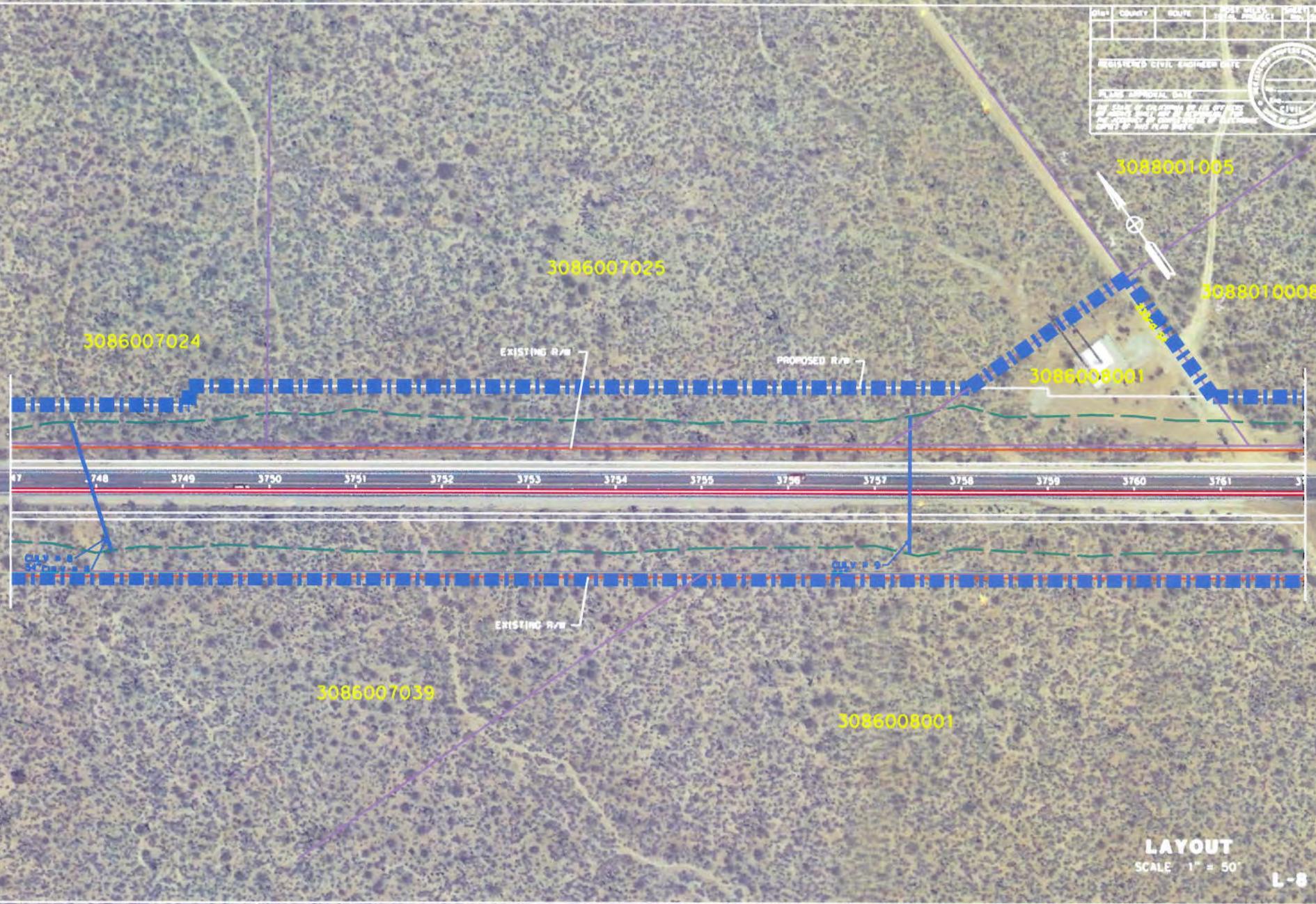
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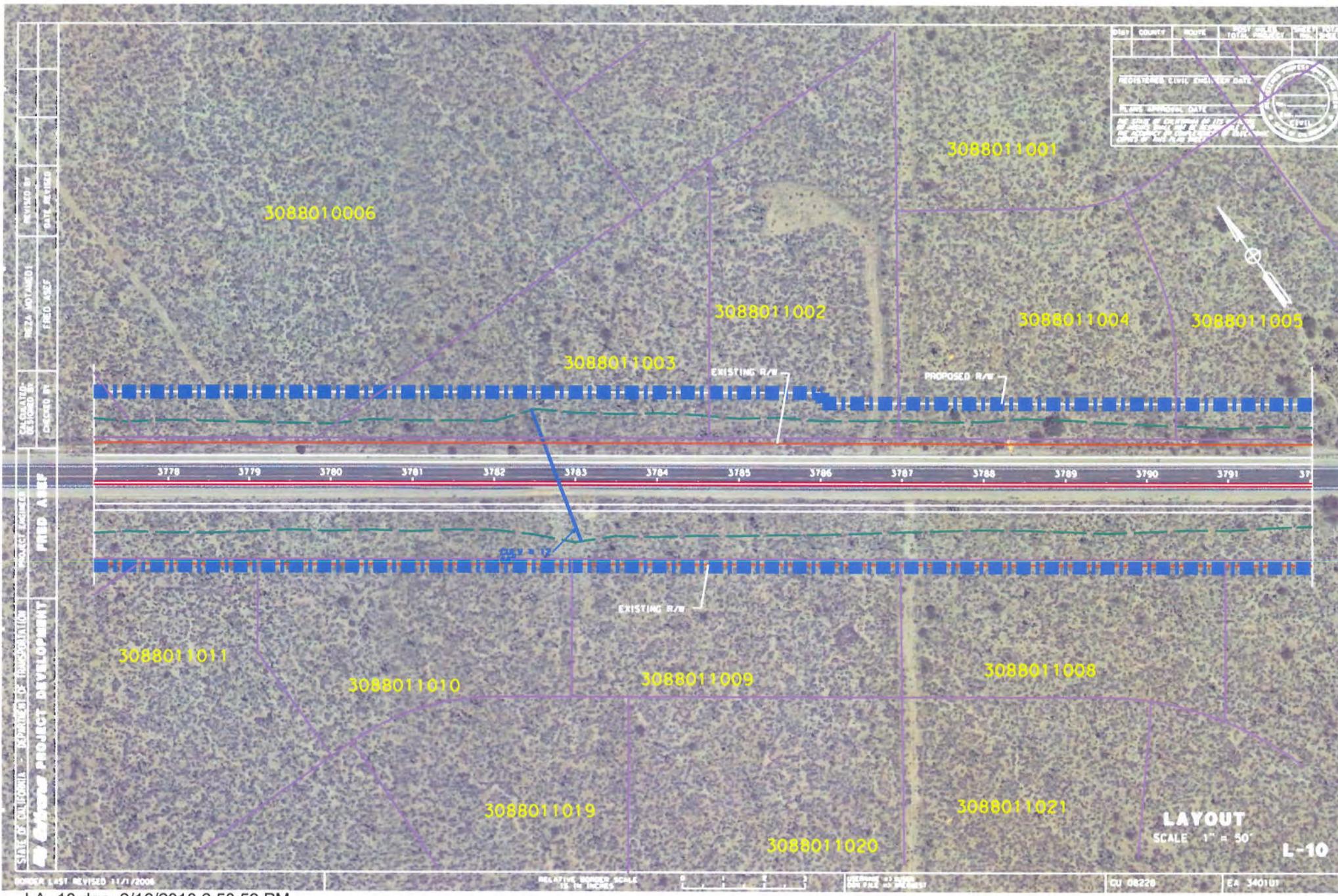
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER
FRED A. BIF
 CALCULATED/DESIGNED BY
 DECISO BY
 REVISIONS BY
 CHECKED BY
 DATE REVISION

DIST.	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF CALIFORNIA. I HEREBY CERTIFY THAT I AM THE AUTHOR, DESIGNER, OR SUPERVISOR OF THE DESIGN OF THE PROJECT SHOWN ON THESE PLANS.



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Dist	County	ROUTE	POST MILE TOTAL	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE: _____
 FILING JURISDICTION: _____
 STATE OF CALIFORNIA
 DIVISION OF LAND USE AND PLANNING
 COUNTY OF SAN DIEGO

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 PROJECT DEVELOPMENT
 PROJECT: _____
 SHEET: _____

CALCULATED BY: _____
 CHECKED BY: _____
 DRAWN BY: _____
 DATE: _____

APPROVED BY: _____
 DATE: _____

LAYOUT
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
San Antonio PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRID ASEP
 CALCULATED BY
 CHECKED BY
 REZA MOHAMEDI
 FRID ASEP
 REVIEWED BY
 DATE REVISED

DATE	REVISION	BY	REASON

DESIGNED BY: _____ DATE: _____
 DRAWN BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 PROJECT NO.: _____
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REVISIONS LAST REVISED 11/1/2005

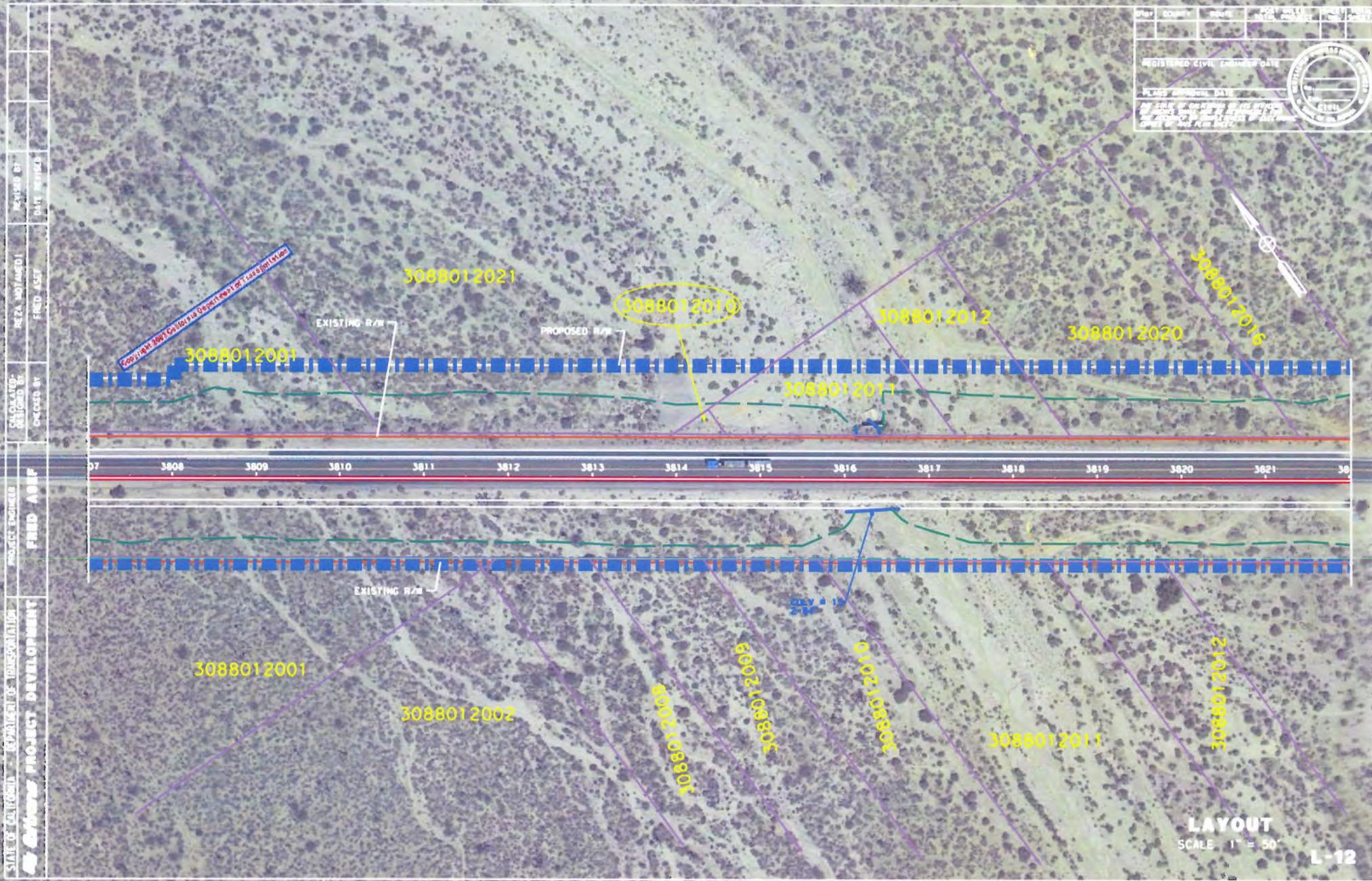
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CU 00226

EA 340101



Plan	Sheet	Date	Scale	Author	Checked	Approved
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVED DATE						
<small> I am a duly Licensed Professional Engineer in the State of California, License No. 45127, and I certify that the above is a true and correct copy of the original plans as shown to me by the client. </small>						

COPY FOR 3088012001 TO DEPARTMENT OF TRANSPORTATION

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 PROJECT: **ASIP**
 DESIGNER BY: **FRED ASSET**
 CHECKED BY: **FRED ASSET**
 REVISIONS BY: **REZA, MANSOURI**
 REVISION DATE: **DATE REVISION**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California Project Development
 PROJECT ENGINEER
 FIELD / MEP
 CALCULATED / DESIGNED BY
 CHECKED BY
 REVISIONS
 REVISION NO. DATE REVISION BY

Sheet	County	Route	PC	PVI	PT	Station
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DATE: 06/15/10

PROJECT: 06/15/10

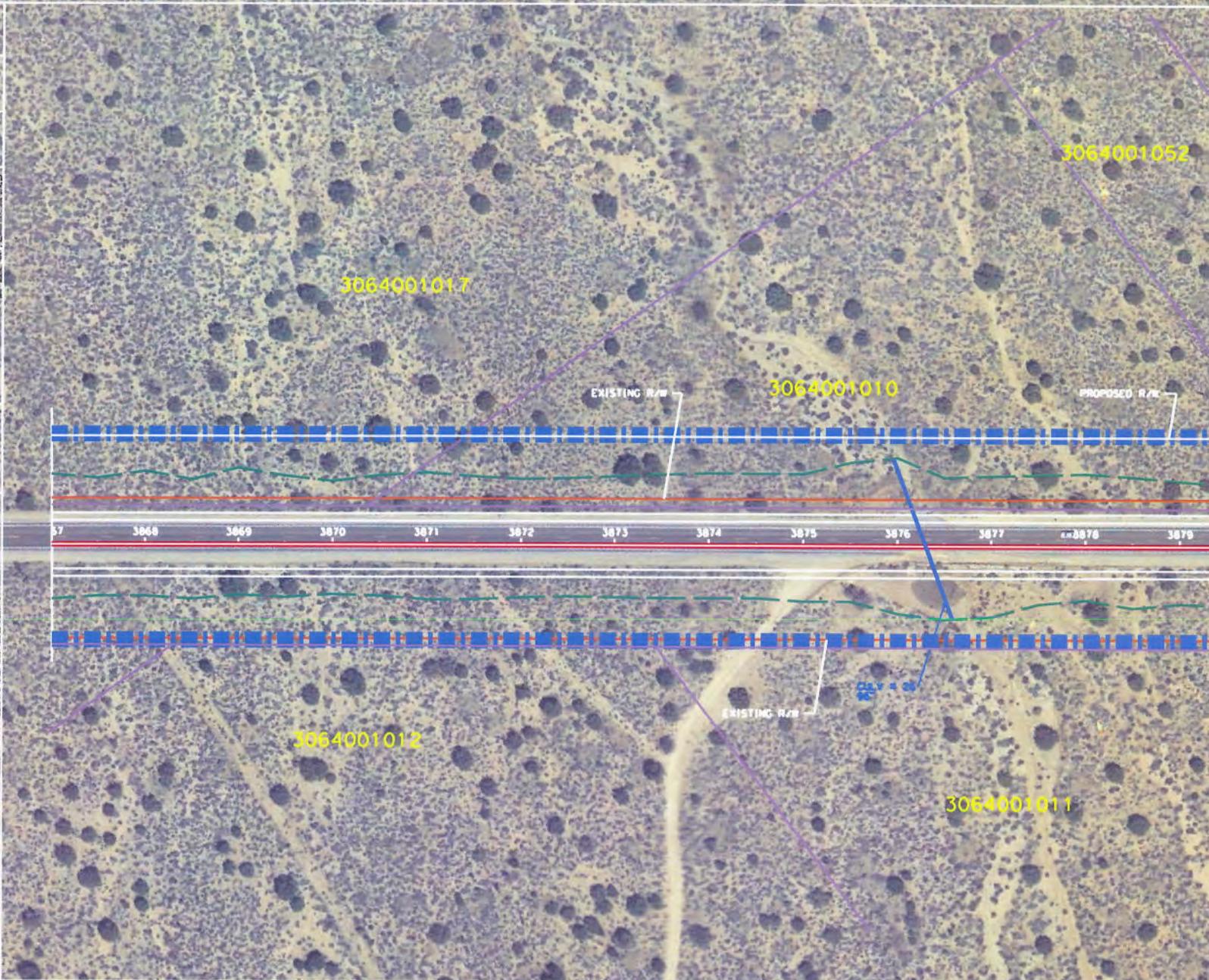
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STATE OF CALIFORNIA - ROAD & HIGHWAY DIVISION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER
 FIELD SUPERVISOR
 CHECKED BY
 DATE REVISION



DATE	COUNTY	TITLE	SCALE	PROJECT NO.	FILE NO.
REGISTERED CIVIL ENGINEER					
R/W APPROVAL DATE					
<small>NO SCALE OR DIMENSIONS ON THIS DRAWING SHALL BE CONSIDERED AS PART OF THE CONTRACT UNLESS SPECIFICALLY NOTED OTHERWISE DATE OF THIS PLAN SHEET</small>					



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ROADS LAST REVISED 11/21/2008

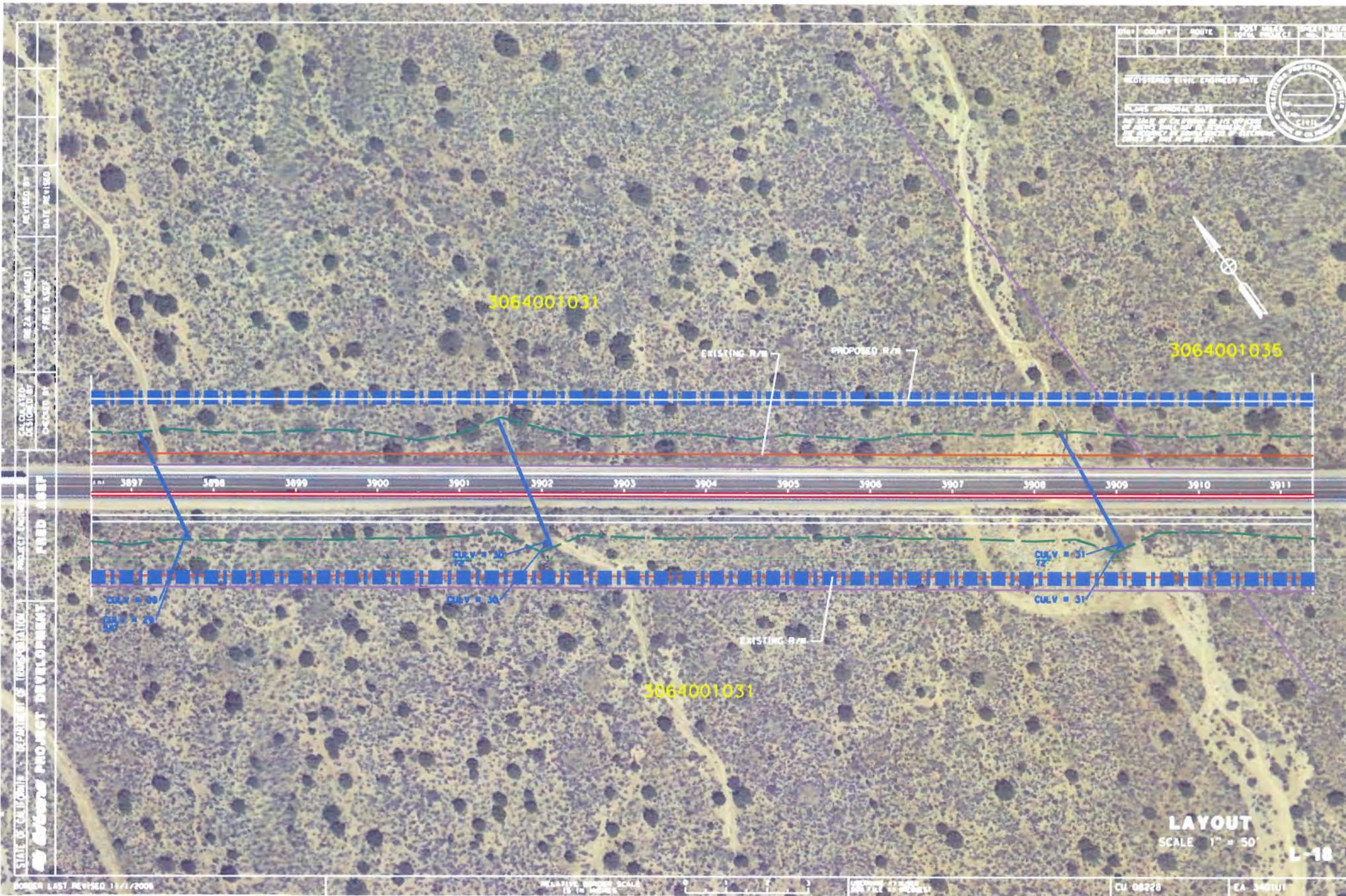
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 1" = 50'

CU 08228

EA 340101



DATE	COUNTY	ROUTE	POST MILE	LOCAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVAL DATE	

For State of California, in the County of _____, I hereby certify that I am a duly Licensed Professional Engineer in the State of California, License No. _____, and that I am the author of the above plans.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT DESIGNER: **FOOD 08P**
 CALCULATED BY: _____
 CHECKED BY: _____
 REVISIONS: _____
 DESIGNED BY: _____
 DATE REVISED: _____

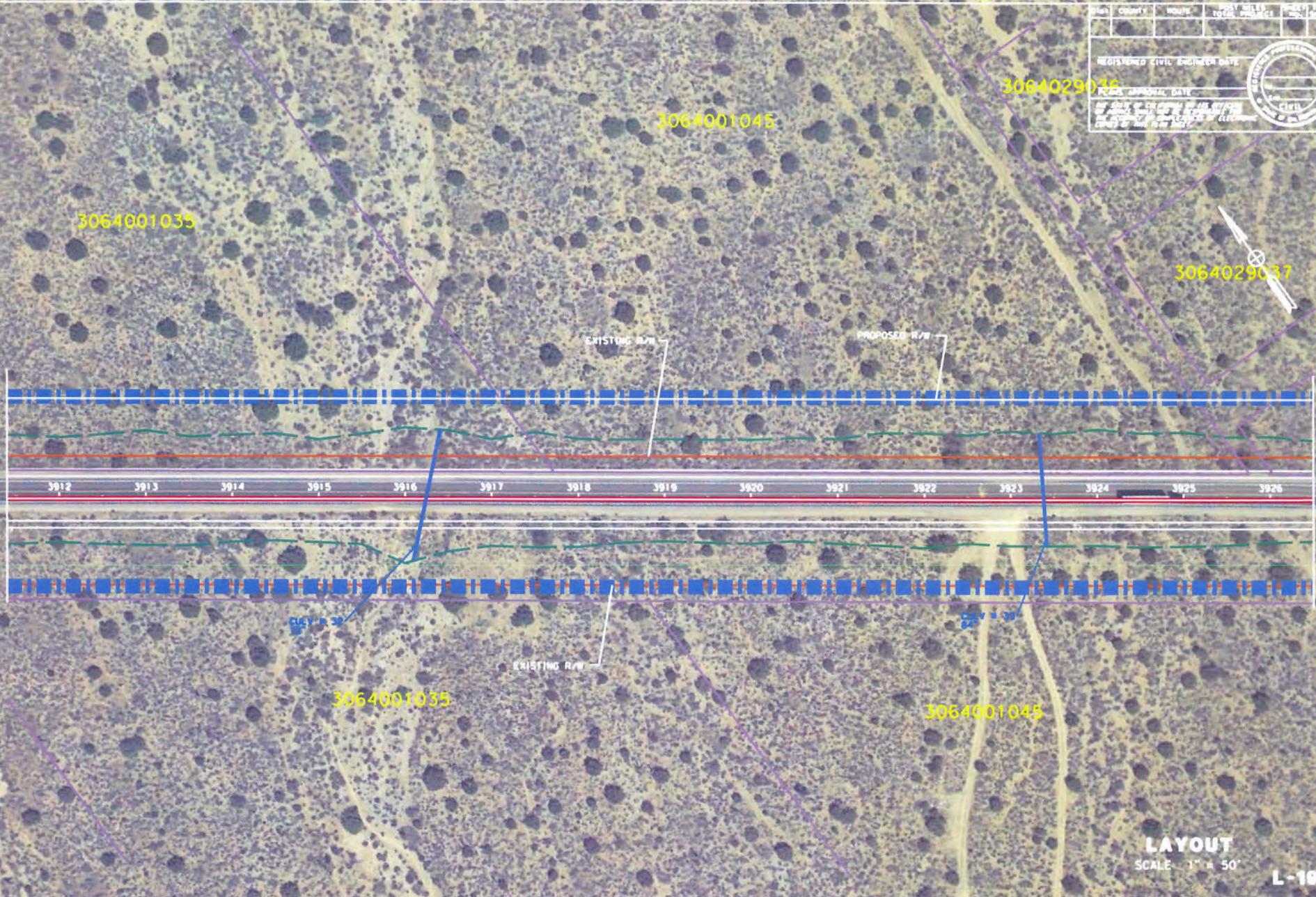
LAYOUT
 SCALE 1" = 50'

