

ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT
Pavement Rehabilitation Project (12-0R560)

Resolution SHOPP-P-2021-04B
(will be completed by CTC)

1. FUNDING PROGRAM

- Active Transportation Program
- Local Partnership Program (Competitive)
- Solutions for Congested Corridors Program
- State Highway Operation and Protection Program
- Trade Corridor Enhancement Program

2. PARTIES AND DATE

- 2.1 This Project Baseline Agreement (Agreement) for the *Pavement Rehabilitation Project (12-0R560)*, effective on, January 28, 2021 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, *Caltrans*, and the Implementing Agency, *Caltrans*, sometimes collectively referred to as the "Parties".

3. RECITAL

- 3.2 Whereas at its May 13, 2020 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *Pavement Rehabilitation Project (12-0R560)*, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as Exhibit A and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.
- 3.3 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

- 4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.
- 4.2 To adhere, as applicable, to the provisions of the Commission:
- Resolution *Insert Number*, "Adoption of Program of Projects for the Active Transportation Program", dated
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Local Partnership Program", dated
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated
 - Resolution G-20-40, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated 05/13/2020
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated

- 4.3 All signatories agree to adhere to the Commission's State Highway Operation and Protection Program, Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.
- 4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.
- 4.5 Caltrans agrees to secure funds for any additional costs of the project.
- 4.6 Caltrans agrees to report on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.
- 4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.
- 4.8 Caltrans agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.
- 4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.
- 4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost

See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope

See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Other Project Specific Provisions and Conditions

Attachments:

Exhibit A: Project Programming Request Form

Exhibit B: Project Report

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Pavement Rehabilitation Project (12-0R560)

Resolution SHOPP-P-2021-04B

Name _____
Date

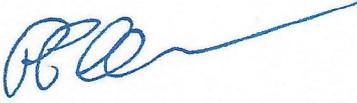
Title

Project Applicant

Name _____
Date

Title

Implementing Agency



Ryan Chamberlain October 27, 2020

Date

District Director

California Department of Transportation



Toks Omishakin 1.7.21

Date

Director

California Department of Transportation



Mitchell Weiss 02/11/21

Date

Executive Director

California Transportation Commission

Baseline agreement information was extracted from Caltrans' project data systems. Project description, funding and performance measures are from CTIPS. Project delivery milestones are from PRSM. All information is current and accurate.

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

BASELINE AGREEMENT

Date:	12/22/20 09:23:12 AM
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District	EA	Project ID	PPNO	Project Manager	
12	0R560	1218000117	3959	BAZARGAN, BOB	
County	Route	Begin Postmile	End Postmile	Implementing Agency	
ORA	Var			PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

12-0R560 VAR Connector Rehab project.

Location/Description

In the cities of Santa Ana, Tustin, Irvine, Costa Mesa, Laguna Niguel, and Anaheim on various routes. Rehabilitate pavement by repairing broken concrete slabs and replacing asphalt concrete with Rubberized Hot Mix Asphalt (RHMA-G) at 16 connectors, two ramps and one freeway segment. (G13 Contingency)

Legislative Districts

Assembly:	68, 69, 74	Senate:	37	Congressional:	45, 46, 48
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PERFORMANCE MEASURES

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Pavement		19.4			19.4	Lane-miles
Programmed Condition	Pavement	19.4				19.4	Lane-miles

Project Milestone

	Actual	Planned
Project Approval and Environmental Document Milestone	09/30/20	
Right of Way Certification Milestone		04/01/22
Ready to List for Advertisement Milestone		05/01/22
Begin Construction Milestone (Approve Contract)		11/01/22

FUNDING (Allocated amounts are shaded)

Component	Fiscal Year	SHOPP				Total
PA&ED	18/19	3,000				3,000
PS&E	20/21	5,400				5,400
RW Support						0
Const Support	21/22	5,500				5,500
RW Capital						0
Const Capital	21/22	26,500				26,500
Total		40,400				40,400

Vicinity Map



This project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



09/11/2020

Anhhuy Truong
REGISTERED CIVIL ENGINEER

Date



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Abbreviations and Acronym List