L-18

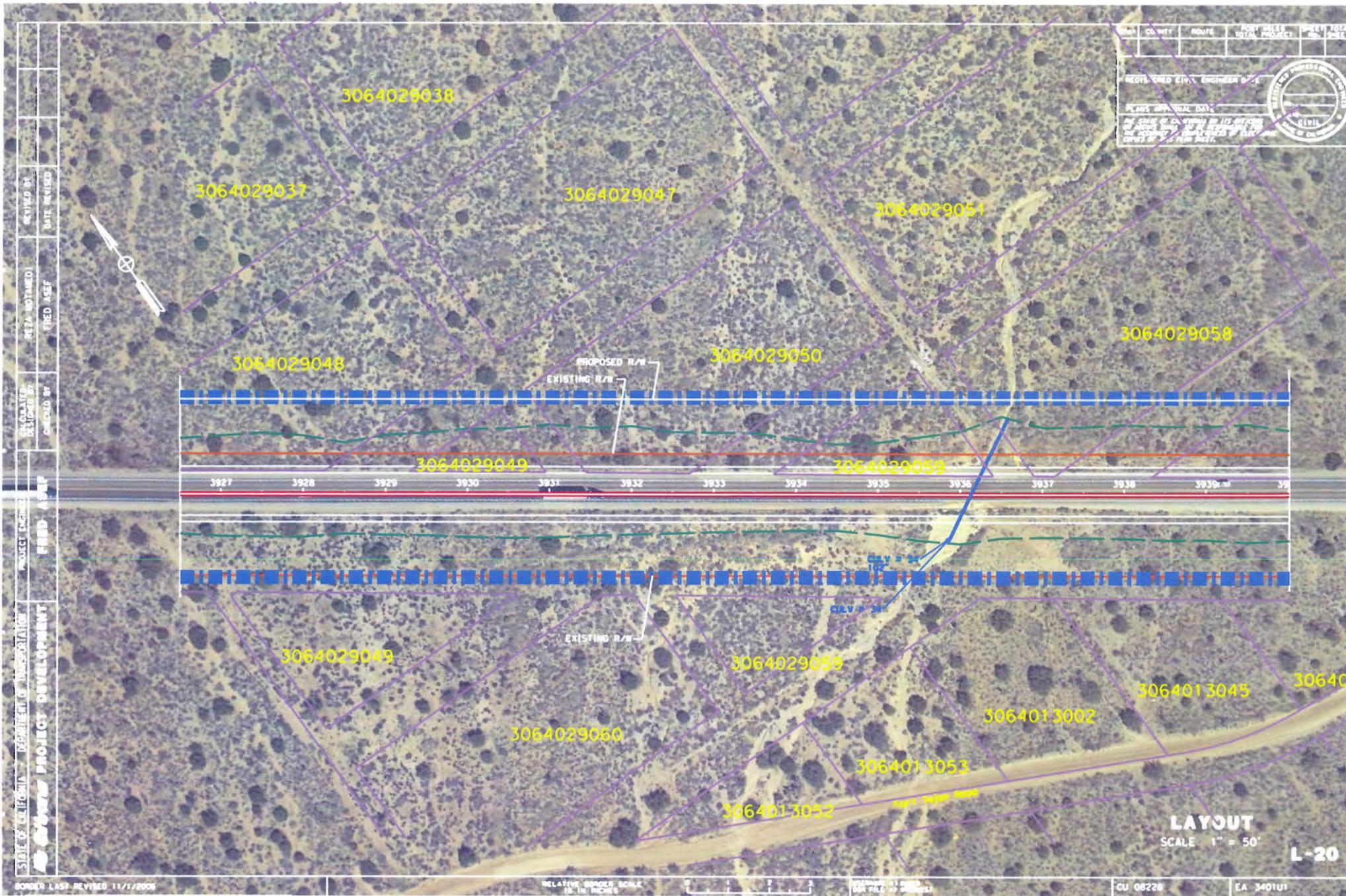
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER: **FRED JOSEF**
 CALCULATED/DESIGNED BY: **DEEBOB BY**
 REVISIONS: **REZA HAYATMOJIB**
 REVIEWED BY: **DATE: 11/17/2006**

FILE#	COUNTY	ROUTE	PROJECT NO.	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER STATE OF CALIFORNIA
 LICENSE NO. 45827
 EXPIRES 12/31/2010
 CIVIL
 10/10/06



LAYOUT
 SCALE: 1" = 50'
L-10



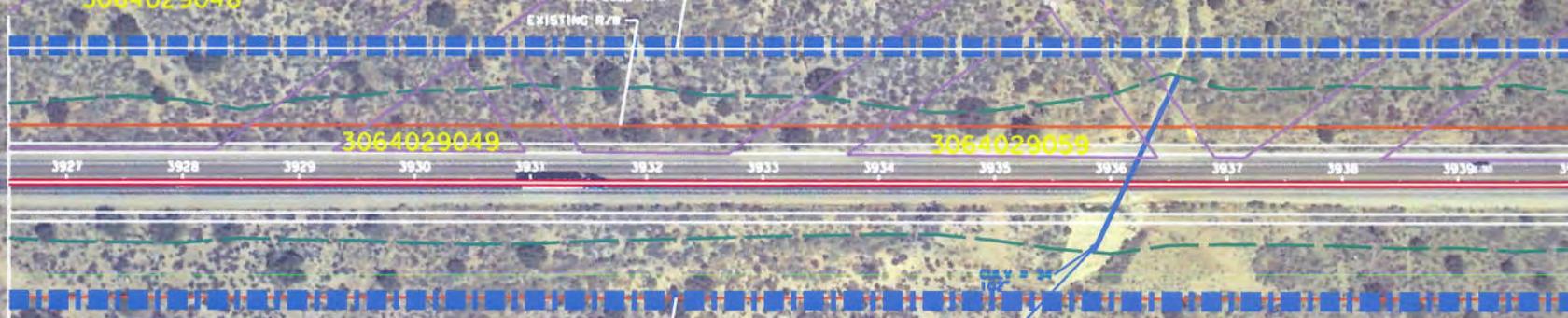
DATE	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER No. 1011

PLANS APPROVAL DATE: _____

BY STATE OF CALIFORNIA DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 COUNTY OF SAN DIEGO DISTRICT _____

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 PROJECT DEVELOPMENT
 PROJECT NAME
 CHECKED BY
 DESIGNED BY
 REVISIONS
 DATE REVISION
 DATE REVISION



LAYOUT
 SCALE 1" = 50'
L-20

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway PROJECT DEVELOPMENT

PROJECT SHEET NO. **LA-21**
 PROJECT DESIGNER: **CH2M HILL**
 PROJECT NO. **09000001**
 SHEET NO. **21**
 SHEET TOTAL **21**



DIST.	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

IN STATE OF CALIFORNIA, I, _____, REGISTERED CIVIL ENGINEER, DO HEREBY CERTIFY THAT I AM THE DESIGNER OF THE ABOVE PROJECT AND THAT I AM A MEMBER OF THE CALIFORNIA SOCIETY OF CIVIL ENGINEERS.

LAYOUT
 SCALE: 1" = 50'
L-21

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER
 FIELD ASST

DESIGNED BY
 CHECKED BY
 REVISIONS
 DATE

REVISIONS
 DATE

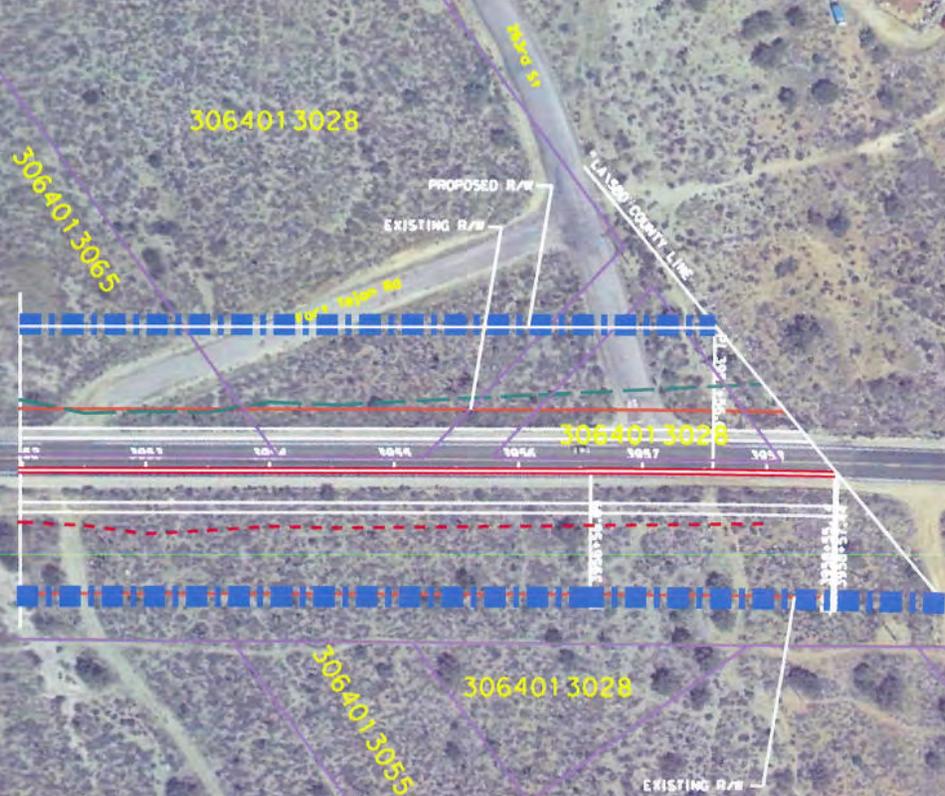
REGISTERED CIVIL ENGINEER
 DATE

PLANS APPROVAL DATE

BY STATE OF CALIFORNIA
 REGISTERED CIVIL ENGINEER

DATE

DIST.	COUNTY	ROUTE	PROJECT NO.	DATE	SCALE	DATE
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVAL DATE						
BY STATE OF CALIFORNIA REGISTERED CIVIL ENGINEER						



LAYOUT
 SCALE 1" = 50'
L-22

BORDER LAST REVISED 11/1/2005

RELATIVE BORDER SCALE
 (5 IN. HOLES)

100% 11/1/2005
 FOR FIELD USE

CU 08228

EA 340101

B. San Bernardino County Project Limits

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STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ASEP
 CALIBRATED/DESIGNED BY: FRED ASEP
 CHECKED BY: []
 REVISIONS: []
 DATE: []

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
	SBd				

REGISTERED CIVIL ENGINEER DATE: []
 PLANS APPROVAL DATE: []
 THE STATE OF CALIFORNIA AND ITS OFFICERS AND EMPLOYEES SHALL NOT BE LIABLE FOR THE ACCURACY OR COMPLETENESS OF ANY COPIES OF THIS PLAN SHEET.

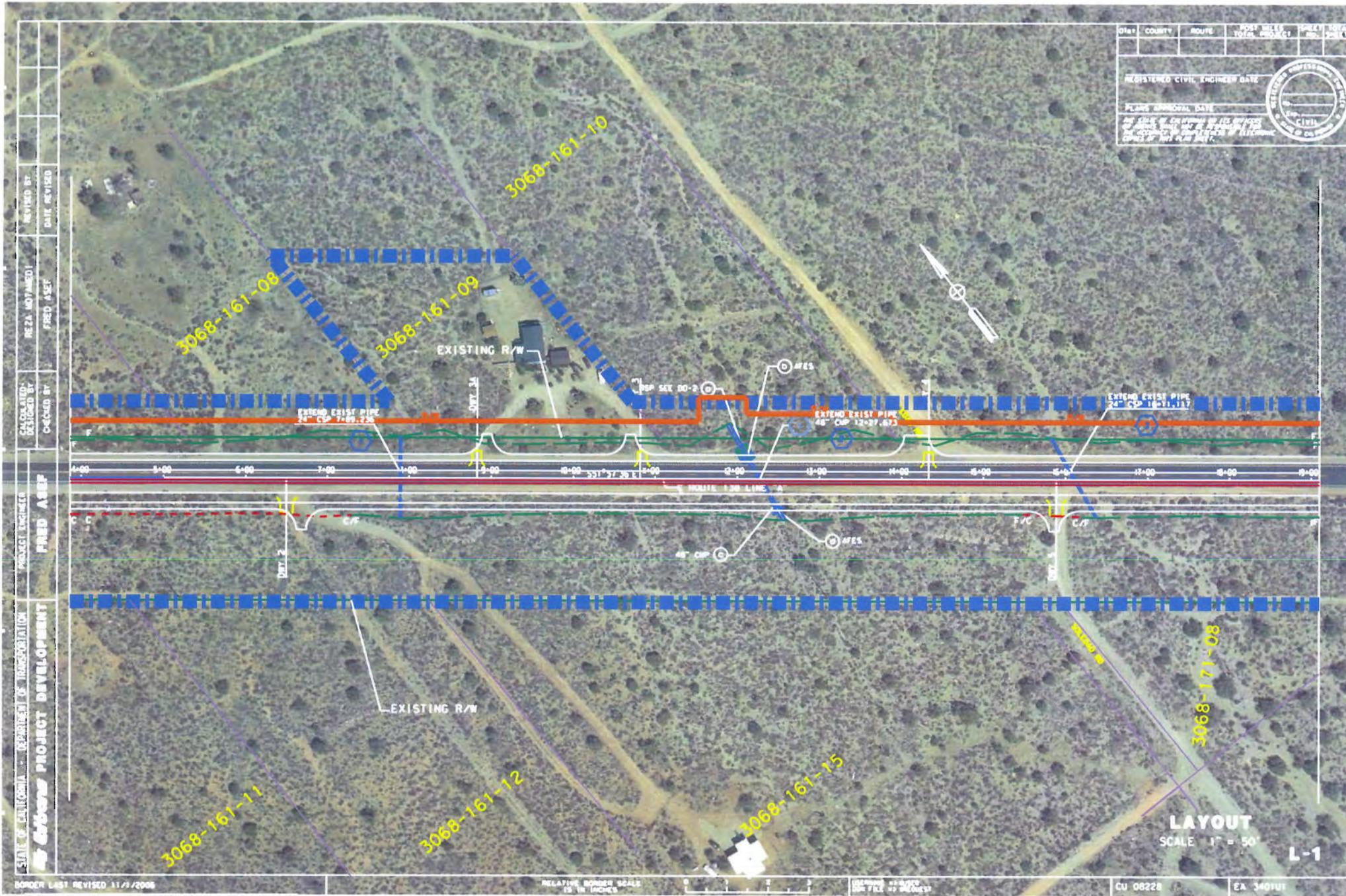


LEGEND

- AREA of POTENTIAL EFFECTS
- EXISTING R/W
- PROPOSED R/W
- ENVIROMENTAL FOOTPRINT
- CUT SLOPE LINE
- FILL SLOPE LINE



LAYOUT
 SCALE 1" = 50'
L-01



DATE	COUNTY	ROUTE	POST MILES	TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA, BY ITS ENGINEER
 AND ARCHITECT, HAS REVIEWED THIS PLAN
 AND CERTIFICATE OF CONFORMANCE WITH THE ELECTRONIC
 CODES OF THIS STATE.

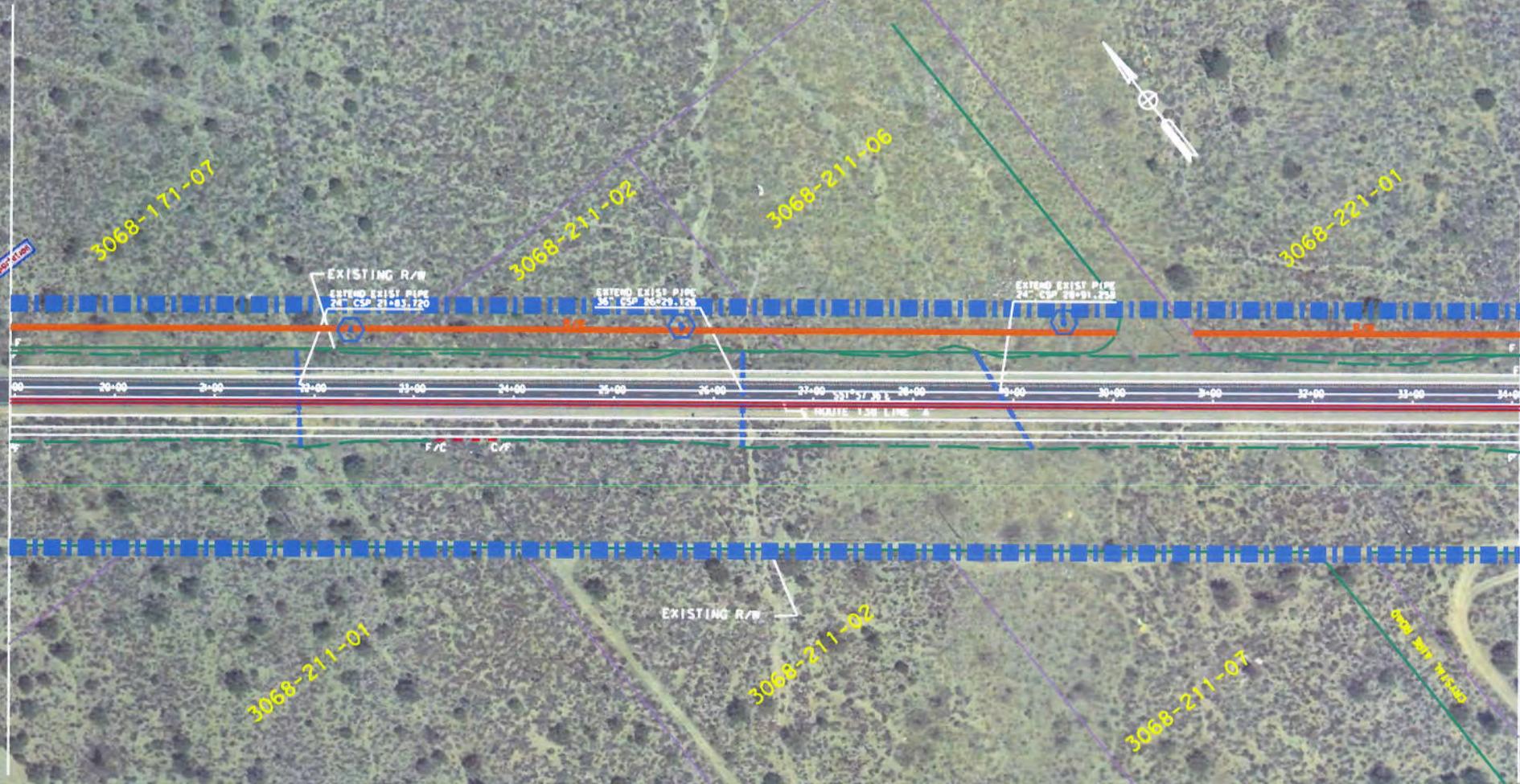
REGISTERED PROFESSIONAL SEAL
 CIVIL
 STATE OF CALIFORNIA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 FRED ASBP
 PROJECT DEVELOPMENT
 DESIGNED BY
 CHECKED BY
 REZA MATHABADI
 FRED ASBP
 REVISED BY
 DATE REVISED

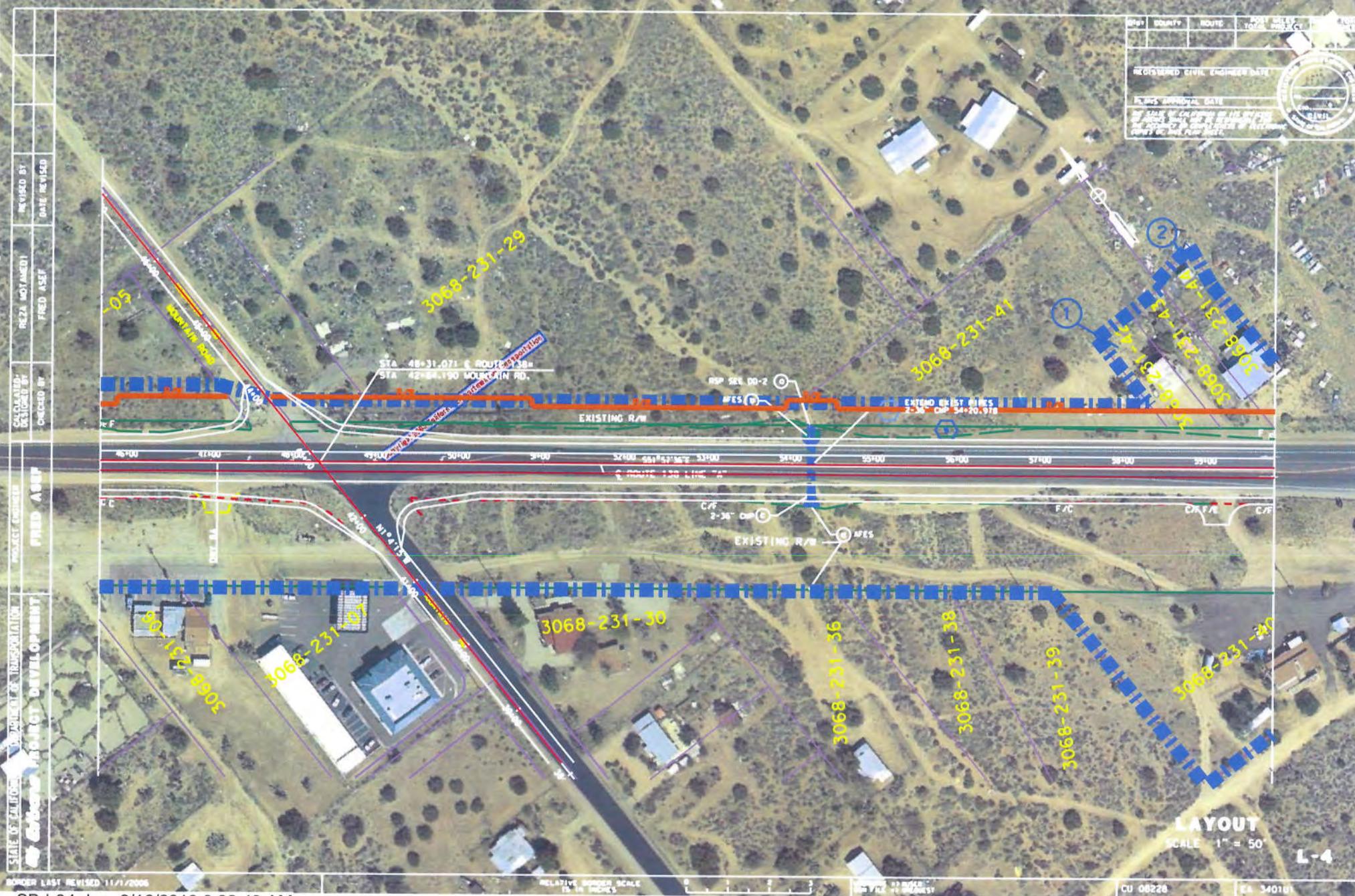
Blk#	COUNTY	ROUTE	POST MILE	STATION	DATE	BY
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVAL DATE						
<small>THE STATE OF CALIFORNIA AND ITS OFFICERS AND EMPLOYEES SHALL NOT BE LIABLE IN ANY MANNER FOR ANY DAMAGE TO PERSONS OR PROPERTY OF ANY KIND.</small>						



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER
 PHED ABEF
 CHECKED BY
 PHED ABEF
 DESIGNED BY
 PHED ABEF
 REVISIONS BY
 PHED ABEF
 DATE REVISION
 DATE REVISION