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
AB	Aggregate Base
AC	Asphalt Concrete
ADL	Aerially Deposited Lead
ADT	Average Daily Traffic
a/mvm	Accidents per Million Vehicle Miles
ATPB	Asphalt Treated Permeable Base
BMPs	Best Management Practices
BSA	Biological Study Area
Caltrans	California Department of Transportation
CAPM	Capital Preventative Maintenance
CE/CE	Categorical Exemption / Categorical Exclusion
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMS	Changeable Message Sign
CNDDB	California Natural Diversity Database
CO _{2e}	Carbon Dioxide Equivalent
COZEEP	Construction Zone Enhanced Enforcement Program
CWA	Clean Water Act
DSA	Disturbed Soil Area
EA	Environmental Assessment
EB	Eastbound
EIS	Environmental Impact Statement
ETW	Edge of Traveled Way
FHWA	Federal Highway Administration
FY	Fiscal Year
GHG	Greenhouse Gas
HDM	Highway Design Manual, Seventh Edition
HMA-A	Hot-Mix Asphalt (Type A)
I-5	Interstate 5
I-405	Interstate 405
ICE	Infrastructure Carbon Estimator
ISA	Initial Site Assessment
JPCP	Jointed Plain Concrete Pavement
LCCA	Life-Cycle Cost Analysis
LCB-RSC	Lean Concrete Base Rapid Strength Concrete
MASH	FHWA Manual for Assessing Safety Hardware

MBGR	Metal Beam Guardrail
MBTA	Migratory Bird Treaty Act
MGS	Midwest Guardrail System
MT	Metric Tonnes
NB	Northbound
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NES(MI)	Natural Environment Study Minimal Impact
No.	Number
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OH	Overhead
PA&ED	Project Approval and Environmental Documentation
PCC	Portland Cement Concrete
PIR	Project Initiation Report
PM	Post Mile
PR	Project Report
PS&E	Plans, Specifications and Estimate
RHMA-G	Rubberized Hot-Mix Asphalt (Gap Graded)
RMRA	Road Maintenance and Rehabilitation Account
RSC	Rapid Strength Concrete
RWQCB	Regional Water Quality Control Board
SB	Southbound
SHOPP	State Highway Operations and Protection Program
SR	State Route
SR-55	State Route 55
SR-73	State Route 73
SR-91	State Route 91
SR-133	State Route 133
SSP	Standard Special Provisions
STGAs	Significant Trash Generating Areas
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TMC	Transportation Management Center
TMDLs	Total Maximum Daily Loads
TMP	Transportation Management Plan
UC	Undercrossing
USFWS	United States Fish and Wildlife Service
VA	Value Analysis
VMS	Value Management Strategies, Inc.

1. INTRODUCTION

Project Description

The project proposes to rehabilitate the existing pavement by replacing broken concrete slabs with Rapid Strength Concrete (RSC) and cold planing and replacing existing asphalt concrete (AC) with Rubberized Hot-Mix Asphalt (Gap Graded) (RHMA-G) at nineteen (19) locations, including one (1) freeway segment, sixteen (16) connectors and two (2) ramps, in Anaheim, Costa Mesa, Irvine, Santa Ana and Tustin in Orange County, as shown in **Table 1.1** below. In the southbound (SB) State Route 73 (SR-73) freeway segment, the project also proposes to perform profile correction by removing a partial layer of surface concrete and replacing with polyester concrete on the bridge structural departure slabs at the Cabot Road Undercrossing (UC).

Table 1.1 - Project Locations

Location ID	Alignment Name	Begin Post Mile (PM)	PM Route	Description
1	Loc01	R6.2	55	S55 to N405 Connector
2	Loc02	R5.7	55	N55 to S405 Connector
3	Loc03	8.3	405	N405 to N55 Connector
4	Loc04	9.0	405	S405 to N55 Connector
5	Loc05	8.3	405	N405 to S55 Connector
6	Loc06	R4.8	55	S55 Baker St On-Ramp
7	Loc07	R4.4	55	N55 to S73 Connector
8	Loc08	R4.4	55	N55 to N73 Connector
9	Loc09	R26.3	73	N73 to N55 Connector
10	Loc10	R5.1	55	S55 to S73 Connector
11	Loc11	R26.3	73	N73 to S55 Connector
12	Loc12	R26.7	73	S73 to S55 Connector
13	Loc13	20.9	5	N5 to N405 Connector
14	Loc14	R24.2	5	S5 to N133 Connector
15	Loc15	10.4	133	S133 to N5 Connector
16	Loc16	10.6	55	N55 Fourth St Off-Ramp
17	Loc17	30.2	5	N5 to N55 Connector
18	Loc18	11.3	73	S73 Cabot Rd UC
19	Loc19	R9.0	91	E91 to S55 Connector

The project's Capital Outlay Support, Capital Outlay Construction and Capital Outlay Right-of-Way costs are shown in **Table 1.2** below. This project is eligible for federal-aid funding. The state funding will come from the Senate Bill (also known as SB1 or The Road Repair and Accountability Act of 2017) sourced for the 2020 State Highway Operations and Protection Program (SHOPP). It is scheduled for construction in fiscal year (FY) 2021/2022.

Table 1.2 - Project Information

Project Limits	District 12 - Orange County - At Various Locations	
Number of Alternatives	2	
Cost Estimate	Current Cost Estimate	Escalated Cost Estimate
Capital Outlay Support	\$13,900,000	\$13,900,000
Capital Outlay Construction	\$23,920,000	\$26,500,000
Capital Outlay Right-of-Way	\$0	\$0
Funding Source	201.121 Roadway Preservation	
Funding Year	2021 / 2022	
Type of Facility	Freeway, Connectors and Ramps	
Number of Structures	1	
SHOPP Project Output	19.4 Lane miles Pavement Rehabilitation	
Environmental Document	Categorical Exemption / Categorical Exclusion (CE/CE)	
Legal Description	In Orange County at various locations	
Project Development Category	5	

2. RECOMMENDATION

The recommendation is project approval for the preferred alternative and that the project proceed to the Plans, Specifications and Estimates (PS&E) phase.

3. BACKGROUND

3A. PROJECT HISTORY

California Department of Transportation (Caltrans) District 12 prepared a Project Initiation Report (PIR) in December 2018 that recommended this project approval and programming using the estimate and schedule from the

Programmable Project Alternative presented therein, and that the project proceeds to the Project Approval and Environmental Documentation (PA&ED) phase.

3B. COMMUNITY INTERACTION

Caltrans conducted a Value Analysis (VA) Study in April 2020 that included public officials. Impacted cities and John Wayne Airport are to be coordinated for their review and concurrence of the project’s Traffic Handling Plans and Detour Plans.

3C. EXISTING FACILITY

Caltrans proposes roadway rehabilitation at 19 locations. **Table 3.1** lists existing features to be improved to the current standard by this project and a summary of pavement types to be rehabilitated is shown in **Table 3.2** below.

Table 3.1 - Existing Nonstandard Features to be Improved

Loc ID	No. of Lanes	Left Shoulder	Right Shoulder	Curb and Gutter	Description
2	1	X		X	N55 to S405 Connector
3	2		X		N405 to N55 Connector
4	1-2	X		X	S405 to N55 Connector
5	1-2	X	X	X	N405 to S55 Connector
6	1-2	X	X	X	S55 Baker St On-Ramp

Table 3.2 - Existing Pavement to be Rehabilitated

Loc ID	No. of Lanes	Existing Pavement Type			Description
		Asphalt Concrete (AC)	Portland Cement Concrete (PCC) slabs	Approach/ Departure slabs	
1	2-3	X			S55 to N405 Connector
2	1	X	X		N55 to S405 Connector

Loc ID	No. of Lanes	Existing Pavement Type			Description
		Asphalt Concrete (AC)	Portland Cement Concrete (PCC) slabs	Approach/ Departure slabs	
3	2	X			N405 to N55 Connector
4	1-2	X	X	X	S405 to N55 Connector
5	1-2	X	X	X	N405 to S55 Connector
6	1-2	X			S55 Baker St On-Ramp
7	1	X			N55 to S73 Connector
8	2	X	X	X	N55 to N73 Connector
9	2	X	X		N73 to N55 Connector
10	2	X	X	X	S55 to S73 Connector
11	1	X			N73 to S55 Connector
12	1-2	X	X		S73 to S55 Connector
13	3	X	X		N5 to N405 Connector
14	1-2	X			S5 to N133 Connector
15	1-2	X			S133 to N5 Connector
16	1-3	X	X		N55 Fourth St Off-Ramp
17	2	X			N5 to N55 Connector
18	3	X		X	S73 Cabot Rd UC
19	2	X	X		E91 to S55 Connector

Existing facilities and conditions at each of the 19 locations are described below.