LAYOUT
 SCALE 1" = 50'
L-2



DATE	BY	REVISION

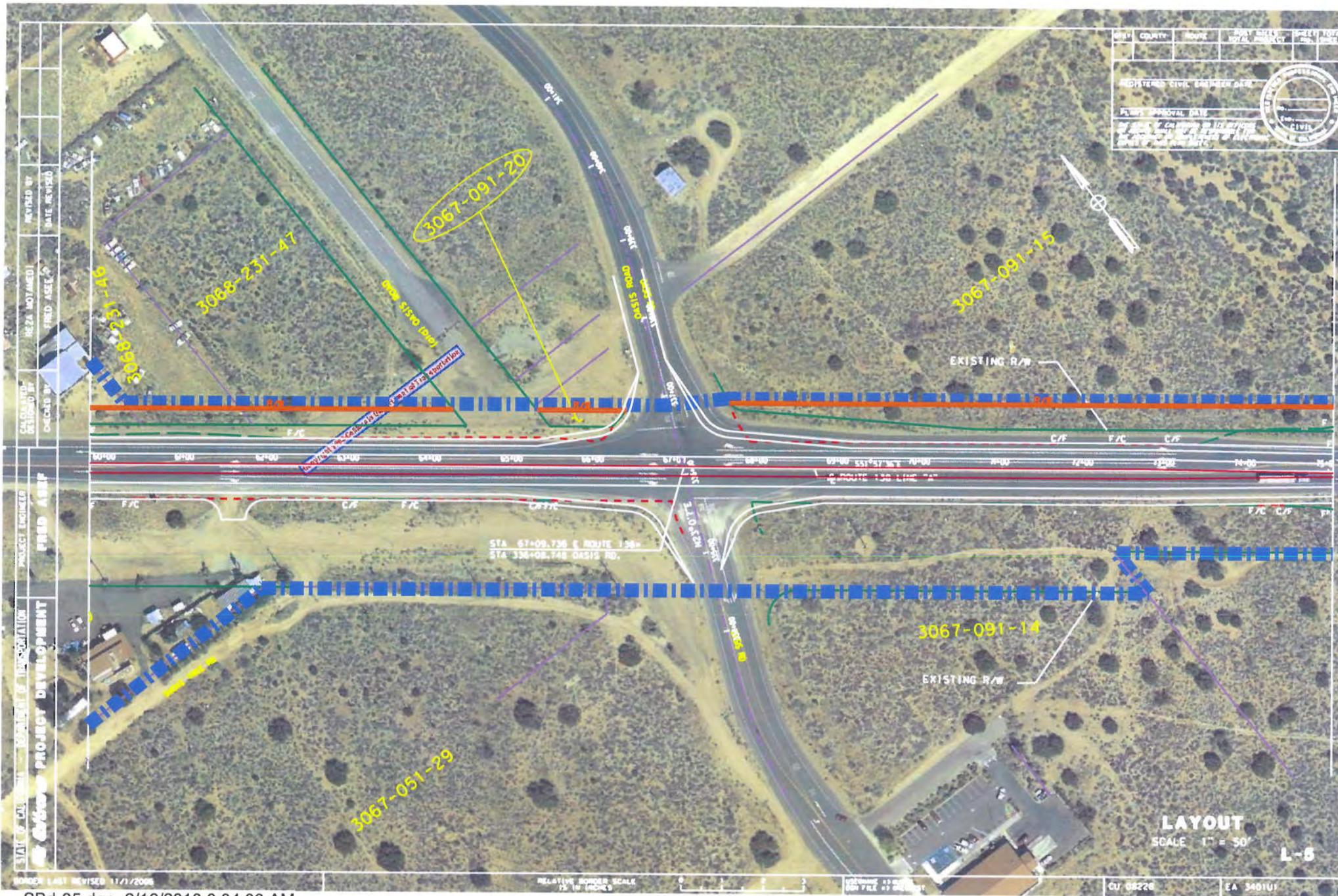
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

FOR SCALE OF CALCULATION OF THE VOLUMES OF WORK SHALL BE AT THE SCALE OF THE PLAN. IN THE EVENT OF DISCREPANCY BETWEEN THE PLAN AND THE FIELD SURVEY, THE FIELD SURVEY SHALL CONTROL.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER
 FRED ASEP
 CALCULATED BY
 CHECKED BY
 DESIGNED BY
 REZA MOTAMEDDI
 FREED ASEP
 REVISIONS BY
 DATE REVISION

LAYOUT
 SCALE 1" = 50'
 L-4



CITY	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER PERM. NO. _____

PROJECT APPROVAL DATE: _____

DATE OF PREPARATION: _____

SCALE: _____

PROJECT: _____

DESIGNED BY: _____

CHECKED BY: _____

DATE: _____

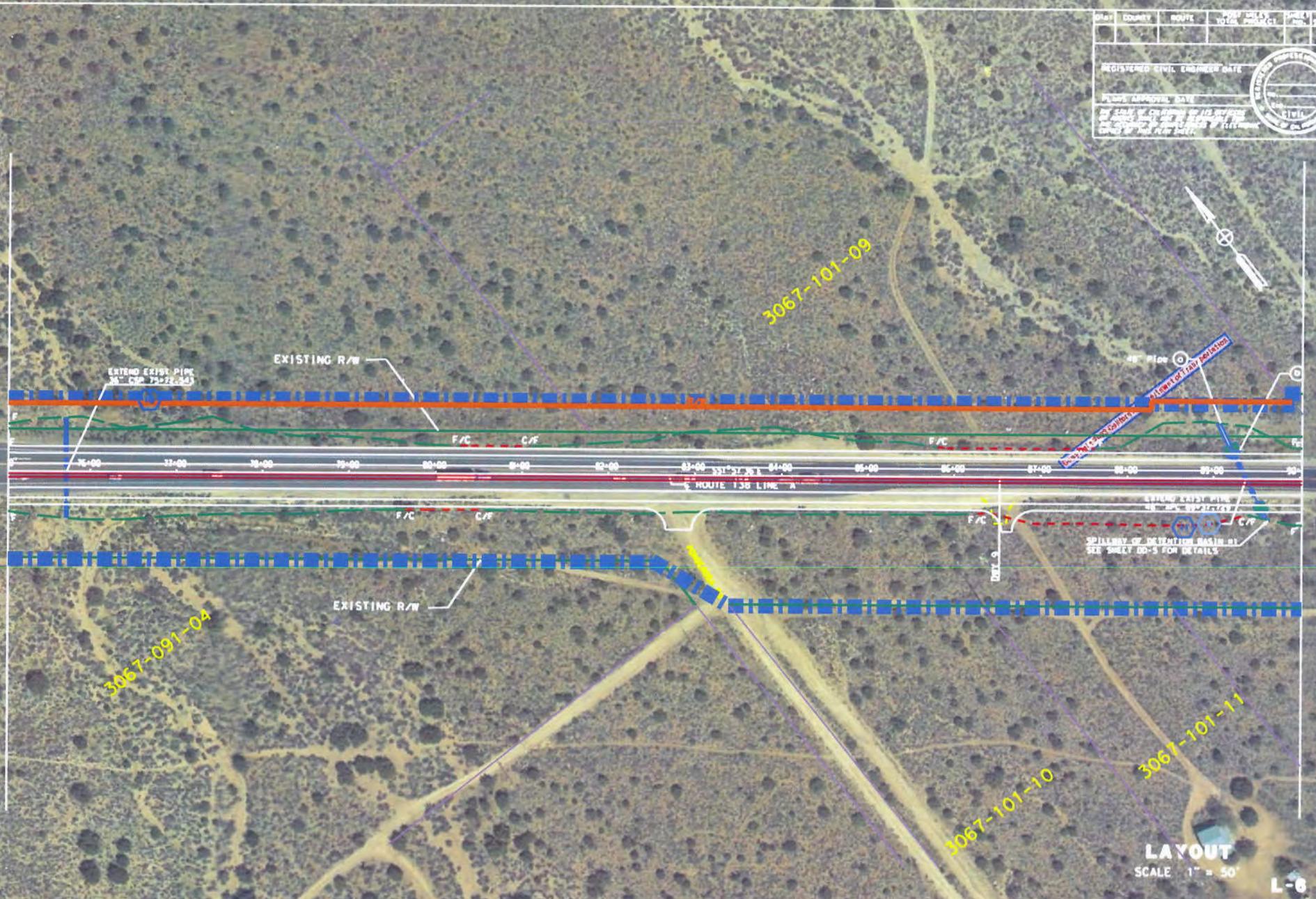
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
San Joaquin Hills
PROJECT DEVELOPMENT

PROJECT ENGINEER: **PRSD AS&P**
 DESIGNED BY: **REZA MOTAMEDI**
 CHECKED BY: **FRED AS&P**
 REVISIONS: **3067-091-14**
3067-091-15
3067-091-25
3068-231-47
3067-051-29

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
San Joaquin Hills
PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASER
 CHECKED BY
 DESIGNED BY
 CALCULATED BY
 (AZA NOTATED)
 TYPED ASSET
 REVISION BY
 DATE REVISION

DATE	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 LICENSE APPROVAL DATE _____
 BY STATE OF CALIFORNIA BY ITS OFFICE OF ENGINEERING AND SURVEYING FOR THE OFFICE OF PUBLIC WORKS & HIGHWAYS UNDER THE SEAL OF THE STATE ENGINEER



LAYOUT
 SCALE 1" = 50'
L-6

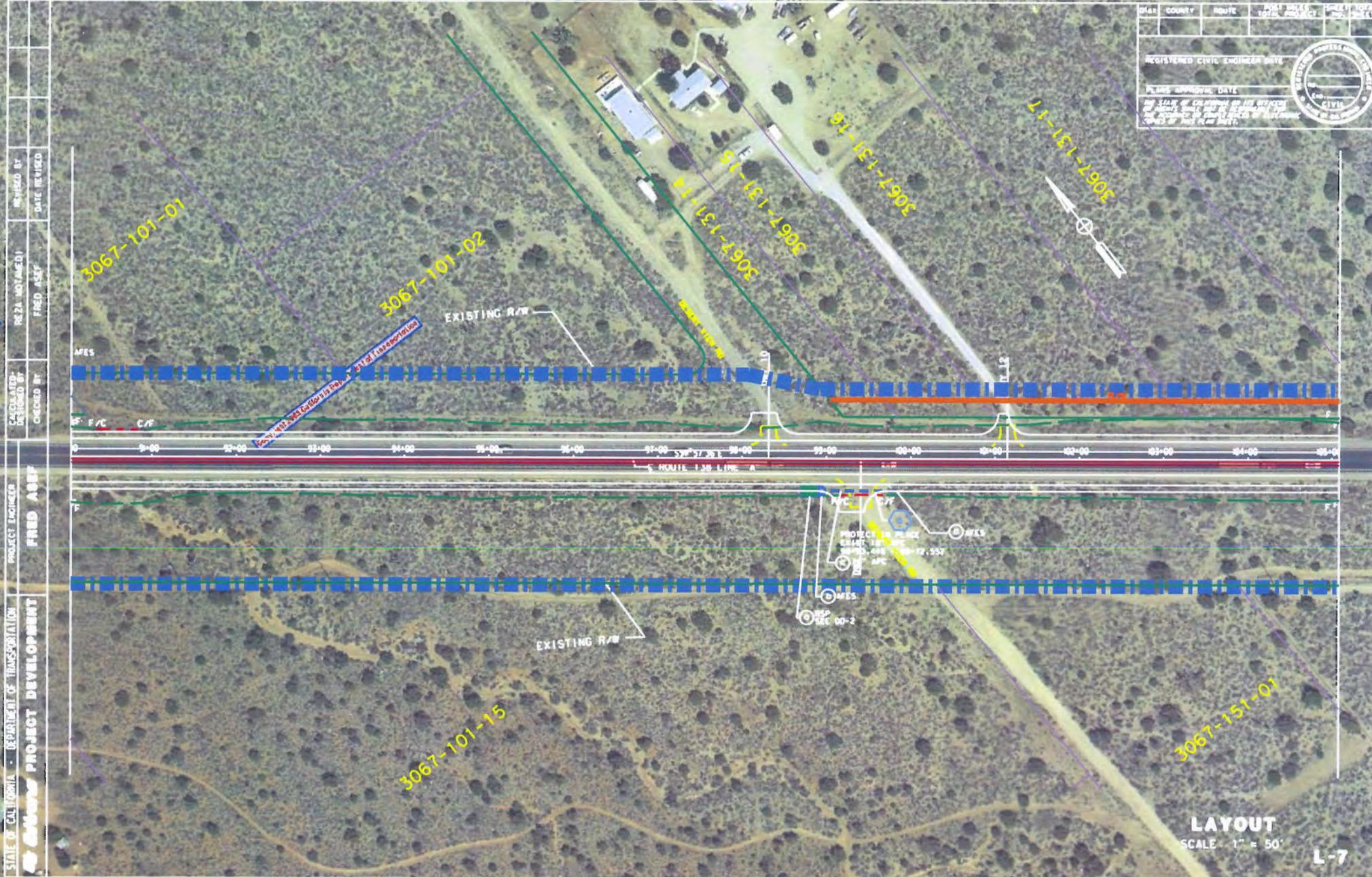
NUMBER LAST REVISED 11/1/2006



DATE PLOTTED 03/09/10
 DRAWN FILE 03/09/10

CU 08228

EA 3401U1



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER
FORED ASEF
 CALCULATED/DESIGNED BY
 CHECKED BY
 NCELA (NOT NAMED)
 FORWARDED BY
 REVISED BY
 DATE REVISED

DATE	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

 PLANS APPROVAL DATE

 THE STATE OF CALIFORNIA ON ITS BEHALF BY SIGNING THESE PLANS I HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL CIVIL ENGINEER AND THAT I AM THE DESIGNER OF THESE PLANS.



LAYOUT
 SCALE 1" = 50'
 L-8

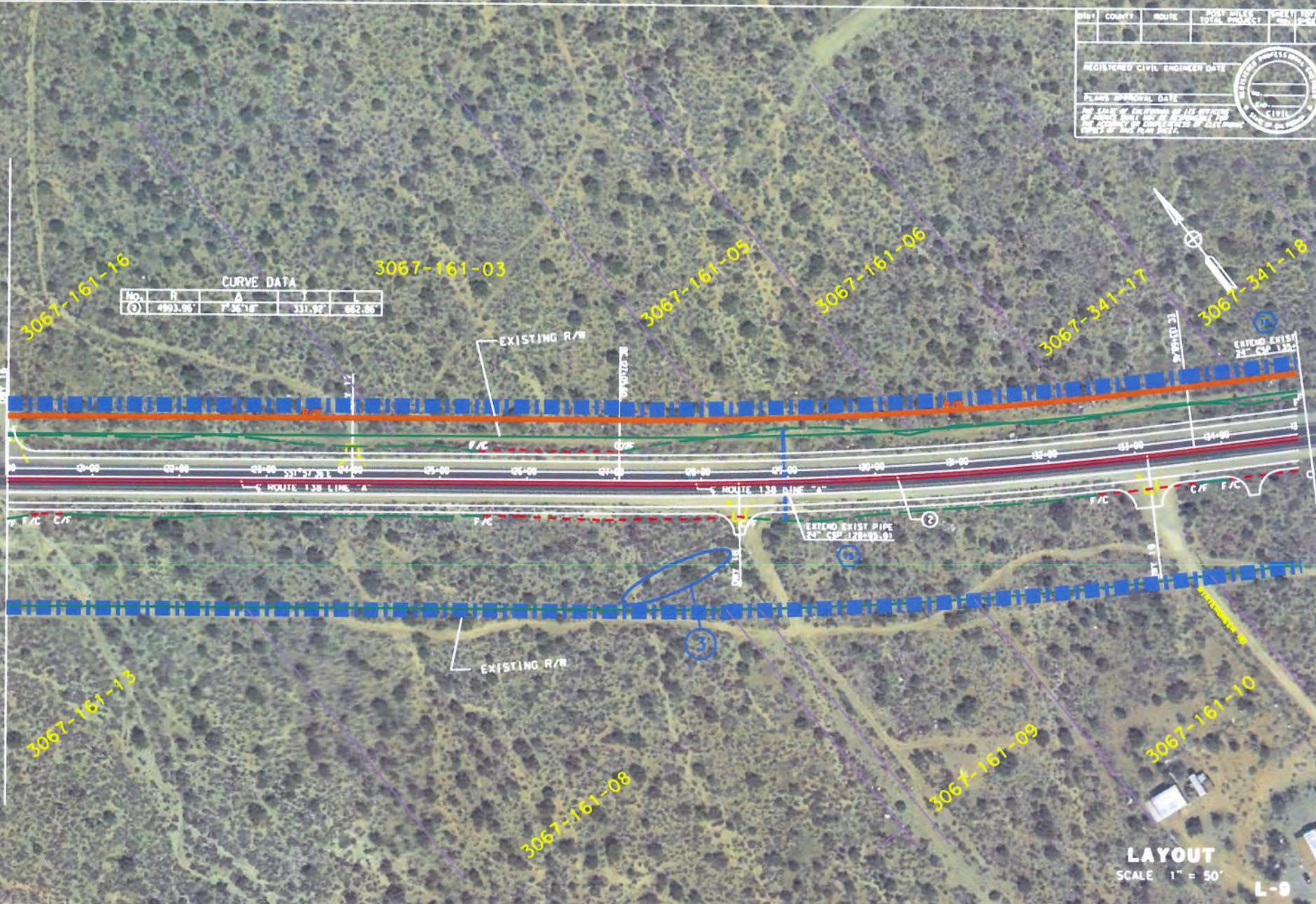
DOORER LAST REVISED 11/11/2006

RELATIVE HORIZONTAL SCALE
 1/8" = 100'-0"

WORKSHEET 11 OF 12
 DATE FILED 11/11/2006
 COUNTY 05228
 EA 340101

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER: **FRED ASEF**
 CALCULATED/DESIGNED BY: **FRED ASEF**
 REZA MOHAMEDI
 REVISED BY: **FRED ASEF**
 DATE REVISED:

DRAWN	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE SCALE OF DRAWINGS OF THE WORKS OF THIS PROJECT SHALL BE AS SHOWN ON THE DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND LOCAL GOVERNMENTS.</small>					

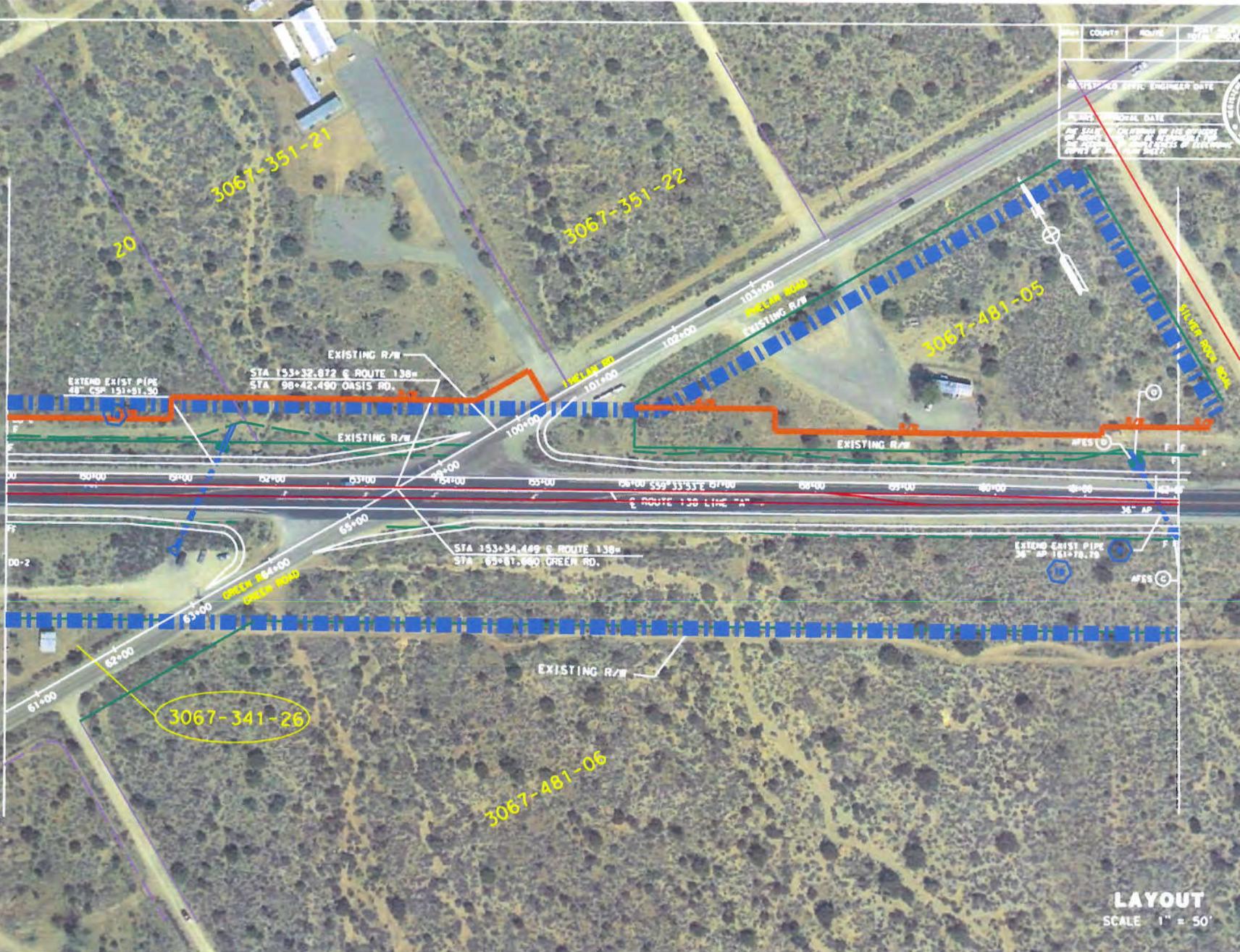


LAYOUT
 SCALE 1" = 50'
 L-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
San Joaquin Hills Project Development
 PROJECT ENGINEER: **FRED ASHF**
 CALCULATED/DESIGNED BY: **FRED ASHF**
 CHECKED BY: **FRED ASHF**
 REVISIONS BY: **FRED ASHF**
 DATE REVISIONS: **DATE REVISIONS**

NO.	COUNTY	ROUTE	POST MILE	PROJECT	SHEET NO.	TOTAL SHEETS
1	ALBANY	139	100.00	SAJ 06226	11	11

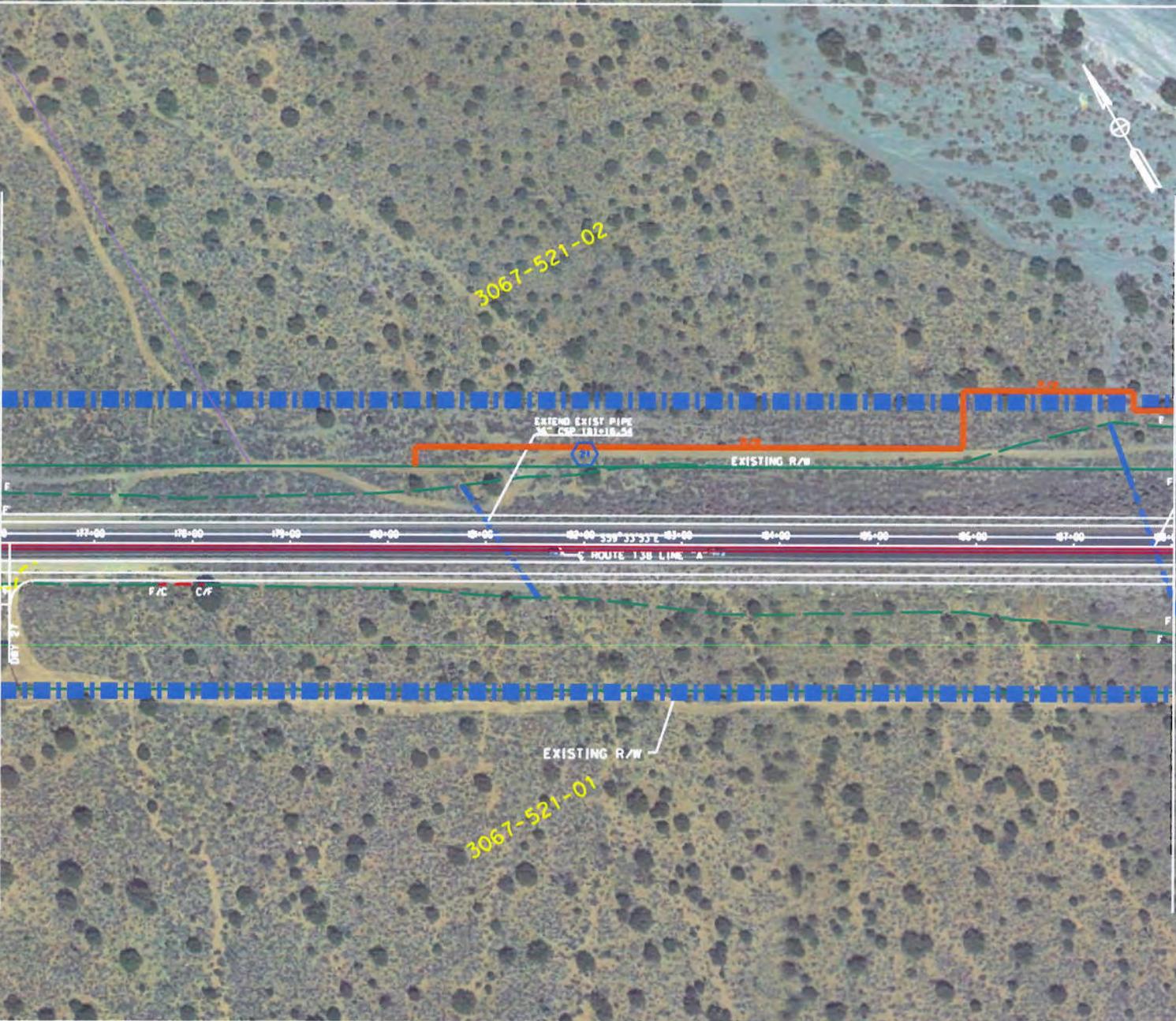
DESIGNED BY:	DATE:
CHECKED BY:	DATE:
PROJECT:	DATE:



LAYOUT
 SCALE 1" = 50'
L-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT

PROJECT ENGINEER: **FRED ASEF**
 CALCULATED/DESIGNED BY: **FRED ASEF**
 CHECKED BY: **FRED ASEF**
 REZA MOTAMEDY: **FRED ASEF**
 REVISED BY: **DATE REVISED**



DATE	COUNTY	ROUTE	SHEET NO.	TOTAL SHEETS

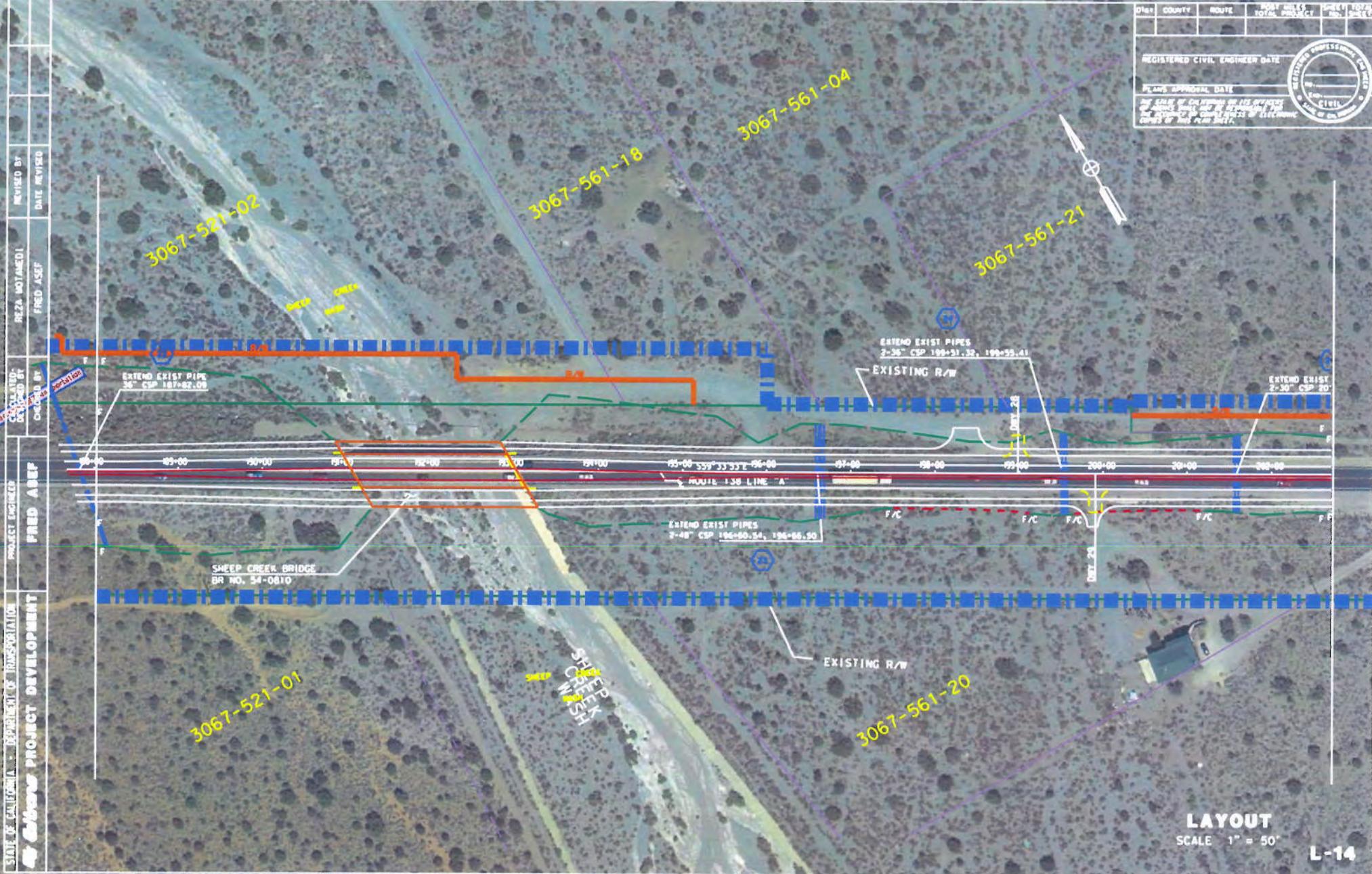
REGISTERED CIVIL ENGINEER DATE: _____
 PLANS APPROVAL DATE: _____

BY SIGNING OR CHECKING OFF THIS SET OF PLANS, THE ENGINEER IS ASSUMING RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION AND ELECTRONIC CONTENT OF THIS PLAN SHEET.



LAYOUT
 SCALE 1" = 50'

L-13

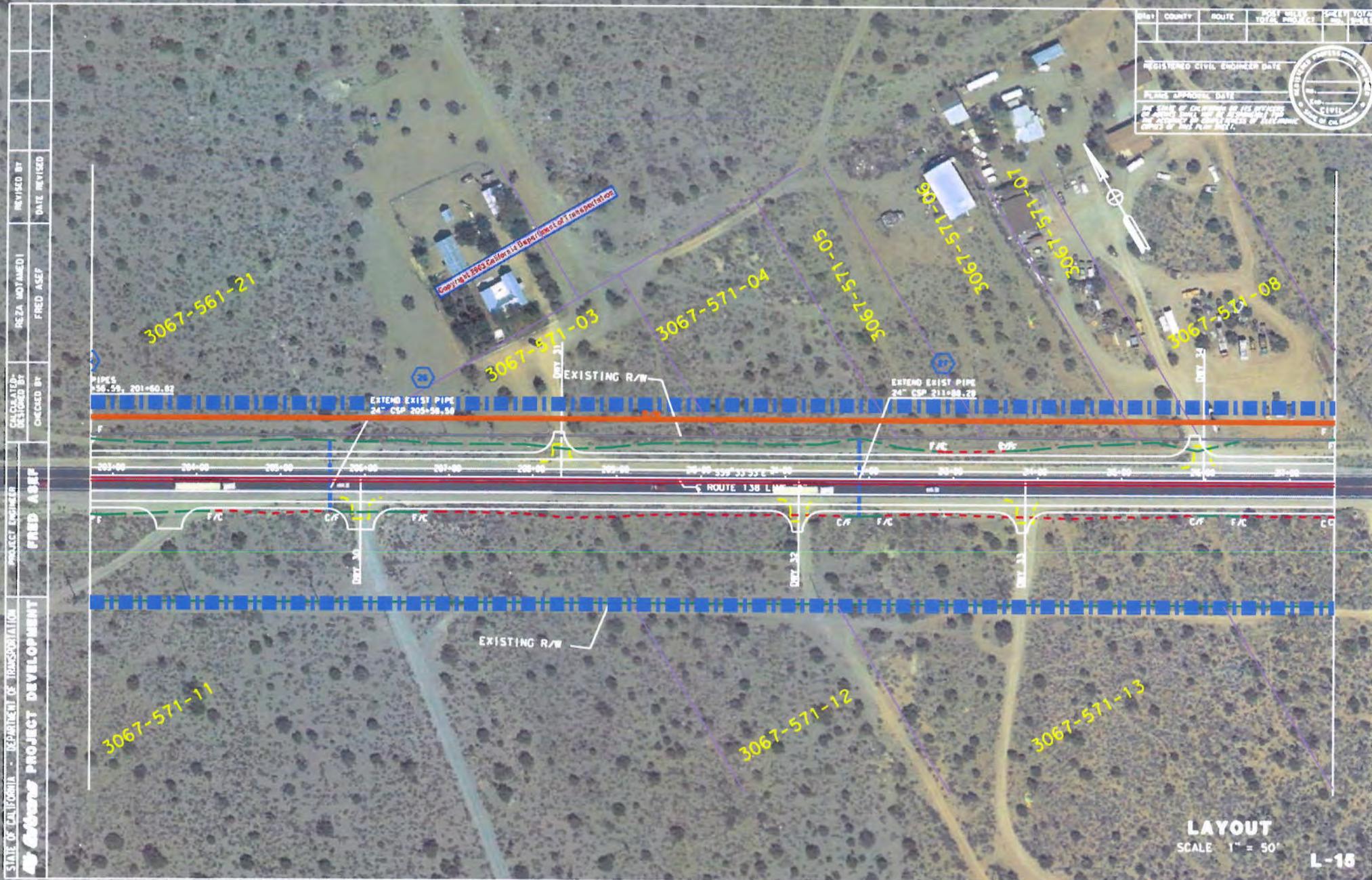


Other	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVAL DATE	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ABER
 CALCULATED BY: FRED ABER
 DESIGNED BY: FRED ABER
 REZA MOTAMEDI
 REVISED BY: FRED ABER
 DATE REVISED:

LAYOUT
SCALE 1" = 50'
L-14



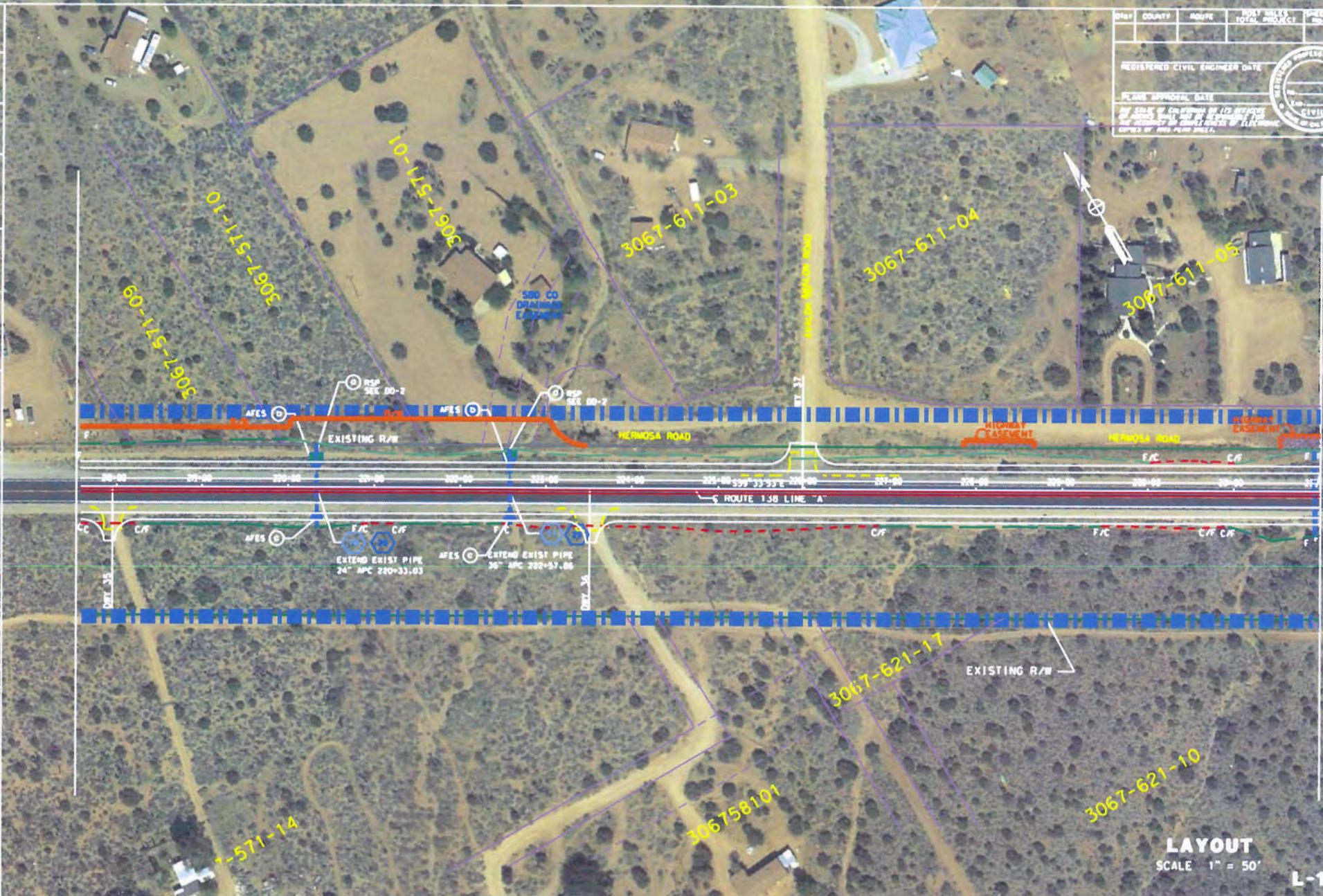
Sheet	COUNTY	ROUTE	POST MILE TOTAL	PROJECT	SHEET TOTAL
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>BY STATE OF CALIFORNIA BY ITS OFFICERS OF PUBLIC WORKS AND HIGHWAYS THE AUTHORITY OF WHICH IS GRANTED BY THE CHARTER OF THE STATE OF CALIFORNIA CONCERNING THE PUBLIC WORKS</small>					



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER
 PROJECT DEVELOPMENT
 FRED ASEF
 CALCULATED BY
 DESIGNED BY
 REZA HOJAYEDI
 REVISED BY
 DATE REVISED

LAYOUT
SCALE: 1" = 50'
L-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PRODUCT ENGINEER
FRED ASHF
 CALCULATED-DESIGNED BY
 REZA NOTAHEDI
 CHECKED BY
 FRED ASHF
 REVISIONS
 REVISED BY
 DATE REVISED

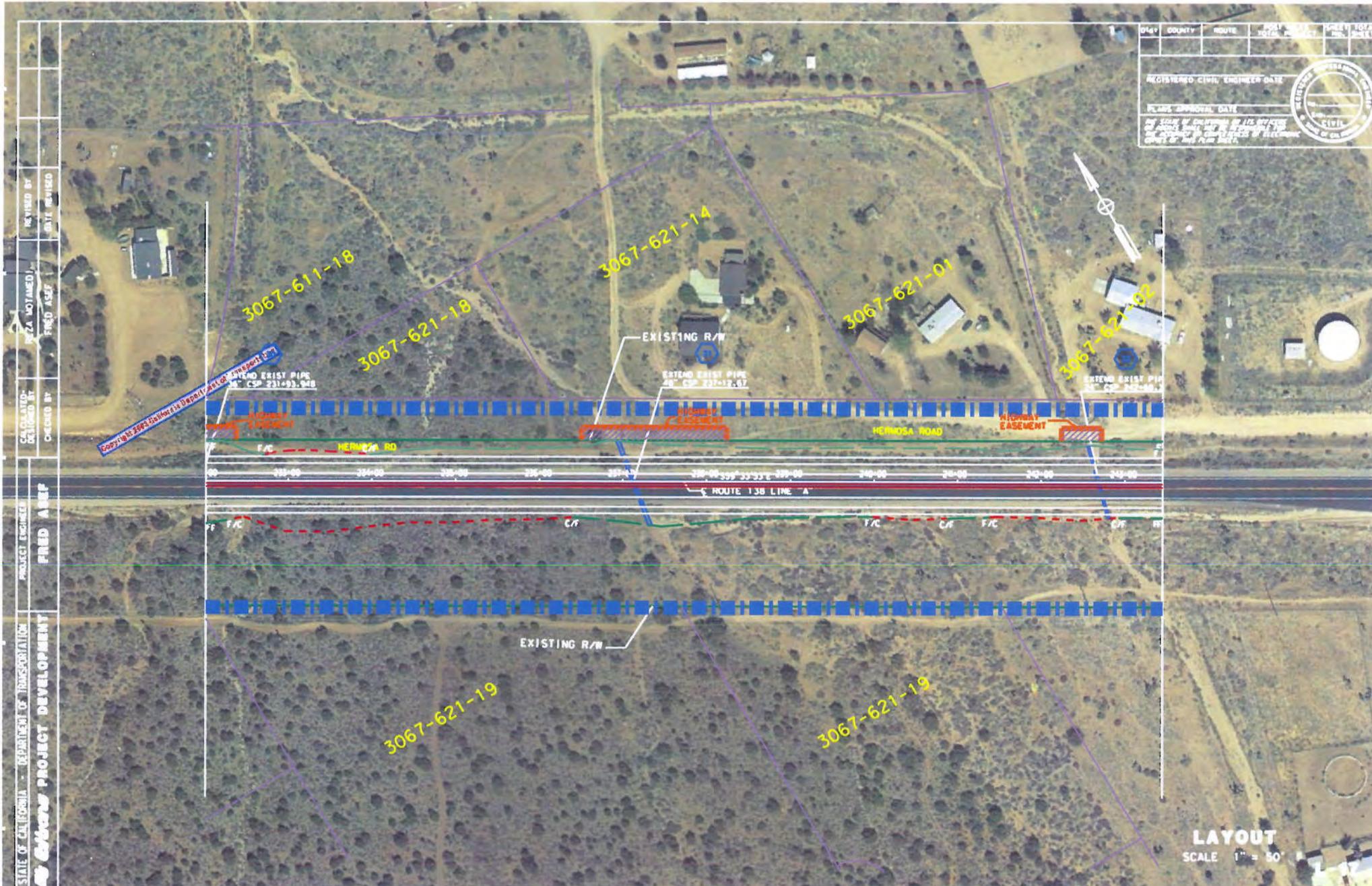


DATE	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA IS THE PROVIDER OF THESE PLANS AND IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS OR FOR THE ACCURACY OF ANY DATA OR INFORMATION CONTAINED HEREIN OR FOR THE CONSEQUENCES OF ANY SUCH ERRORS OR OMISSIONS.

REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 No. _____
 State of California

LAYOUT
 SCALE 1" = 50'
L-16



0147	COUNTY	ROUTE	POST MILE	SECTION	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVAL DATE						
<small>THE STATE OF CALIFORNIA, BY ITS OFFICERS AND AGENTS, SHALL NOT BE DEEMED TO GUARANTEE OR WARRANT THE ACCURACY OR COMPLETENESS OF INFORMATION CONTAINED HEREON.</small>						



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER: **FRED A SEP**
 CALCULATED BY: **FRED A SEP**
 DESIGNED BY: **FRED A SEP**
 REVIEWED BY: **DAVID WATKINS**
 DATE REVISED: **08/16/2010**

LAYOUT
 SCALE 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER
FRID ASEF

DESIGNED BY
 CHECKED BY
 REZA MOJTABEDI
 FRID ASEF
 REVISED BY
 DATE REVISED



Sheet	Count	Route	Post Miles	Scale	Sheet	Total

REGISTERED CIVIL ENGINEER DATE _____
 PROFESSIONAL SEAL
 REGISTERED CIVIL ENGINEER
 STATE OF CALIFORNIA
 PLAN APPROVAL DATE _____
 I, _____, State of California, in my capacity as _____, do hereby certify that the above is a true and correct copy of the original as filed with me.

LAYOUT
 SCALE 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway Project Development
 PROJECT ENGINEER: FRED ASEF
 CALCULATED/DESIGNED BY: FRED ASEF
 CHECKED BY: FRED ASEF
 REZA MOTAMEDI
 REVISED BY: FRED ASEF
 DATE REVISED:

Dist	County	ROUTE	POST MILES TOTAL	PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVAL DATE						
<small>NO SCALE OF CONTRACT OR ITS SPECIFICATIONS SHALL BE USED FOR CONSTRUCTION OF ANY WORK UNLESS THE CONTRACTOR HAS BEEN ADVISED BY THE ENGINEER OF ANY CHANGES OR ALTERATIONS MADE BY THE ENGINEER.</small>						

CURVE DATA

No.	R	A	T	L
(1)	2401.50'	36°59'35"	803.40'	1550.50'

3037-011-08

3037-011-10

3037-011-05

3037-011-09

3037-011-19
 3037-011-20

3037-011-11

3037-011-12

3037-021-25

3037-

EXISTING R/W

RSP SEE 00-1

HEADBALL W/ CABLE MAILING

48" APC

EXTEND EXIST PIRC 48" APC 276484.29

HEADBALL W/ CABLE MAILING

LAYOUT
 SCALE 1" = 50'

L-20

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
San Joaquin Hills Project Development
 PROJECT ENGINEER: **FRED ABEF**
 CALCULATOR: **DELORES ST.**
 DESIGNED BY: **FRED ABEF**
 REZA MOTAMEDI
 REVISED BY: **FRED ABEF**
 DATE REVISED:

DIST.	COUNTY	ROUTE	POST MILES	SECTION	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE						
PLANS APPROVAL DATE						
<small>THE ENGINEER OR ARCHITECT SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL BE SUBJECT TO THE PENALTIES OF THE PROFESSIONAL ACT.</small>						



CURVE DATA

No.	R	Δ	L	PC	PT	PI
(1)	2401.58'	36°59'35"	803.40'	1550.38'		



3037-061-04

3037-061-05

3057-021-27

3037-021-01

3037-021-30

LAYOUT
 SCALE 1" = 50'
L-21

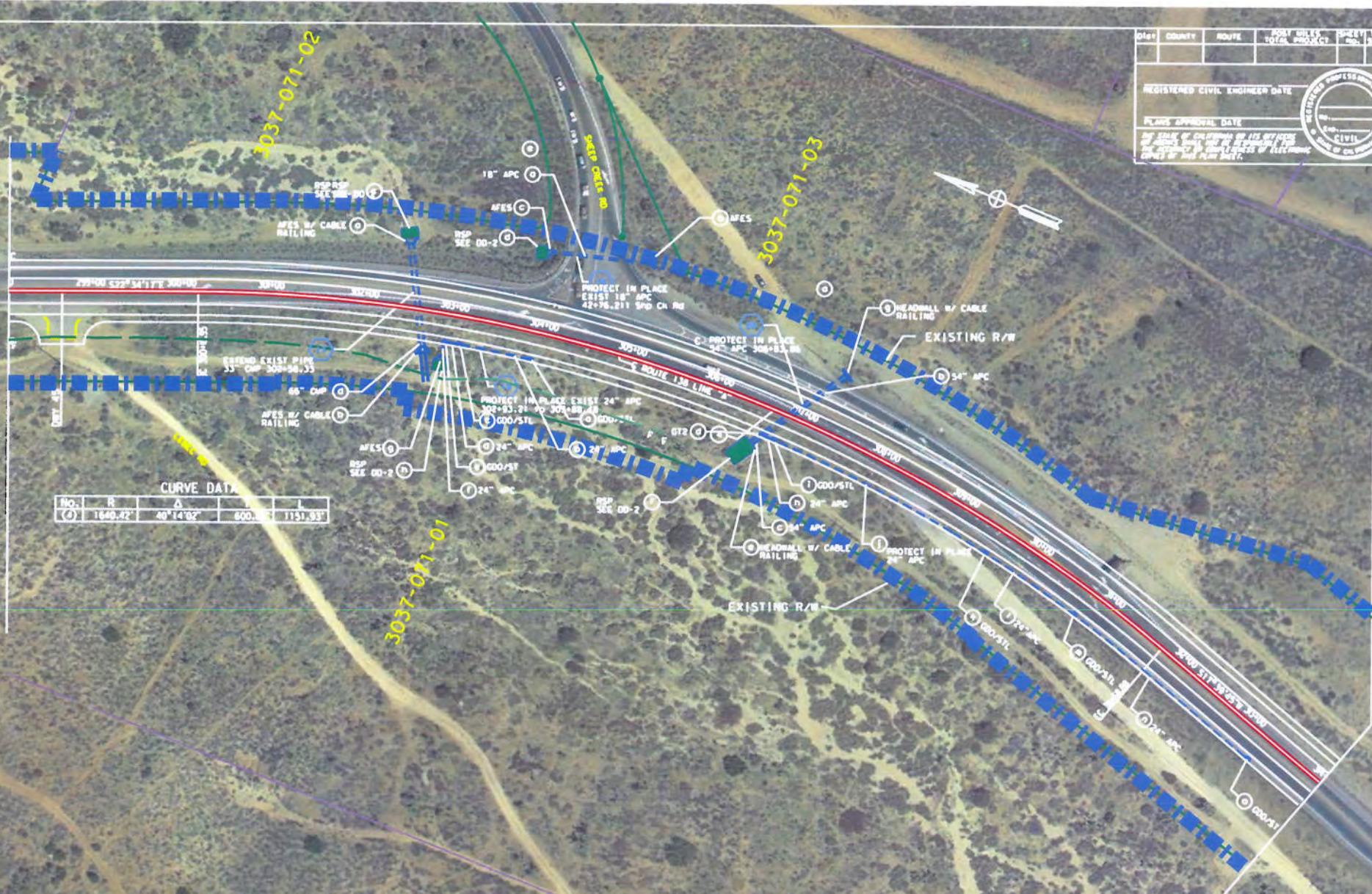
BORDER LAST REVISED 11/1/2006

RELATIVE BORDER SCALE 15 IN INCHES

CU 08228 EA 3401UI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASEP
 CALCULATED/DESIGNED BY
 CHECKED BY
 REZA MOTAMEDLI
 FREED ASEP
 REVISED BY
 DATE REVISED

DATE	COUNTY	ROUTE	POLY LINES TOTAL PROJECT	SHEET TOTAL
REGISTERED CIVIL ENGINEER DATE				
PLANS APPROVAL DATE				
<small>BY STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY INFORMATION CONTAINED IN THIS PLAN SHEET.</small>				



CURVE DATA

No.	R	Δ	L	T
(1)	1640.42'	40°14'02"	600.00'	1151.93'

LAYOUT
 SCALE 1" = 50'
L-23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: **FRED ASEF**
 CALCULATED/DESIGNED BY: **FRED ASEF**
 CHECKED BY: **FRED ASEF**
 REVIEWED BY: **FRED ASEF**
 DATE REVISED: **DATE REVISED**

NO.	COUNTY	ROUTE	POST MILES TOTAL	POST MILES TO NEXT	POST MILES FROM PREVIOUS

REGISTERED	CIVIL ENGINEER	DATE
PLACES		

THE STATE OF CALIFORNIA AND ITS OFFICIALS DO NOT GUARANTEE THE ACCURACY OF THE INFORMATION CONTAINED HEREIN OR THE CORRECTNESS OF THE RESULTS THEREOF.

CURVE DATA

NO.	R	Δ	L	PC	PT
(1)	1640.42'	37° 47' 10"	482.54'	338.69'	
(2)	1968.50'	28° 3' 30"	619.04'	1307.75'	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ASEF
 CALCULATED BY: FRED ASEF
 DESIGNED BY: FRED ASEF
 CHECKED BY: FRED ASEF
 REVIEWED BY: FRED ASEF
 DATE REVISED: 11/1/2009

CURVE DATA

NO.	R	A	L	T
(1)	1966.30	35° 0' 30"	879.04'	1307.76'
(2)	2413.51	35° 50' 05"	681.53'	1342.83'

Sheet	COUNTRY	ROUTE	PROJECT TITLE	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATA

PROJECT APPROVAL DATA

DATE: 11/1/2009

PROJECT: STATE ROUTE 138

SCALE: 1" = 50'



3037-341-05

3037-341-02

LAYOUT
 SCALE 1" = 50'
L-25

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ASEF
 CALCULATED, DESIGNED BY: [blank]
 CHECKED BY: [blank]
 REVISED BY: [blank]
 DATE REVISED: [blank]

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE: _____
 PLANS APPROVAL DATE: _____
 THE SEAL OF CALIFORNIA SHALL BE PLACED ON THESE PLANS AND SHALL BE VALID FOR THE PERIOD OF ONE YEAR FROM THE DATE OF ISSUANCE OF THESE PLANS.



LAYOUT
 SCALE 1" = 50'
L-27

DATE	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVED DATE	

NOT VALID OR IN FORCE IF THE OFFICE OF PUBLIC WORKS AND HIGHWAYS FINDS THE PLANS TO BE IN VIOLATION OF ANY PROVISIONS OF THE PUBLIC WORKS CODE OF THIS STATE.

CURVE DATA

No.	R	A	L
(1)	5085.36'	3°55'25"	348.24'

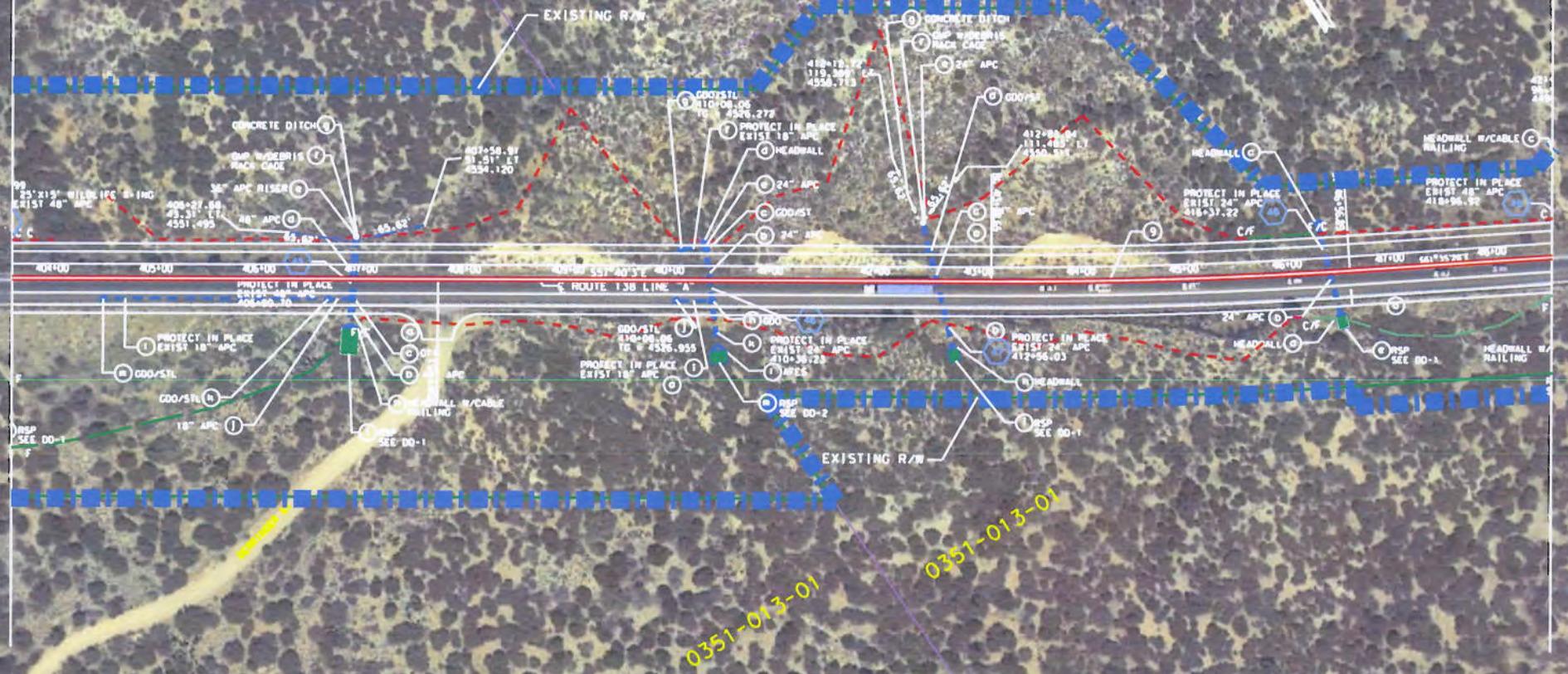
GOV LOT
0351-013-01

0351-013-01

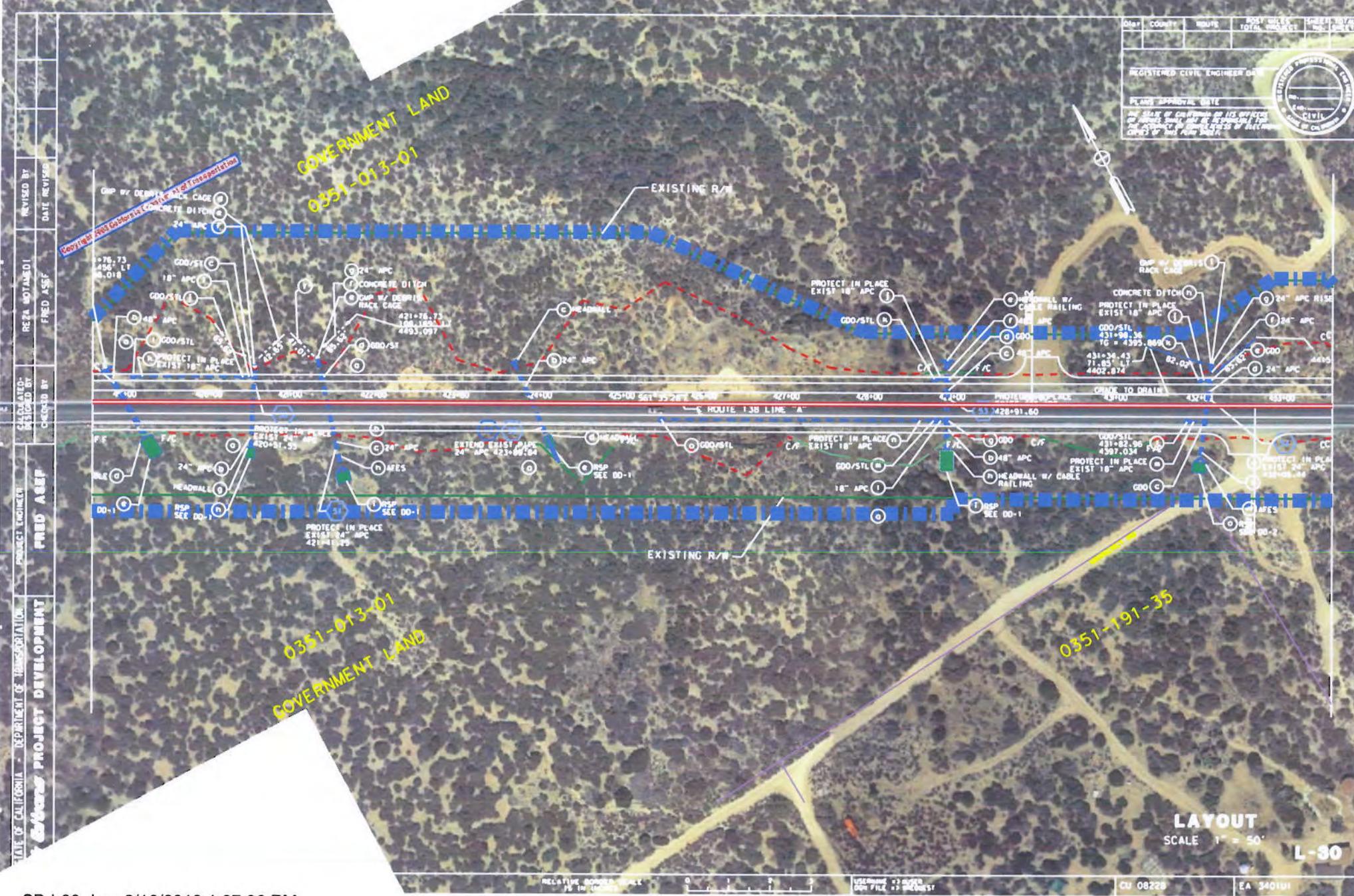
0351-013-01

0351-013-01

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT NUMBER: FRED AFBP
 PROJECT ENGINEER: FRED AFBP
 CALCULATED/DESIGNED BY: CHOSOB 37
 CHECKED BY: FRED AFBP
 REZA MOJAMEDI
 REVIEWED BY: FRED AFBP
 DATE REVISED:



LAYOUT
SCALE 1" = 50' **L-29**



DATE	COUNTY	ROUTE	POST MILES TOTAL PROJECT	POST MILES TOTAL COUNTY

REGISTERED CIVIL ENGINEER
 NAME: _____
 NO. _____
 EXPIRES _____

PLANS APPROVAL DATE: _____

BY: _____
 TITLE: _____

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 COUNTY OF _____

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 COUNTY OF _____

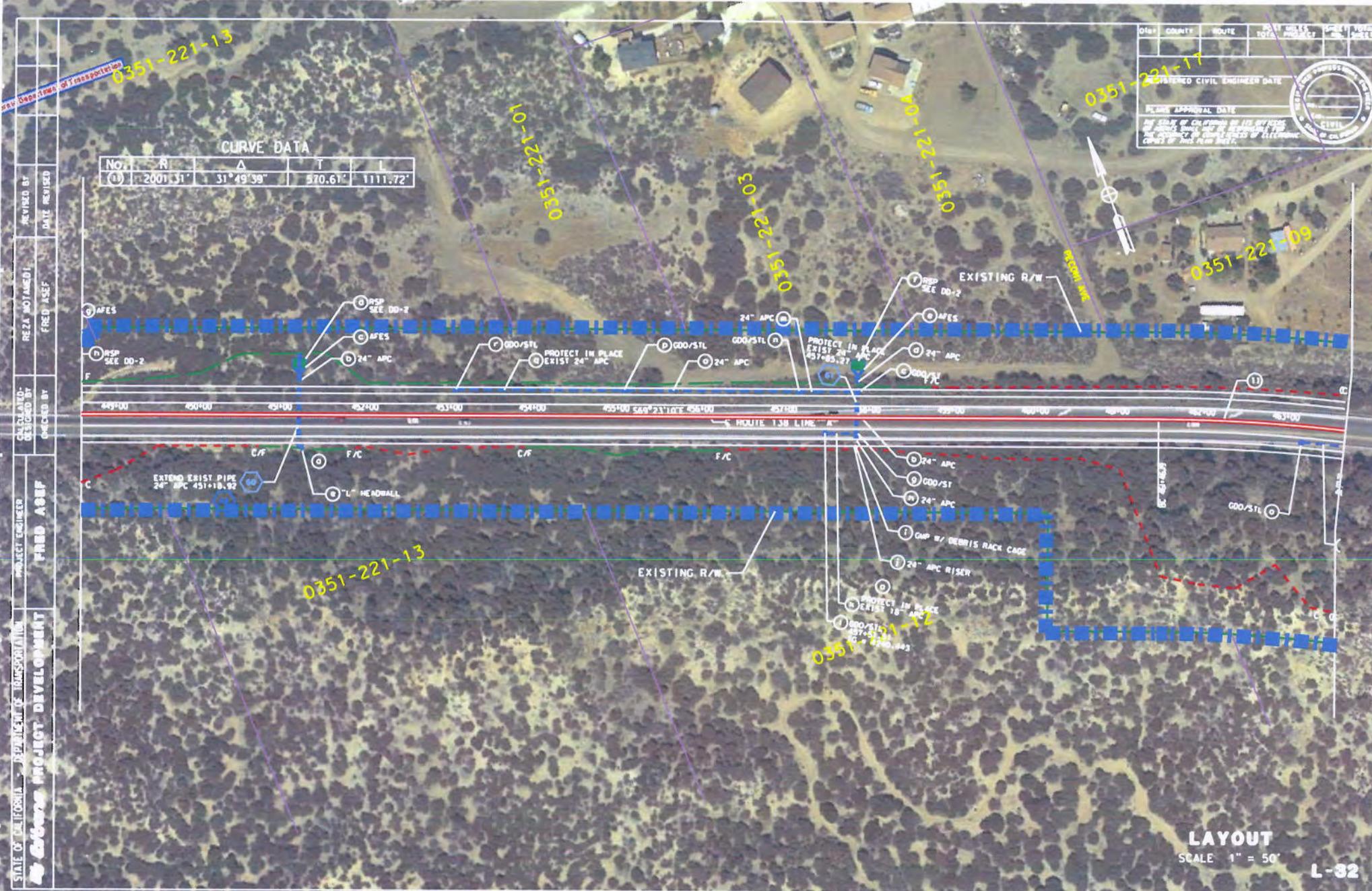
PROJECT ENGINEER
FRED ASEF

CALCULATED/ CHECKED BY
FRED ASEF

REVISED BY
FRED ASEF

DATE REVISION

LAYOUT
 SCALE 1" = 50'
L-30



CURVE DATA

No.	R	Δ	T	L
(1)	2001.31'	31°49'39"	570.61'	1111.72'

Dist	County	ROUTE	POST MILES TOTAL	PROJECT MILES	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____

PLEASE APPROVAL DATE _____

SEE STATE OF CALIFORNIA GOVT. OFFICES FOR APPROVAL AND RECORDING FEE. THE PROJECT IS SUBJECT TO ALL APPLICABLE CODES OF THIS PLAN SHEET.

STATE OF CALIFORNIA
REGISTERED CIVIL ENGINEER
[Signature]

0351-221-13

0351-221-01

0351-221-03

0351-221-04

0351-221-17

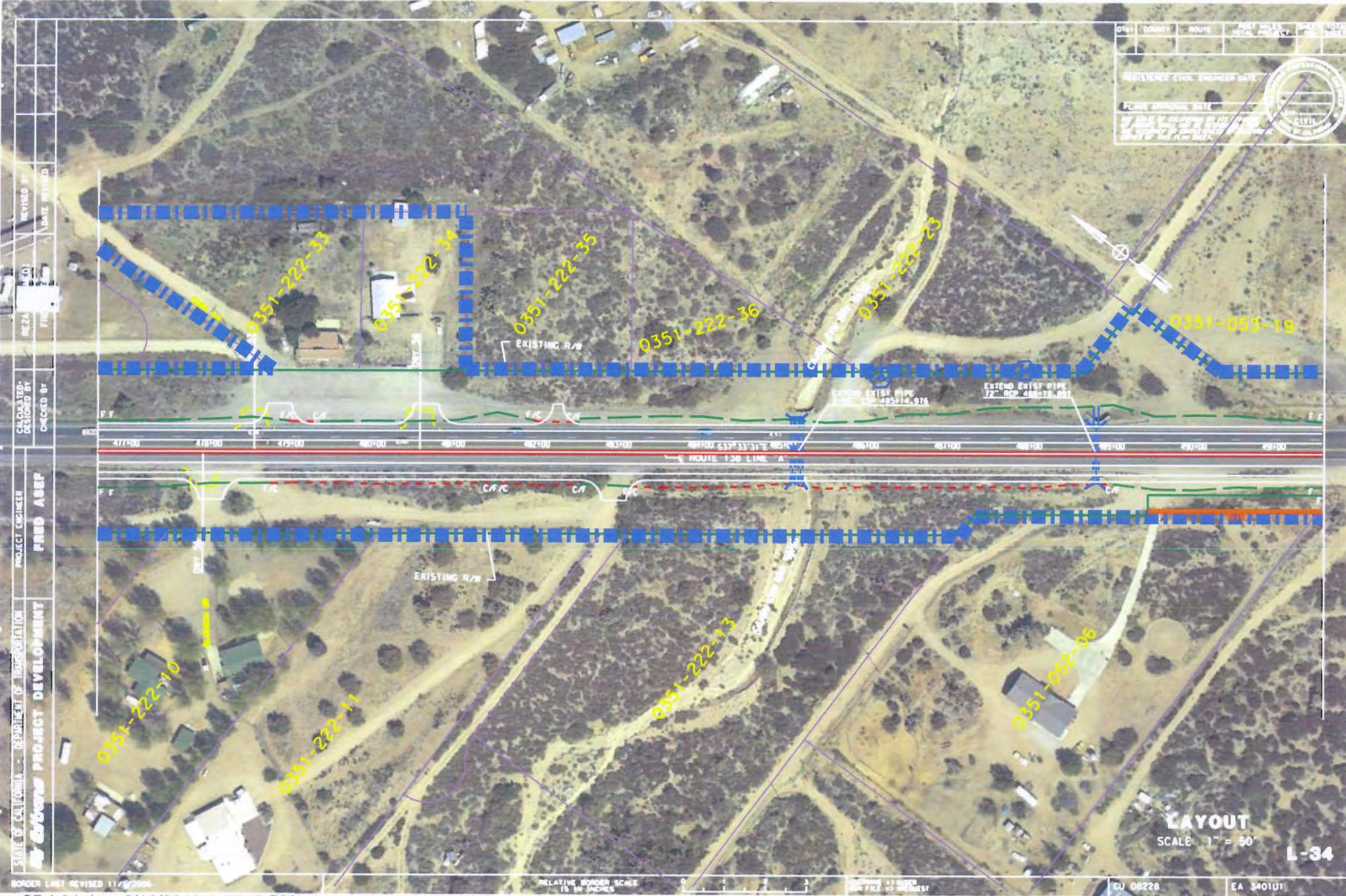
0351-221-09

0351-221-13

0351-221-12

LAYOUT
SCALE 1" = 50'

L-32



Date	Count	Route	Post Miles	Scale	Total

REGISTERED CIVIL ENGINEER DATE _____
 PLUMBING APPROVAL DATE _____

BY STATE OF CALIFORNIA REGISTERED CIVIL ENGINEER
 NO. 48278-001
 DATE OF THIS PLAN SHEET _____

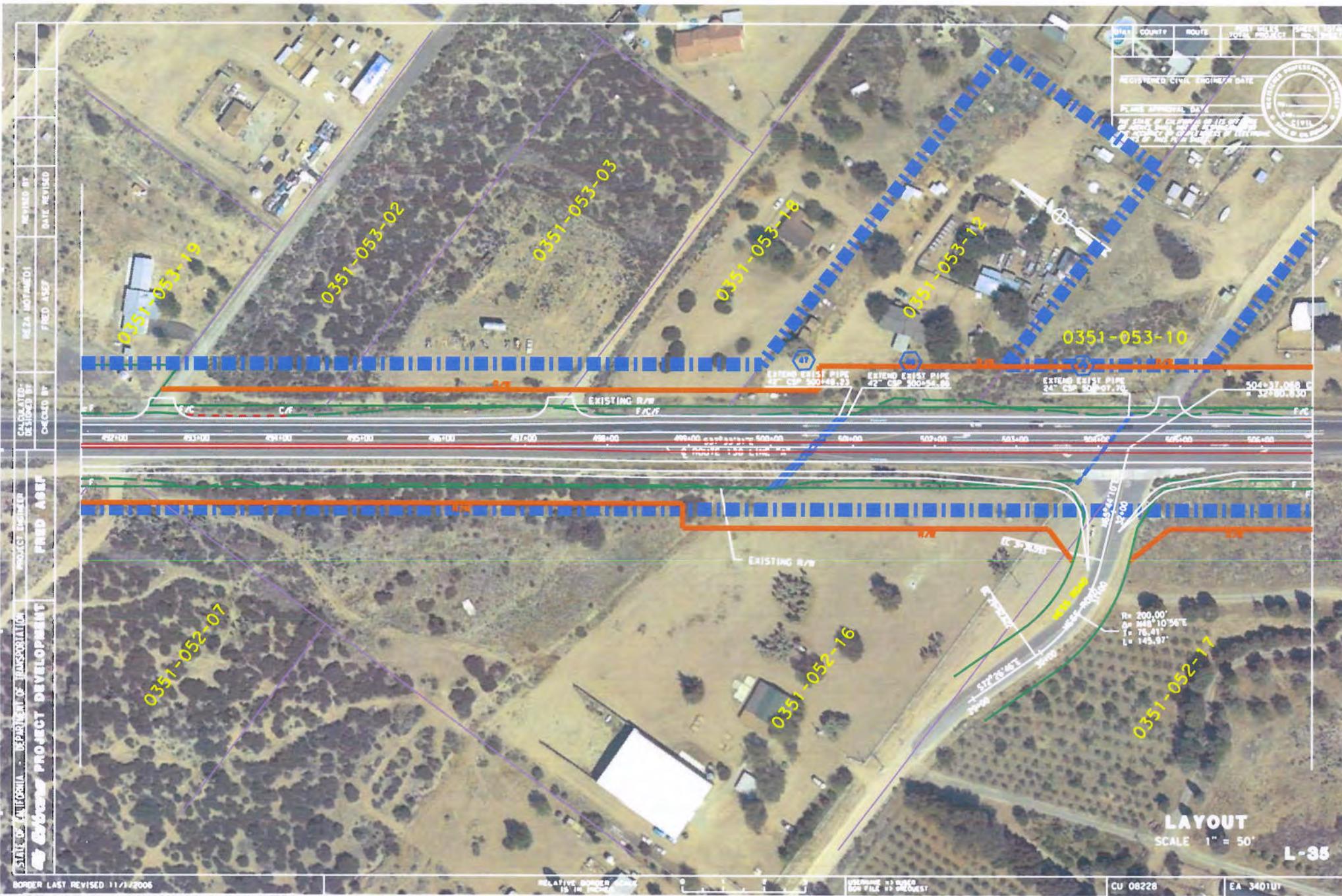
STATE OF CALIFORNIA - DEPARTMENT OF REGISTRATION
Public Works
 PROJECT DEVELOPMENT

PROJECT ENGINEER
FRED ASBP

CHECKED BY
 DATE REVISION BY
 DATE REVISION BY

LAYOUT
 SCALE 1" = 50'
L-34

SbD-34.dgn 2/16/2010 1:47:17 PM



PLAN	COUNTY	ROUTE	POST MILES	PROJECT	SHEET NO.	TOTAL SHEETS

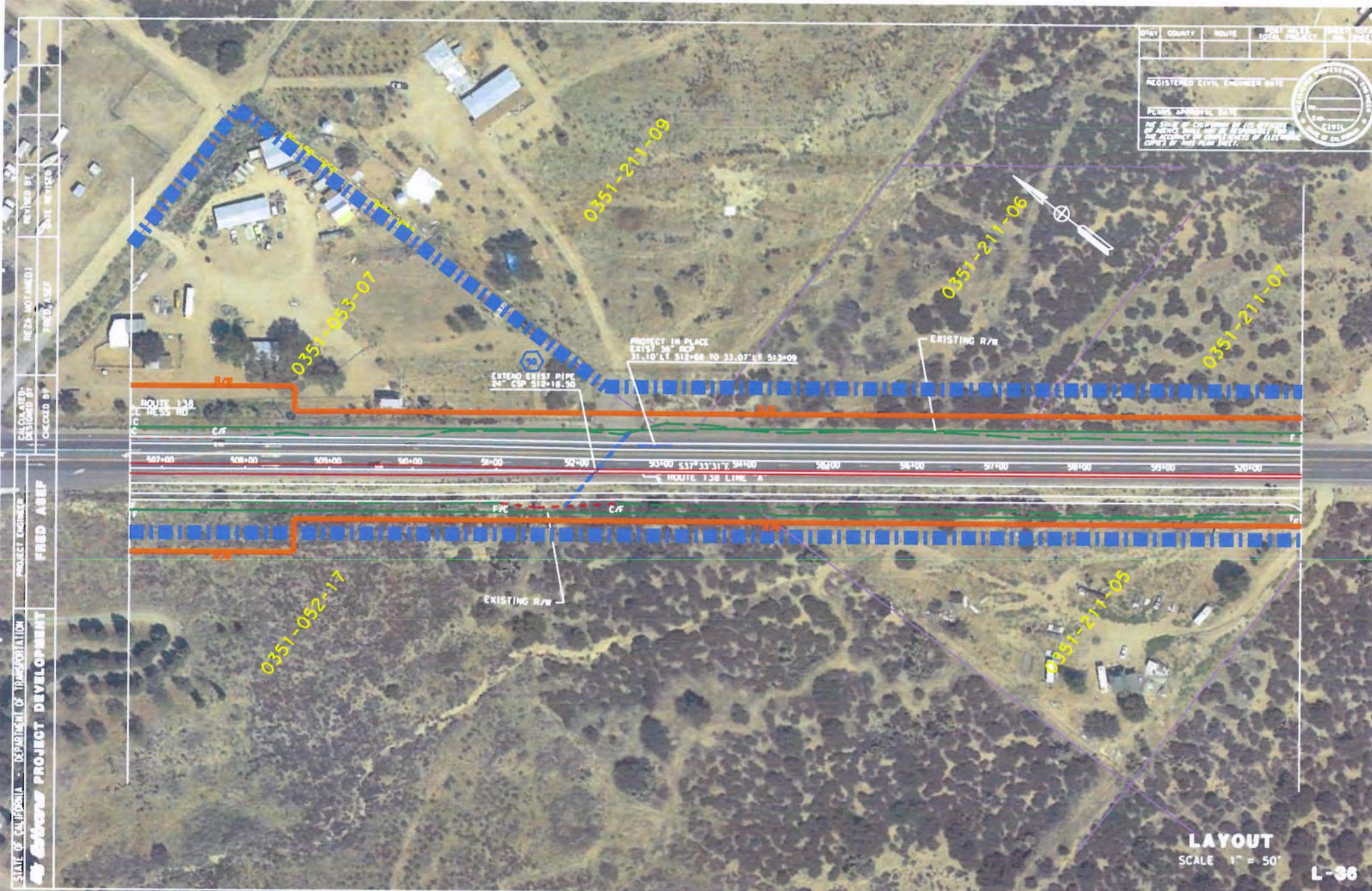
REGISTERED CIVIL ENGINEER DATE _____
 P. NAME APPROVAL DATE _____
 THE STATE OF CALIFORNIA OFFICE OF THE REGISTERED PROFESSIONAL ENGINEERS
 CIVIL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ADEP
 CALCULATED/DESIGNED BY: FRED ADEP
 CHECKED BY: FRED ADEP
 REVISIONS:
 REVISED BY: MEZA, MOYAMEDI
 DATE REVISED: FRED ADEP

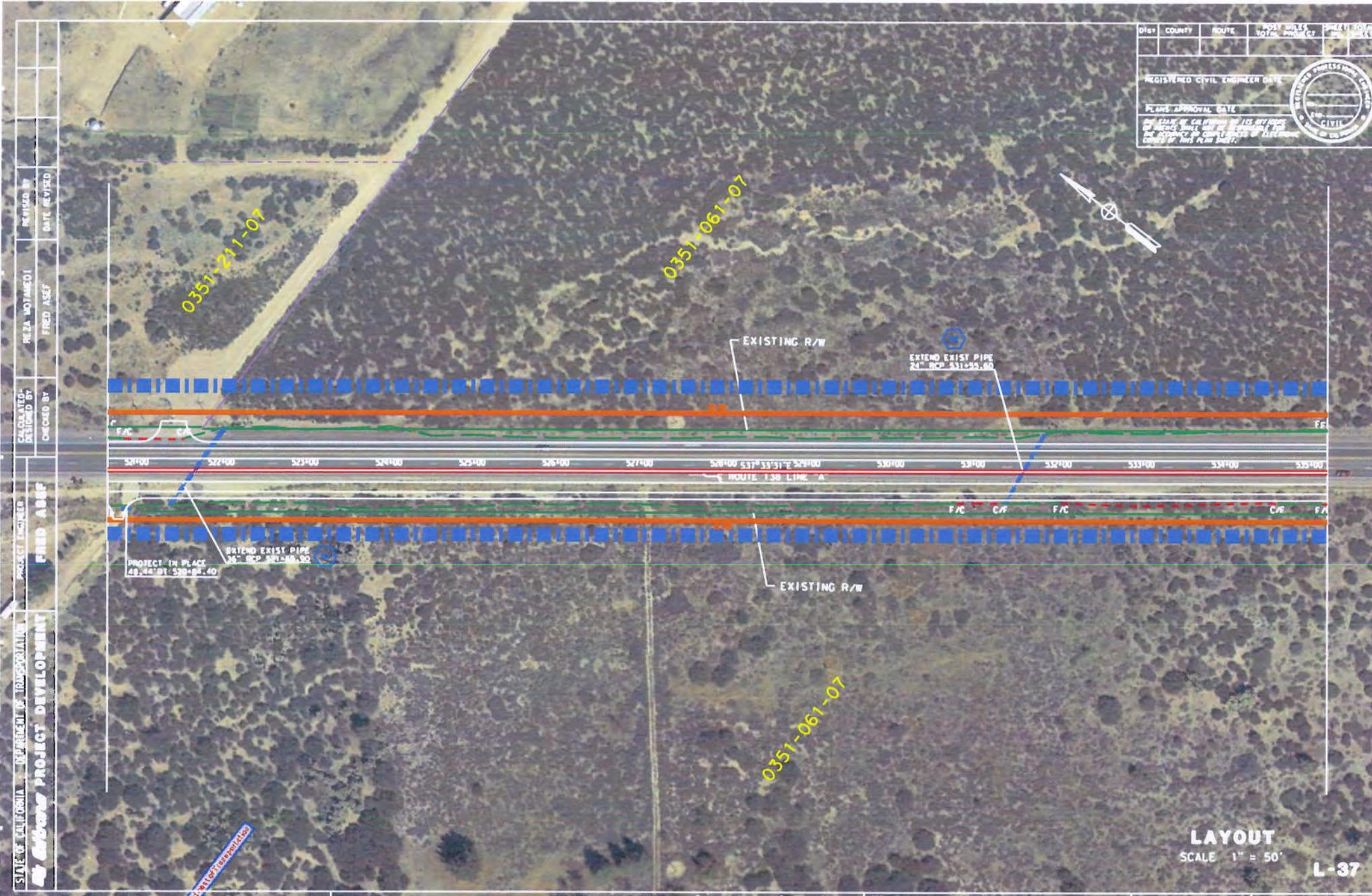
LAYOUT
 SCALE 1" = 50'
L-35

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASEP
 CALCULATED/ CHECKED BY
 FRED ASEF
 DESIGNED/ DRAWN BY
 FRED ASEF
 REVIEWED BY
 DATE REVISED

DATE	COUNTY	ROUTE	POST MILE TOTAL	SHEET NUMBER
REGISTERED CIVIL ENGINEER DATE				
PLANS APPROVAL DATE				
<small>NOT VALID FOR CONTRACTS OF ITS OWNERS OR AGENTS UNLESS THE PROJECT HAS QUALIFIED AS AN APPROVED COPY OF THIS PLAN SHEET.</small>				



LAYOUT
 SCALE 1" = 50'
L-36



DIST	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVAL DATE	

THE SCALE OF CALCULATIONS IS AS NOTED
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR
 THE ACCURACY OF ALL DATA AND STATEMENTS
 CONTAINED HEREON.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER: **FARID ABU-F**
 CHECKED BY: **FARID ABU-F**
 REVISIONS: REZA MOHAMMEDI, FRIED ASEF, REVISION BY, DATE REVISION

PROTECT IN PLACE
 48" 44" DI - 330+84.40

EXTEND EXIST PIPE
 36" RCP 331+85.80

EXTEND EXIST PIPE
 24" RCP 331+45.80

LAYOUT
 SCALE 1" = 50'
L-37

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

PROJECT ENGINEER
FARID ASEF

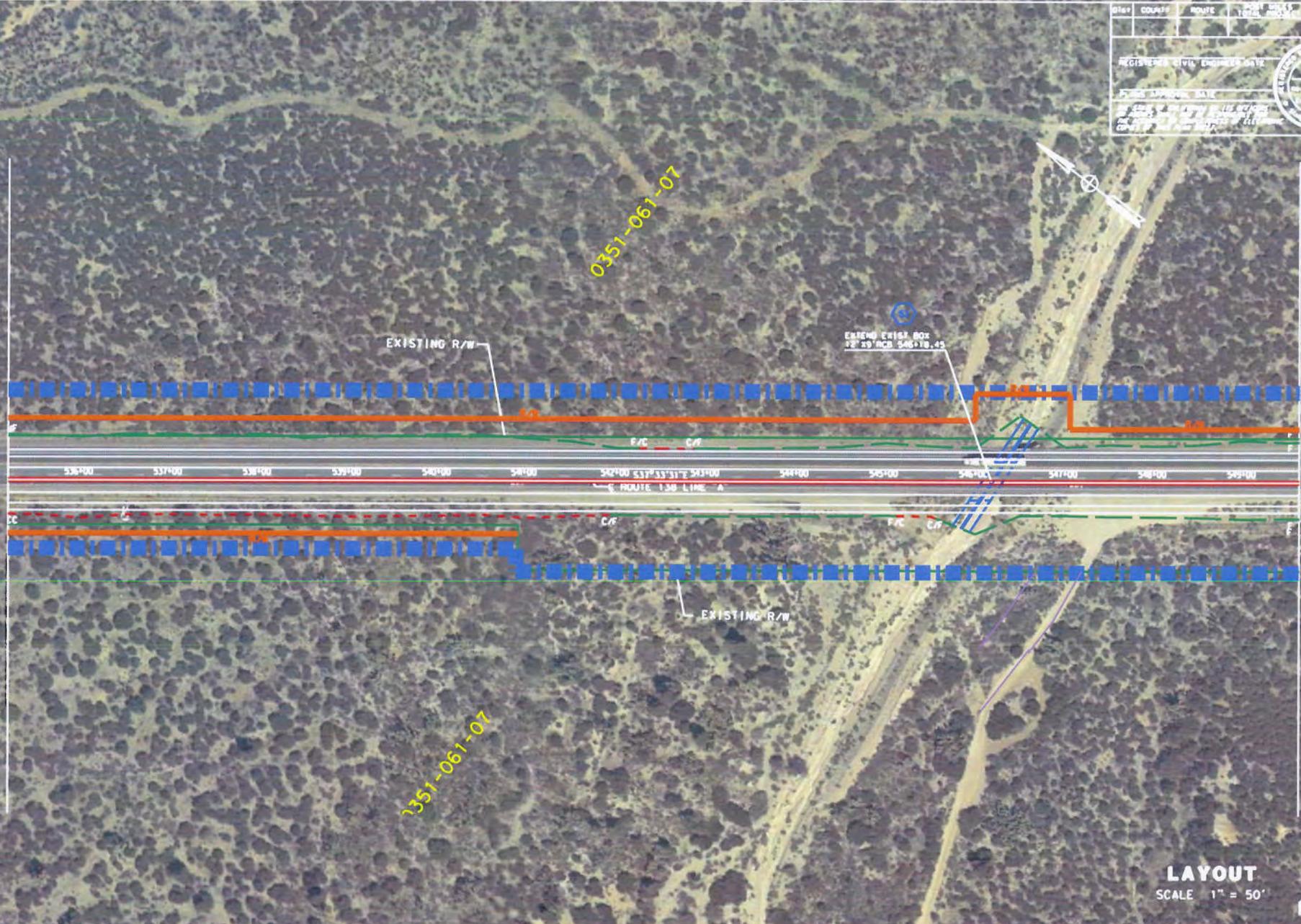
CALCULATED/
 CHECKED BY

REZA MOTAMEDJI
 FRED ASEF

REVISED BY
 DATE REVISED

DATE	COUNTY	ROUTE	SHEET NO.	TOTAL SHEETS	SCALE	DATE

REGISTERED CIVIL ENGINEER STATE OF CALIFORNIA
 FRED ASEF
 No. 54618-45
 CIVIL
 State of California

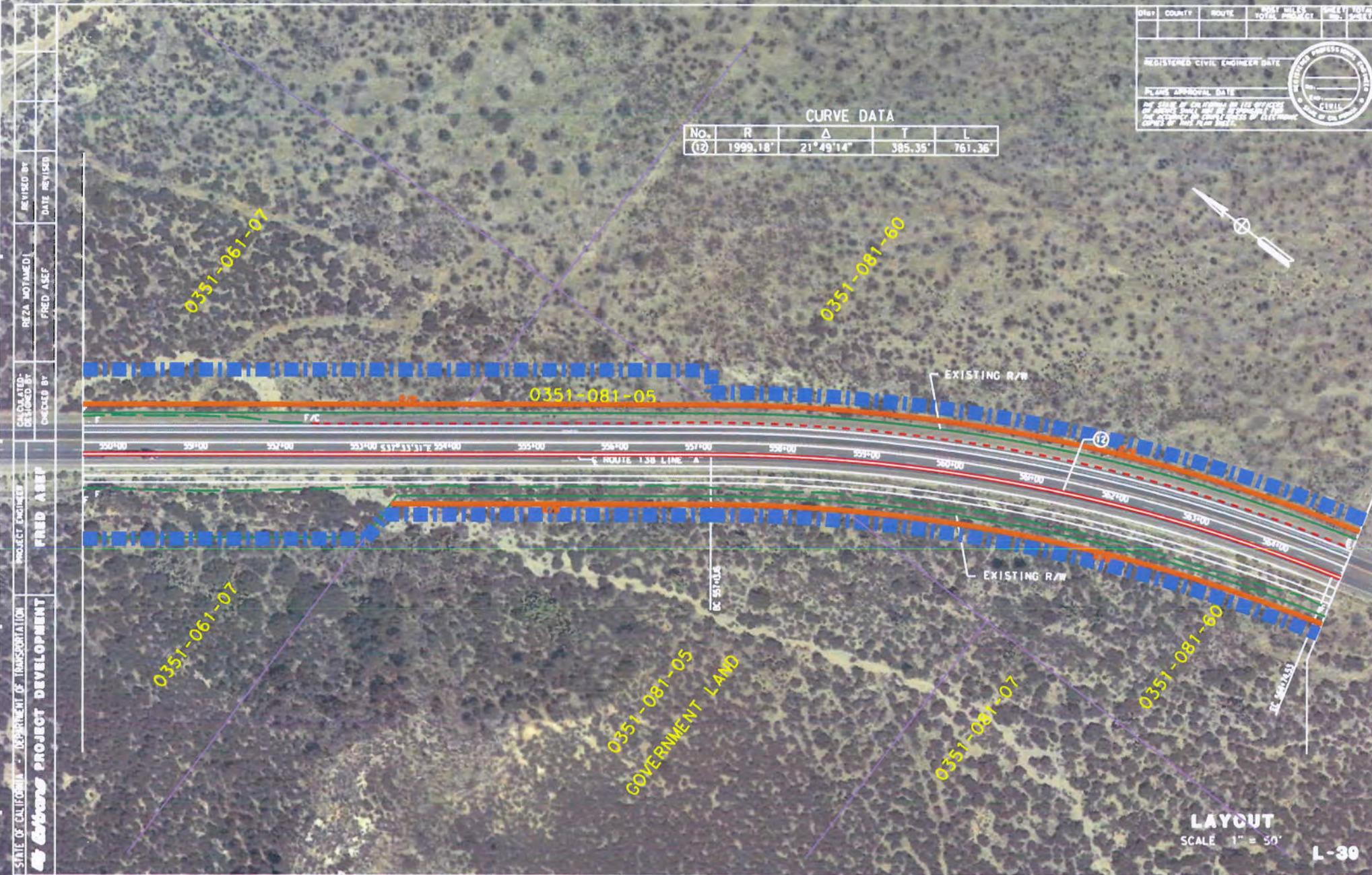


LAYOUT
 SCALE 1" = 50'
L-38

DIST.	COUNTY	ROUTE	SHEET NO.	SHEET TOTAL
			TOTAL SHEETS	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE				
PLANS APPROVAL DATE				



No.	R	Δ	T	L
(12)	1999.18'	21°49'14"	385.35'	761.36'



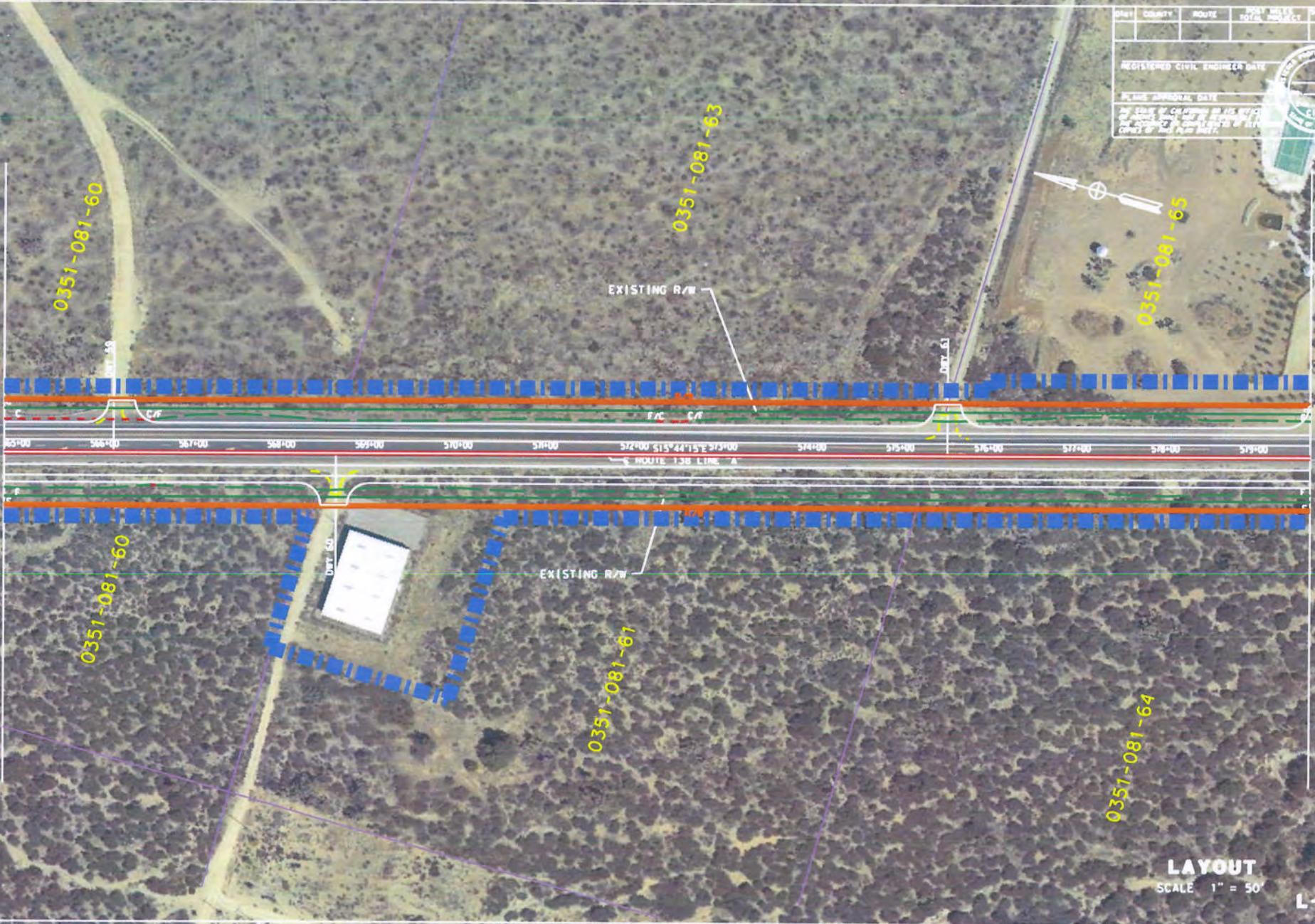
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ASEF
 CALCULATED/CHIEF DESIGNER: REZA MOTAMED
 CHECKED BY: FRED ASEF
 REVISED BY: DATE REVISED

LAYOUT
 SCALE 1" = 50'
L-30

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER
 FRED ASEP
 CALCULATED/ CHECKED BY
 REZA MOJTAHEDI / FRED ASEP
 REVISED BY
 DATE REVISED

Sheet	County	Route	Post Miles	Sheet Total	Sheet No.	Total Sheets

REGISTERED CIVIL ENGINEER DATE
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA BY ITS OFFICE OF PUBLIC WORKS HAS REVIEWED THE SUBMITTAL FOR COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND FOUND IT TO BE IN COMPLIANCE WITH THE REQUIREMENTS.



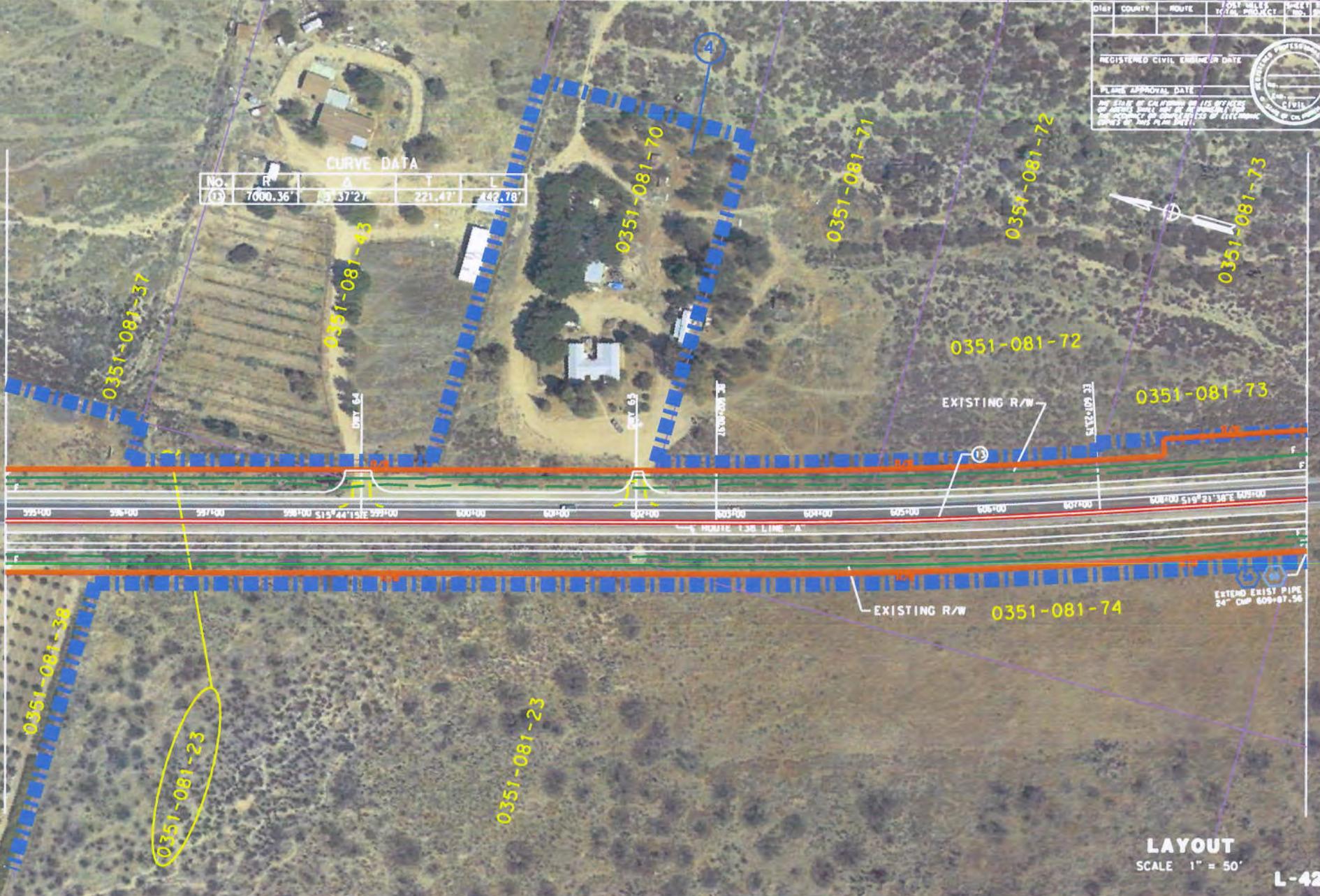
LAYOUT
 SCALE 1" = 50'
L-40

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: [REDACTED] PROJECT NO.: [REDACTED]
 CHECKED BY: [REDACTED] DATE: [REDACTED]
 DESIGNER: [REDACTED] DATE: [REDACTED]
 REVISIONS: [REDACTED]

DATE	COUNTY	ROUTE	JOB NO.	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE SEAL OF CALIFORNIA IN ITS OFFICE OF JUDICIAL ADMINISTRATION SHALL NOT BE VALID UNLESS IT IS REGISTERED IN THE OFFICE OF JUDICIAL ADMINISTRATION OF THE STATE OF CALIFORNIA.</small>					

CURVE DATA

No.	R	A	T	L
(1)	7000.36'	53°37'27"	221.47'	442.78'



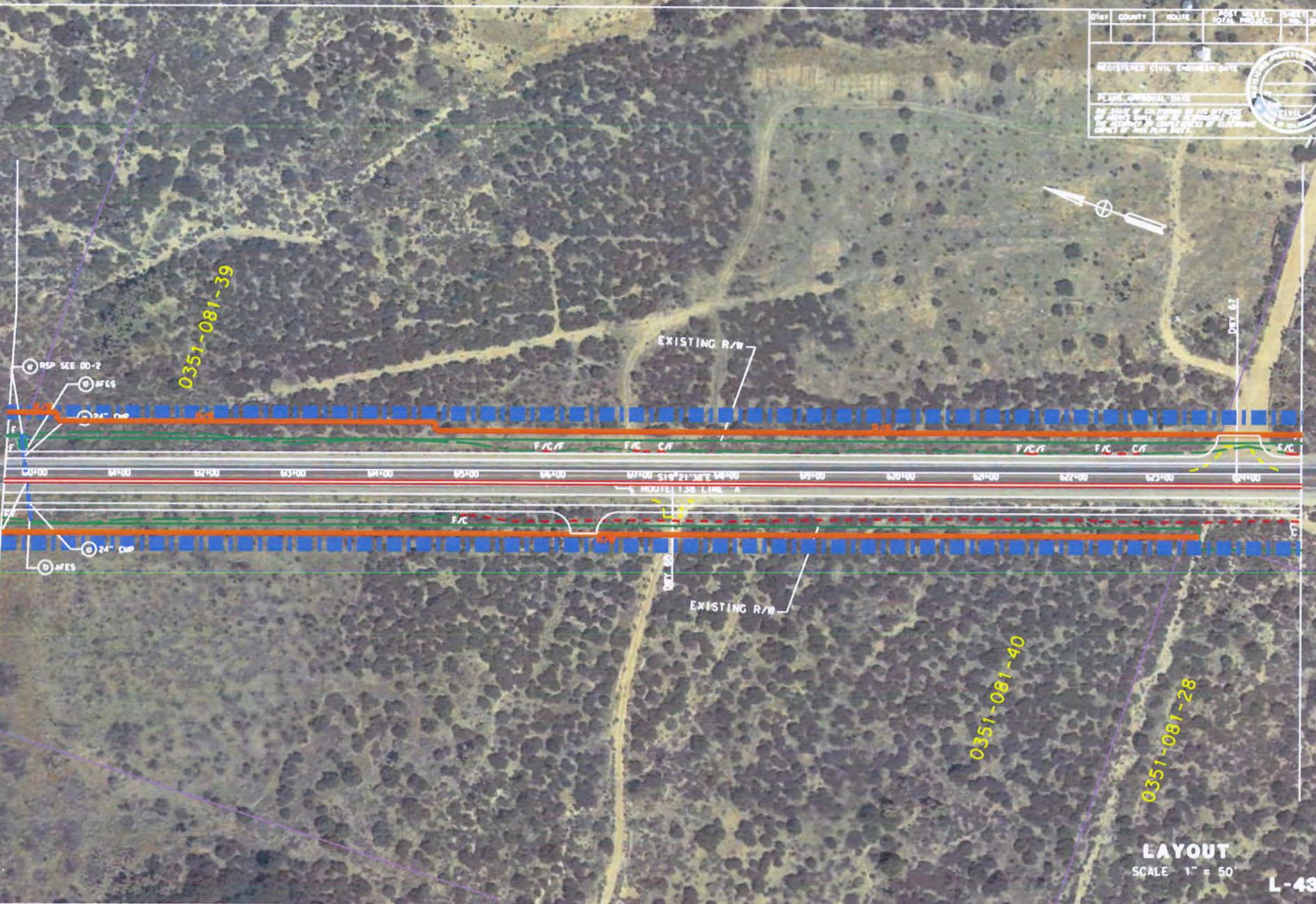
LAYOUT
 SCALE 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED ABEF
 CALCULATED/DESIGNED BY: FRED ABEF
 CHECKED BY: FRED ABEF
 REVISED BY: FRED ABEF
 DATE REVISED:

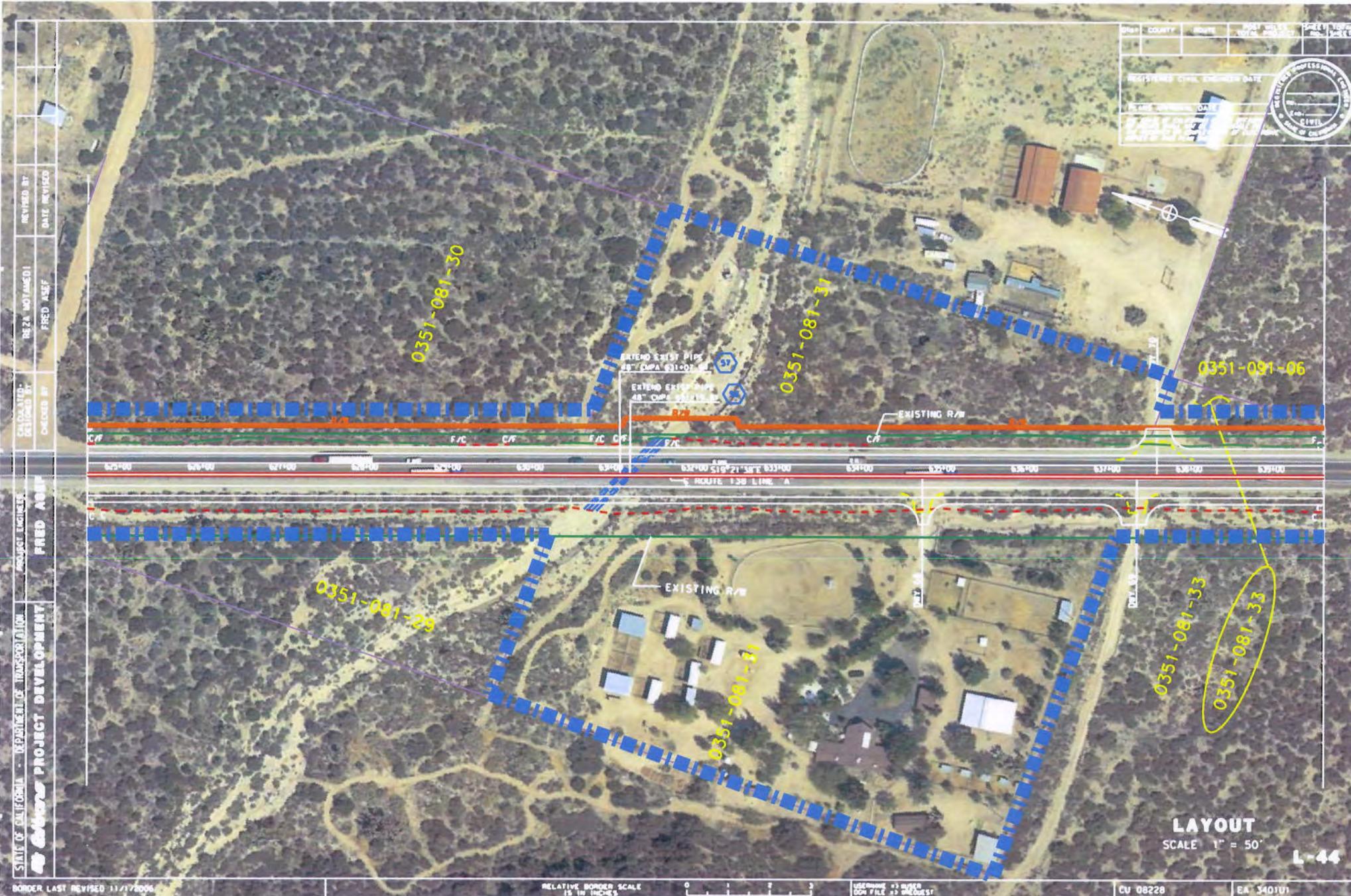
DIST	COUNTY	ROUTE	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE: _____
 LICENSE NO.: _____
 PLANS APPROVAL DATE: _____

NOT VALID FOR CONSTRUCTION OF ANY PROJECT OR ANY PART OF ANY PROJECT UNLESS THE CONTRACTOR HAS RECEIVED THE NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND THE CONTRACTOR HAS OBTAINED THE NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



LAYOUT
 SCALE 1" = 50'
L-43



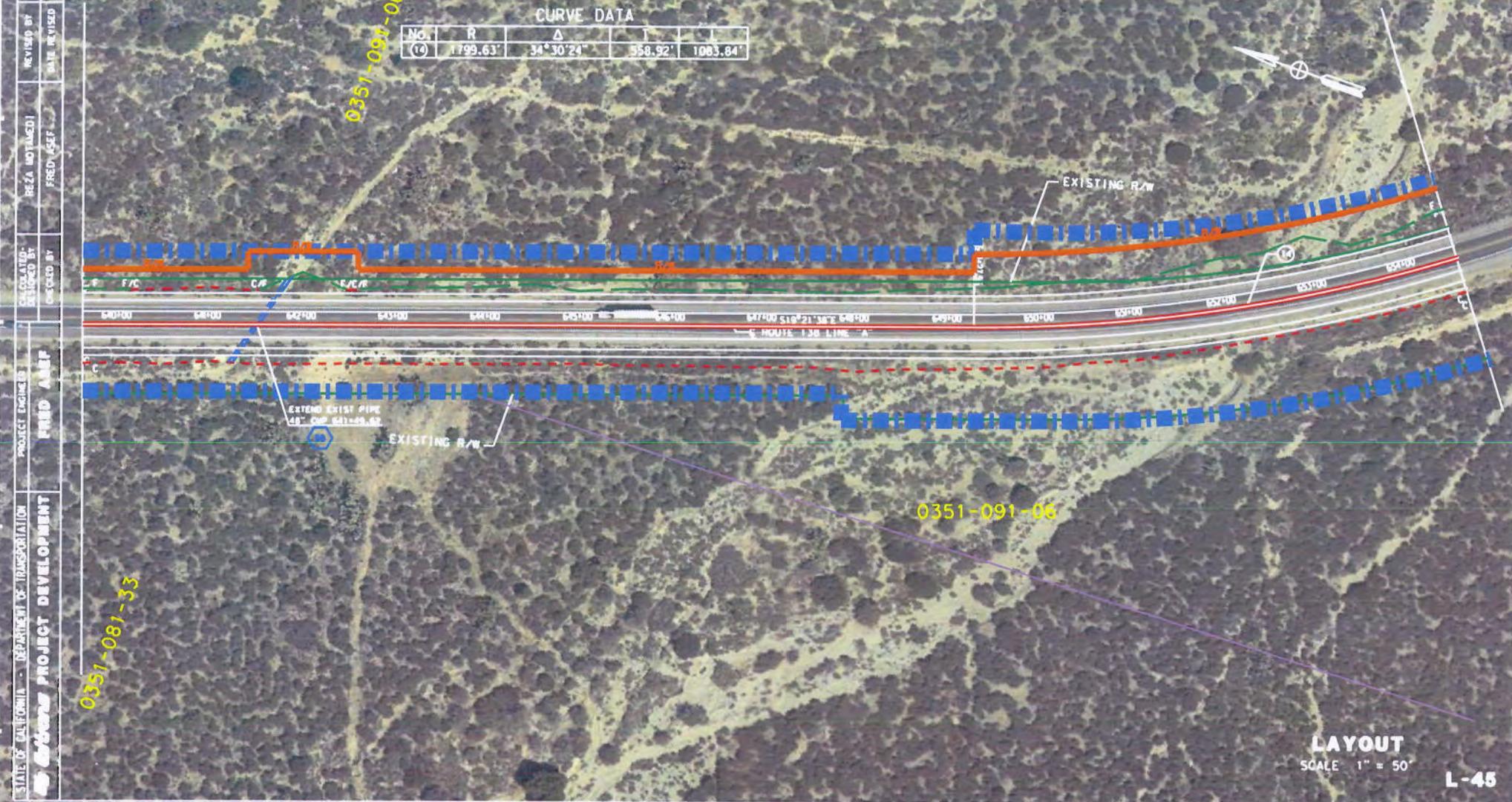
DATE	COUNTY	ROUTE	PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER'S DATE					
REGISTERED CIVIL ENGINEER'S NAME					

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Major PROJECT DEVELOPMENT
 PROJECT ENGINEER: **FRED ASEF**
 CALULATED BY: **DEZA MOTAMEDI**
 CHECKED BY: **FRED ASEF**
 REVISED BY: **DATE REVISED**

DIST.	COUNTY	ROUTE	POST MILE + TOTAL MILES	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>FOR SCALE: SEE DRAWING SHEET 100 ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE SPECIFIED DATE: 11/11/2006 DRAWN BY: [unreadable]</small>					

CURVE DATA

No.	R	Δ	T	L
(1)	1799.63'	34°30'24"	558.92'	1083.84'



LAYOUT
SCALE 1" = 50'
L-45

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

PROJECT ENGINEER
FRED ASEP

CALCULATED/DESIGNED BY
FRED ASEP

REZA MOHAMMADI
 CHECKED BY

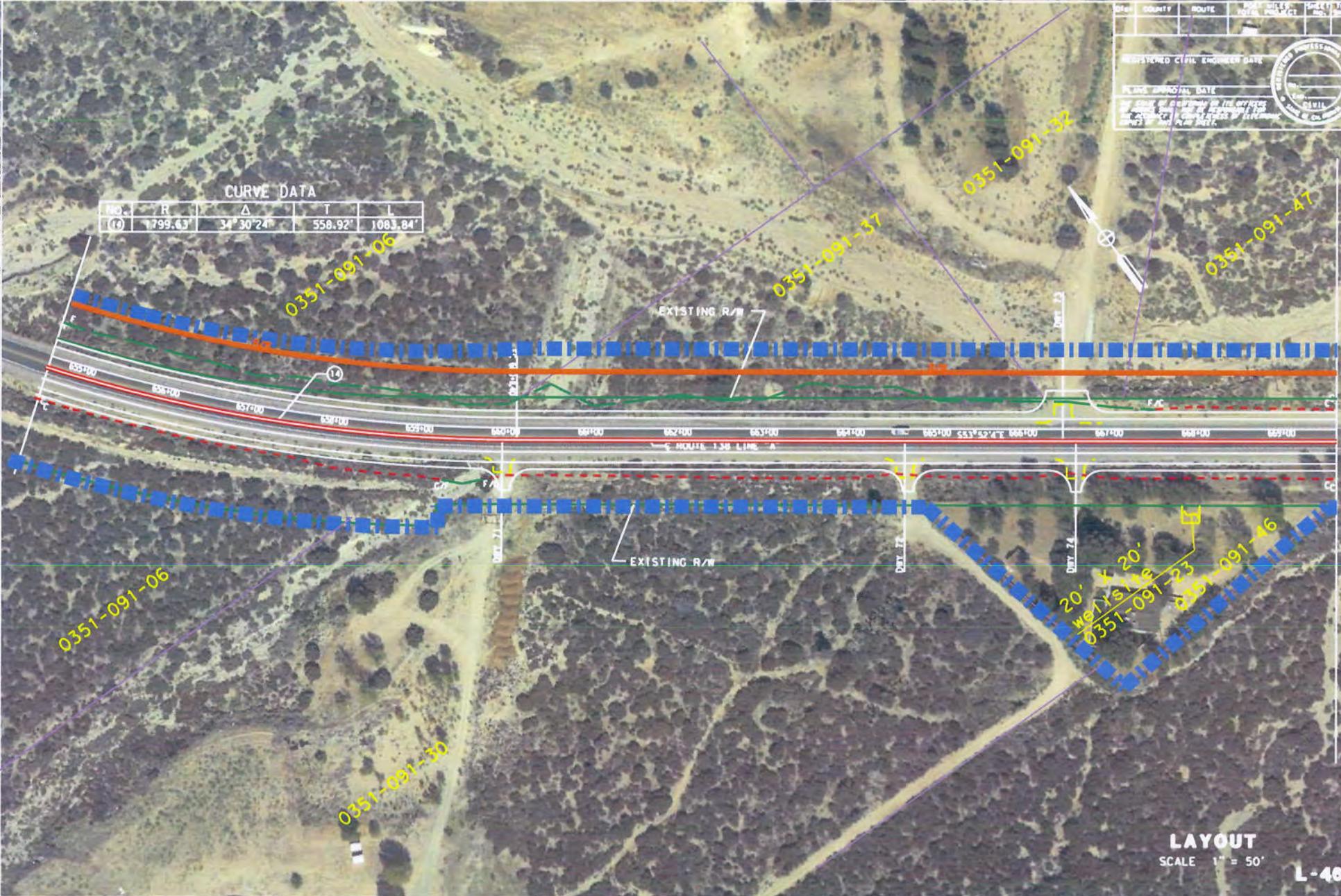
REVISOR BY
 DATE REVISED

CURVE DATA

NO.	R	Δ	T	L
(1)	1799.63'	34° 30' 24"	558.92'	1083.84'

SHEET NO.	TOTAL SHEETS
ROUTE	COUNTY
REGISTERED CIVIL ENGINEER DATE	PLANS APPROVAL DATE

REGISTERED CIVIL ENGINEER
 CIVIL
 STATE OF CALIFORNIA



LAYOUT
 SCALE 1" = 50'
L-46

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highways PROJECT DEVELOPMENT

PROJECT ENGINEER
FRED ASEF

REVISIONS

NO.	DATE	DESCRIPTION



Dist	Count	Route	Post	Sheet	Sheet	Lot
			Total	Proj	No.	Parcel
ESTIMATED CIVIL ENGINEER DATA						
DATE APPROVED DATE						
<small> For 100% Design, please refer to the project plan sheets for the final design of the project. The design is subject to change without notice. </small>						



LAYOUT
 SCALE 1" = 50'

BORDER LAST REVISED 11/1/2005

RELATIVE BORDER SCALE
 1" = 100'

USE DWG FILE TO OPEN
 IGS FILE TO PRINT

CU 06228

EA 30101

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT
 PROJECT ENGINEER
 FRED ASEF
 CHECKED BY
 FRED ASEF
 DESIGNED BY
 REZA MOTAMED
 REVISED BY
 FRED ASEF
 DATE REVISED

DATE	ISSUED	ROUTE	POST MILE	PROJECT NO.	SCALE

REGISTERED CIVIL ENGINEER STATE OF CALIFORNIA
 FRED ASEF, DATE
 No. 4997.03
 No. 4997.03
 No. 4997.03
 No. 4997.03



CURVE DATA

NO.	R	Δ	T	L
(13)	4997.03'	6°51'02"	299.09'	597.47'

0351-251-29

EXTEND EXIST PIPE
48" CSP 691+04.93

EXISTING R/W



0351-251-24

0351-251-25

0351-251-26

0351-251-27

LAYOUT
SCALE 1" = 50'

L-48

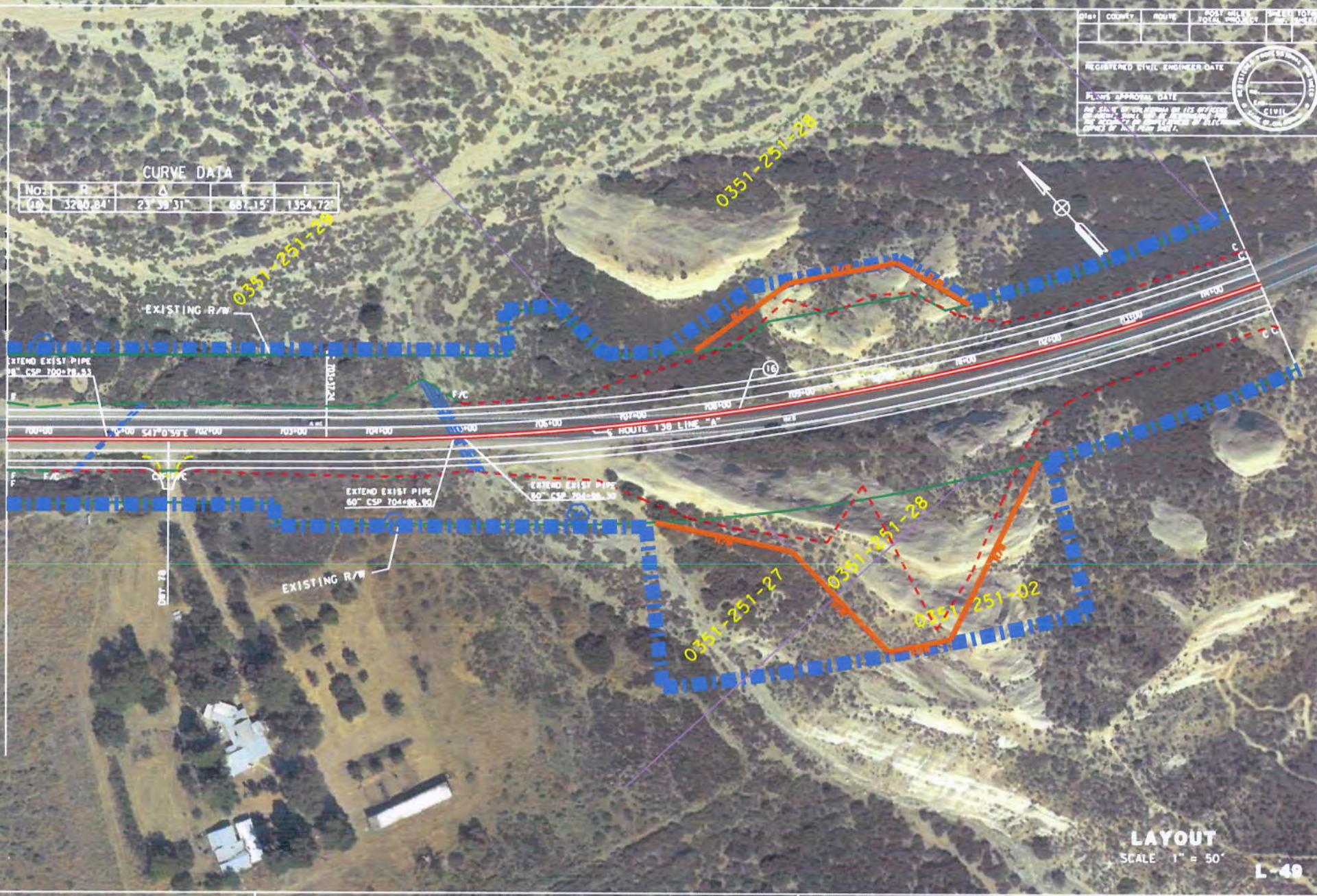
Office	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO. OF SHEETS
REGISTERED CIVIL ENGINEER DATE				
PLANS APPROVAL DATE				
<small>By State of California No. 475, 07/2005 Engineer: Fred ASEF No. 45766 In accordance with Division of Electrical Services of the State Board of Electrical Examiners</small>				



CURVE DATA

No.	R	Δ	L
(1)	3200.84'	23°38'51"	687.15'
			1354.72'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASEF
 DESIGNED BY
 REZA MOTAMED
 CHECKED BY
 FRED ASEF
 REVISIONS
 DATE



LAYOUT
 SCALE 1" = 50'
L-49

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASBP
 CALCULATED BY
 CHECKED BY
 REZA MOTAMED
 FRED ASBP
 REVISED BY
 DATE REVISED

DATE	COUNTY	ROUTE	POST MILES TOTAL	PROJECT NO.	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

NOT SCALE OR CALCULATE ON THIS SHEET OR ANY OTHER SHEET AND BE RESPONSIBLE FOR ALL CONDITIONS IN CHANGED PORTS OF PLANNING CORNER OF THIS PLAN SHEET.



No.	R	Δ	T	L
(16)	3280.00	23° 39' 31"	687.15'	1354.72'



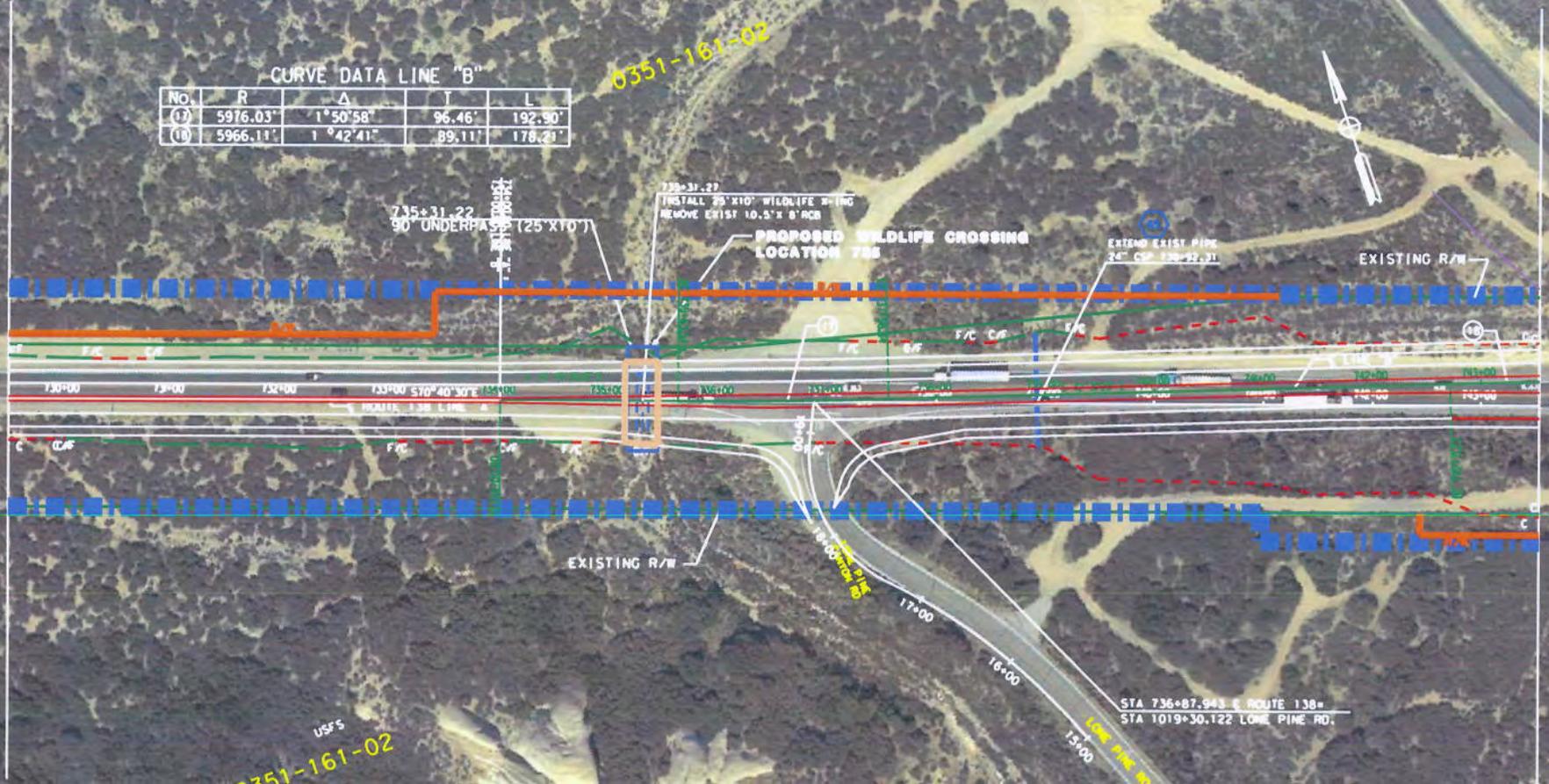
LAYOUT
 SCALE 1" = 50'
L-50

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Highway PROJECT DEVELOPMENT
 PROJECT ENGINEER
FRED ASEF
 CHECKED BY
 REZA MOTAMEDLI
 FRED ASEF
 REVISED BY
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>For Scale of Contract or 1/2"=100' or as noted, this drawing is prepared in accordance with the standards of the State of California, and shall be held subject to the jurisdiction of the State Board of Civil Engineers.</small>					

CURVE DATA LINE "B"

NO.	R	Δ	T	L
(7)	5976.03'	1°50'58"	96.46'	192.90'
(8)	5966.11'	1°42'41"	89.11'	178.21'

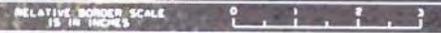


USFS
 0351-161-02

0351-161-02

LAYOUT
 SCALE 1" = 50'
L-51

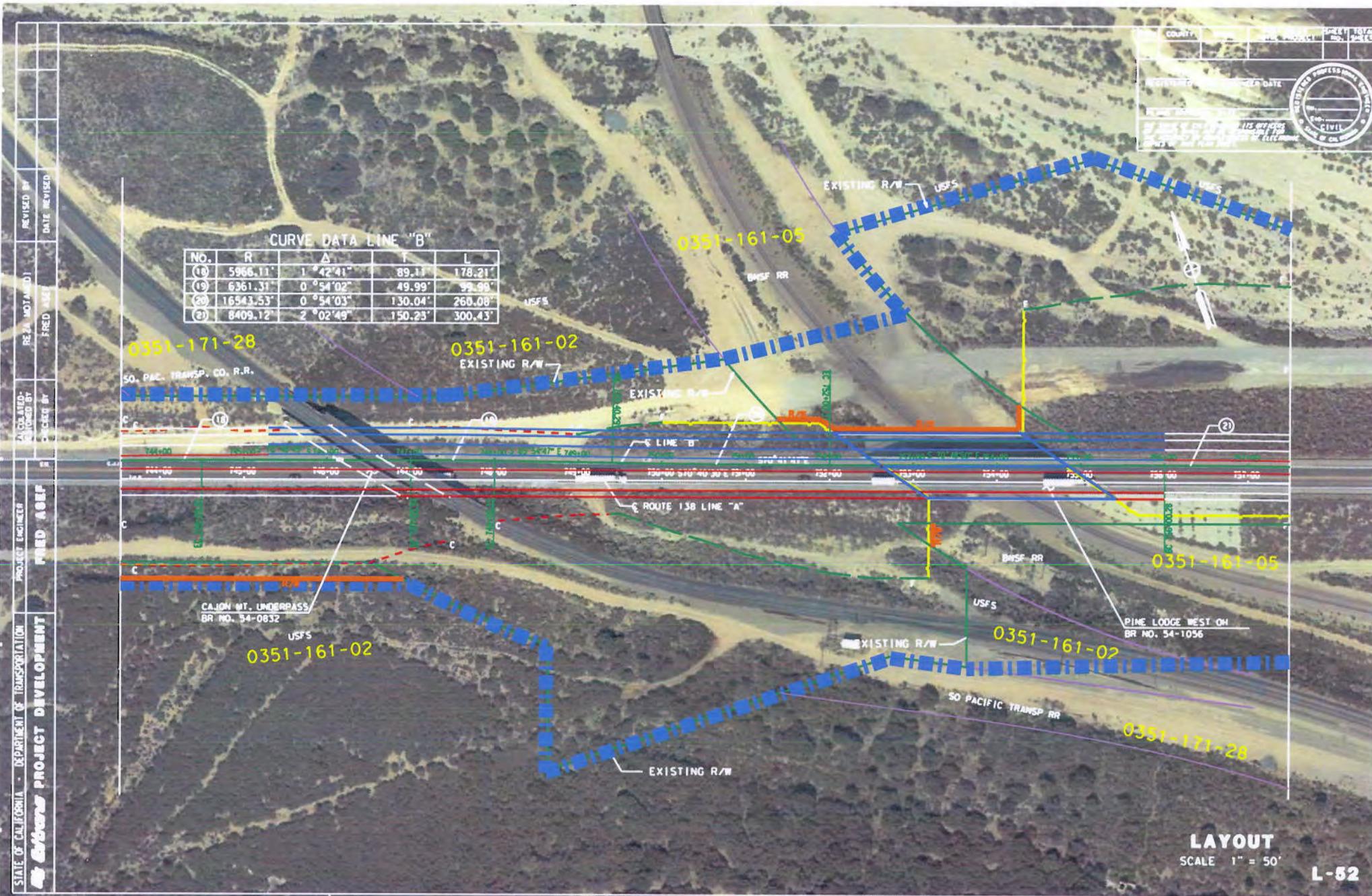
BORDER LAST REVISED 11/1/2006



Layering #1 BORDERS
 DIM FILE #2 BREAKS

CU 08228

EA 3401U1



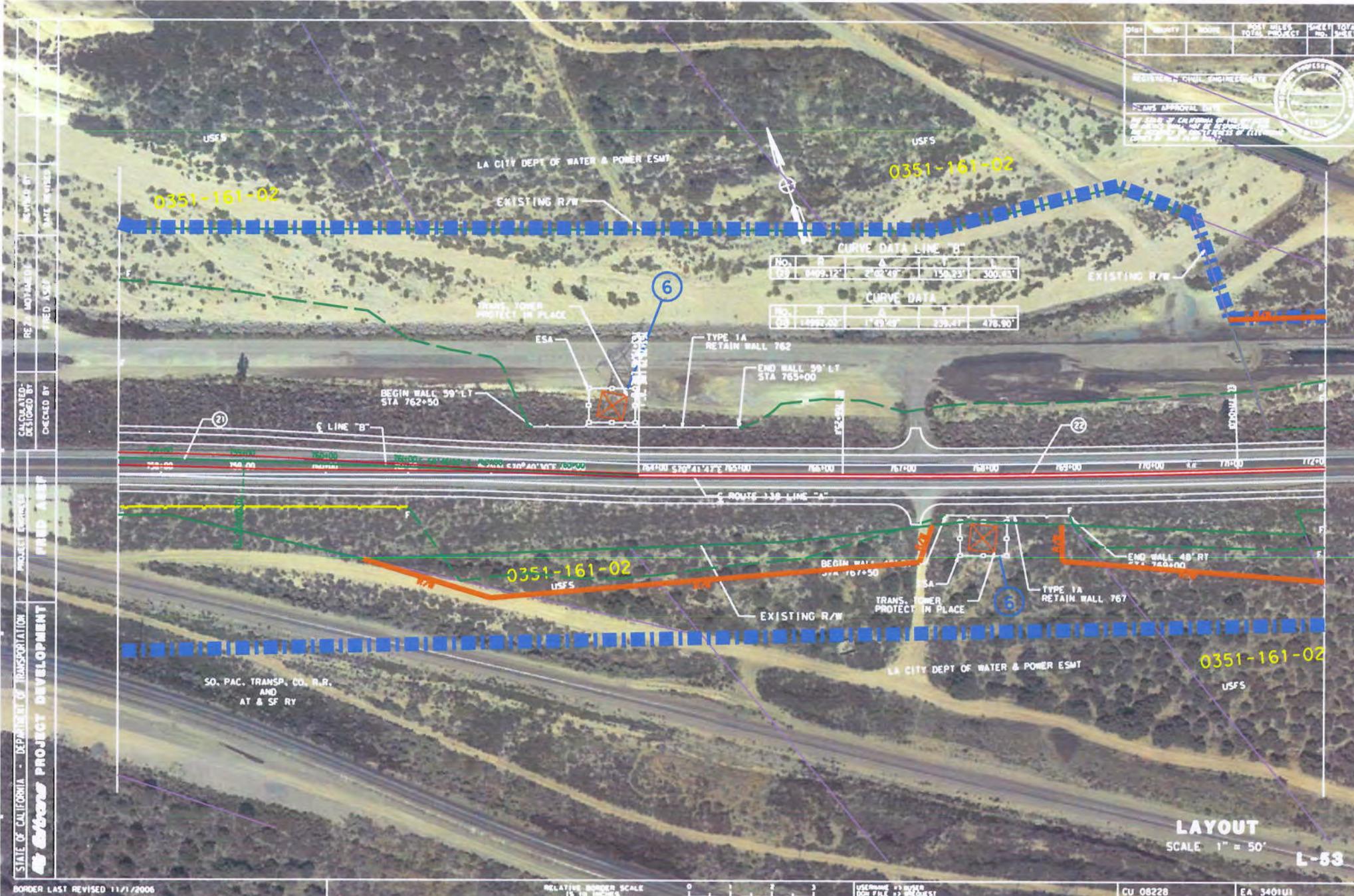
CURVE DATA LINE "B"

No.	R	Δ	T	L
(1)	5965.11'	1°42'41"	89.11'	178.21'
(19)	6361.31'	0°54'02"	49.99'	99.99'
(20)	16543.53'	0°54'03"	130.04'	260.08'
(2)	8409.12'	2°02'49"	150.25'	300.43'

COUNTY	PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED	ISSUE DATE		

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: FRED A. GELFAND
 CHECKED BY: FRED A. GELFAND
 REVISIONS: (None)
 DATE REVISION: (None)

LAYOUT
 SCALE 1" = 50'
L-52



PLAN	SHEET NO.	TOTAL SHEETS	DATE

REGISTERED CIVIL ENGINEER - STATE OF CALIFORNIA
 SCANS APPROVAL DATE: _____
 PROJECT NO. 0351-161-02
 SHEET NO. L-53

CURVE DATA LINE "B"

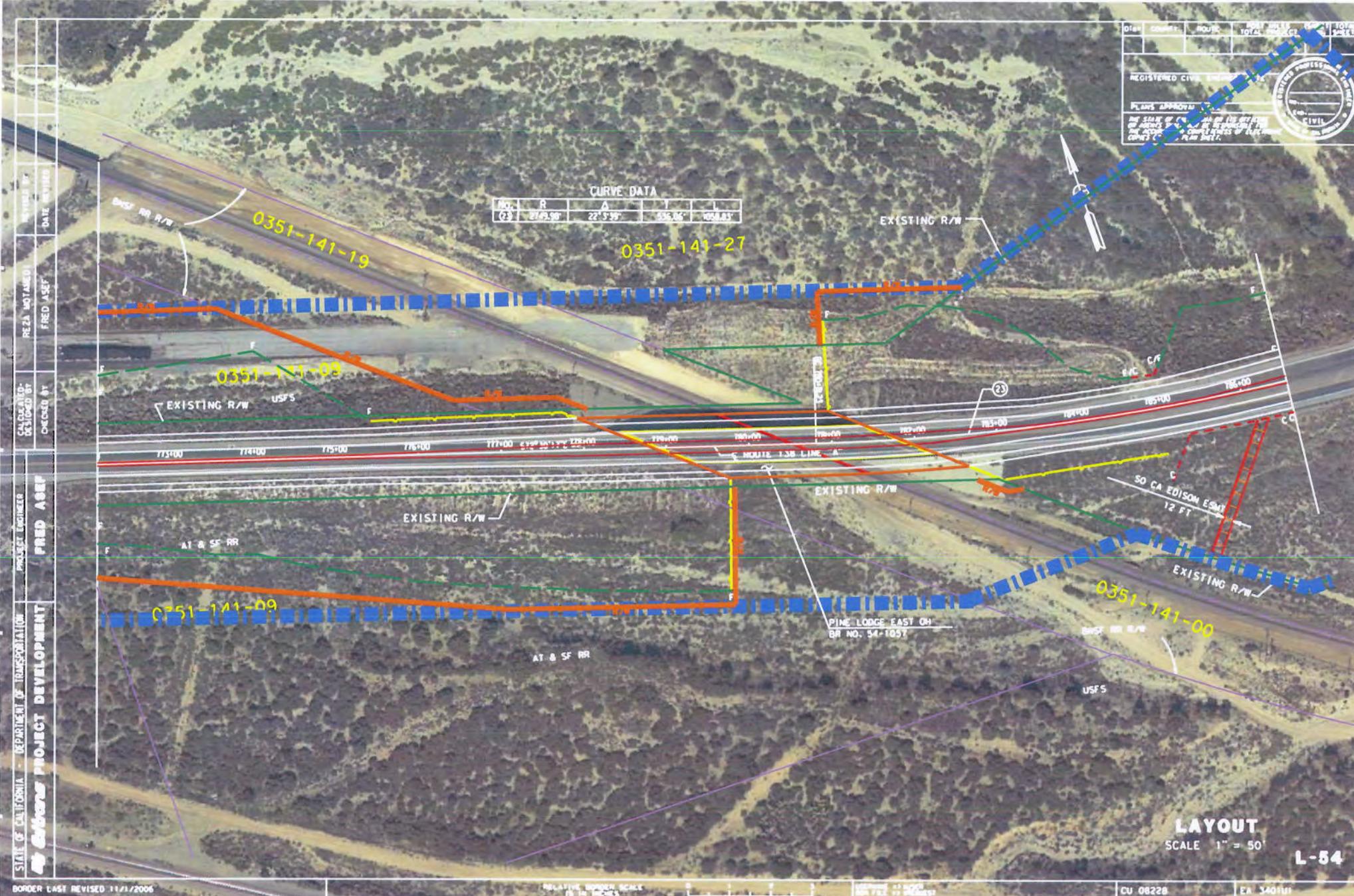
No.	R	Δ	T	L
09	8493.12'	2°02'40"	150.33'	300.63'

CURVE DATA

No.	R	Δ	T	L
09	14990.00'	1°49'49"	238.41'	476.90'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER: _____
 PROJECT DEVELOPMENT
 CALCULATED BY: _____
 DESIGNED BY: _____
 CHECKED BY: _____
 DRAWN BY: _____
 DATE: _____

LAYOUT
 SCALE 1" = 50'
 L-53



Date:	Count:	Route:	Total Project:	Sheet No.:	Total Sheets:
REGISTERED CIVIL ENGINEER					
PLANS APPROVED					
BY STATE OF CALIFORNIA ON THE DATE OF ISSUANCE OF THESE PLANS AND IN RESPONSE TO THE REQUIREMENTS OF CALIFORNIA'S STATE BOARD OF PROFESSIONAL ENGINEERS AND ARCHITECTS.					

Sta.	R	A	L
(2)	2749.98'	22° 5' 39"	1058.83'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California PROJECT DEVELOPMENT
 PROJECT ENGINEER: **FRED ASEF**
 CALCULATED/DESIGNED BY: **FRED ASEF**
 REZA NOTARDO
 CHECKED BY: **FRED ASEF**
 DATE REVISED:

LAYOUT
SCALE 1" = 50'
L-54

Appendix G Noise Receivers and Sound Walls

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	LA, SBd	138	69.4774 0.0/R15	1	5

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.



LEGEND:

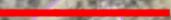
-  FIELD RECEIVER LOCATION
-  FIELD RECEIVER NAME
-  MODELED RECEIVER LOCATION
-  MODELED RECEIVER NAME
-  PROPOSED SOUND WALL LOCATION
-  PROPOSED SOUND WALL NAME



FIGURE 2.1

NO SCALE

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL ENGINEERING
 SUPERVISING ENGINEER TONY LOUKA
 CALCULATED/DESIGNED BY HOANG PHAM/RODRIGO PANGANIBAN
 CHECKED BY MEENU CHANDAN
 REVISIONS: 11/1/2006
 BORDER LAST REVISED 11/1/2006

LAST REVISION DATE PLOTTED => DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	LA, SBd	138	69.4/74.9 0.0/R15.2	2	5

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
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

CURVE DATA

No.	R	Δ	T	L
(11)	2001.31'	31°49'39"	570.61'	1111.72'



LEGEND:

-  FIELD RECEIVER LOCATION
-  FIELD RECEIVER NAME
-  MODELED RECEIVER LOCATION
-  MODELED RECEIVER NAME
-  PROPOSED SOUND WALL LOCATION
-  PROPOSED SOUND WALL NAME

FIGURE 2.2

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ENGINEERING
 SUPERVISING ENGINEER: **TONY LOUKA**
 CALCULATED/DESIGNED BY: _____
 CHECKED BY: _____
 HOANG PHAM / RODRIGO PANGANIBAN
 REVISOR: MEENU CHANDAN
 DATE REVISOR: _____

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ENVIRONMENTAL ENGINEERING

SUPERVISING ENGINEER
TONY LOUKA

CALCULATED-DESIGNED BY
 CHECKED BY

HOA/TEAM/RODRIGO SANIBAN
 MEEN/NDW

REVISED BY
 DATE REVISED

LEGEND:

-  FIELD RECEIVER LOCATION
-  FIELD RECEIVER NAME
-  MODELED RECEIVER LOCATION
-  MODELED RECEIVER NAME
-  PROPOSED SOUND WALL LOCATION
-  PROPOSED SOUND WALL NAME

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	LA, Sbd	138	69.4/74.9 0.0/R15.2	3	5

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.

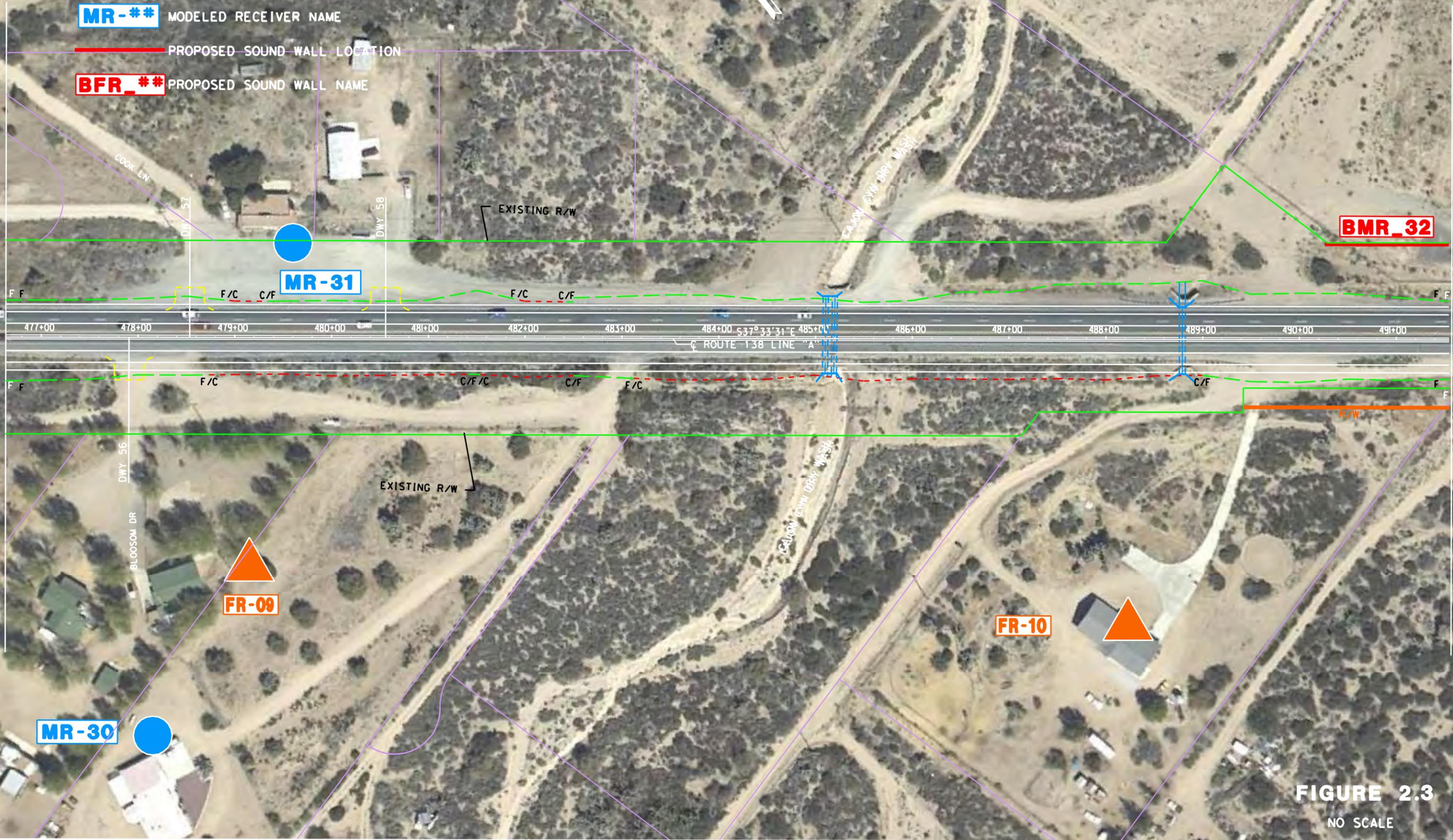



FIGURE 2.3
 NO SCALE

Dist:	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	LA, SBd	138	69.4/74.9 0.0/R15.2	4	5

REGISTERED CIVIL ENGINEER DATE	REGISTERED PROFESSIONAL ENGINEER
PLANS APPROVAL DATE	No. _____
	Exp. _____
	CIVIL
	STATE OF CALIFORNIA

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.



LEGEND:

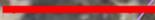
-  FIELD RECEIVER LOCATION
-  FIELD RECEIVER NAME
-  MODELED RECEIVER LOCATION
-  MODELED RECEIVER NAME
-  PROPOSED SOUND WALL LOCATION
-  PROPOSED SOUND WALL NAME

FIGURE 2.4

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 SUPERVISING ENGINEER
TONY LOUKA
 HOANG PHAM/
 RODRIGO PANGANIBAN
 REVISOR
 MEENU CHANDAN
 CHECKER
 DATE REVISOR
 DATE CHECKER

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	LA, SBd	138	69.4/74.9 0.0/R15.2	5	5

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.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ENVIRONMENTAL ENGINEERING

SUPERVISING ENGINEER
TONY LOUKA

CALCULATED-DESIGNED BY
HOANG PHAM/RODRIGO PANGANIBAN

CHECKED BY
MEENU CHANDAN

REVISED BY
 DATE REVISED

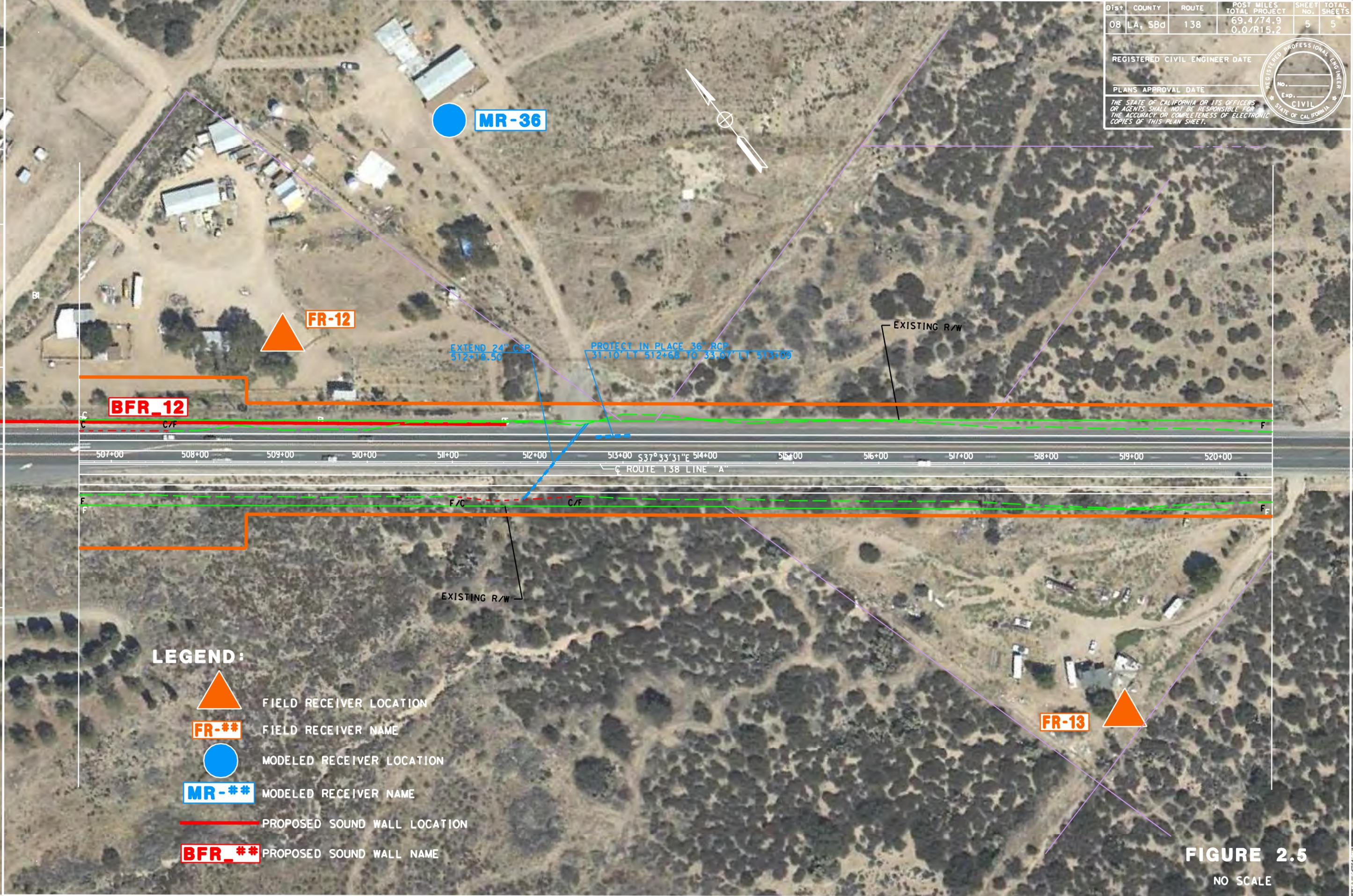


FIGURE 2.5

NO SCALE