- Location 1 is a connector facility connecting SB State Route 55 (SR-55) to northbound (NB) Interstate 405 (I-405). The connector transitions from two to three travel lanes to accommodate merging traffic from the NB I-405 on-ramp from Anton Boulevard. The leftmost of the three travel lanes directs drivers to continue to NB I-405, while the center and rightmost of the three travel lanes directs drivers to exit via the Bristol Street off-ramp. The existing pavement consists of a 5-foot AC over PCC shoulder on the left side of the connector, two or three 12-foot AC over PCC travel lanes, and a 10-foot shoulder on the right side of the connector. The 10-foot right shoulder transitions from AC over PCC at the two-lane segment to an AC/PCC barrier slab combination at the

- three-lane segment. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location include electroliers, guardrails and concrete barriers to the left and right of the connector to protect drivers from existing embankment, a drainage channel, exposed approach bridge-rail ends, and bridge columns.
- Location 2 is a connector facility connecting NB SR-55 to SB I-405. The connector has one travel lane but briefly transitions into a two travel lane segment to accommodate merging traffic from the SB I-405 on-ramp from Paularino Avenue. The existing pavement consists of a 2-foot PCC shoulder on the left side of the connector, one 12-foot PCC travel lane, and a 10-foot AC shoulder on the right side of the connector. The existing pavement transitions from one PCC travel lane to two PCC/AC travel lanes for a short segment as the AC travel lane from the SB I-405 on-ramp from Paularino Avenue merges into the connector, and then the single PCC travel lane transitions to AC over PCC as the connector merges onto SB I-405. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers, curb and gutter installation, and guardrails to the left and right of the connector to protect drivers from existing embankment, drainage culverts, and bridge columns.
 - Location 3 is a connector facility connecting NB I-405 to NB SR-55. The connector has two travel lanes but briefly transitions into a three-travel-lane segment to accommodate merging traffic from the NB SR-55 on-ramp from John Wayne Airport. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot AC travel lanes, and a 2-foot to 10-foot transitioning AC shoulder on the right side of the connector. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location includes electroliers, guardrails and concrete barriers on the right-side of the connector to protect drivers from existing embankment, an exposed approach bridge-rail end, and a drainage channel.
 - Location 4 is a connector facility connecting SB I-405 to NB SR-55. The connector has two travel lanes which briefly merge into a single lane prior to the merge onto NB SR-55. The existing pavement consists of a 2-foot shoulder on the left side of the connector, one or two 12-foot travel lanes, and a 10-foot AC shoulder on the right side of the connector. The 2-foot shoulder on the left side of the connector and the two 12-foot travel lanes transition from AC to PCC before and after the connector bridge with approach and departure slabs crosses over I-405 and the NB I-405 to SB SR-55 connector, and then back to AC as the connector merges onto NB SR-55. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features

- identified at this location include electroliers, curb and gutter installation, and guardrails to the left and right of the connector to protect drivers from existing embankment, exposed approach bridge-rail ends, overhead (OH) signs, and bridge columns.
- Location 5 is a connector facility connecting NB I-405 to SB SR-55. The connector transitions from one travel lane to two travel lanes. The left travel lane directs drivers to continue onto SB SR-55, while the right travel lane directs drivers to exit via the Baker Street off-ramp. The existing pavement consists of a 2-foot shoulder on the left side of the connector, one or two 12-foot travel lanes, and a 2-foot to 10-foot transitioning shoulder on the right side of the connector. The existing pavement transitions from a full segment of AC spanning across both shoulders and travel lanes to a full segment of PCC spanning across both shoulders and travel lanes before the connector bridge with approach and departure slabs crosses over I-405 and the SB I-405 to NB SR-55 connector, and then a combination of PCC/AC pavement is used after that connector bridge through the gore area for the Baker Street off-ramp before a second connector bridge with approach and departure slabs crosses over the SB SR-55 off-ramp to Paularino Avenue, and then a combination of PCC/AC pavement is used after that second connector bridge until the connector merges onto SB SR-55. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers, curb and gutter installation, and guardrails and concrete barriers to the left and right of the connector to protect drivers from existing embankment, exposed approach bridge-rail ends, OH signs, and bridge columns.
 - Location 6 is an on-ramp from Baker Street to SB SR-55, and the on-ramp from Baker Street also serves as an on-ramp to SB SR-73. The on-ramp transitions from two travel lanes to one travel lane. At the beginning of the on-ramp, the left travel lane directs drivers to SB SR-73, while the right travel lane directs drivers to SB SR-55. The existing pavement consists of a 2-foot to 4-foot transitioning AC shoulder on the left side of the on-ramp, one or two 12-foot AC travel lanes, and a 2-foot to 8-foot transitioning AC shoulder on the right side of the on-ramp. Existing PCC curb and gutters are present at 2-foot shoulder locations. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location includes electroliers, curb and gutter installation, an OH sign, and guardrails to the left and right of the on-ramp to protect drivers from bridge columns.
 - Location 7 is a connector facility connecting NB SR-55 to SB SR-73. The connector has one travel lane. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, a 12-foot AC over PCC travel lane, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and

- after the connector bridge with approach and departure slabs crosses over Bristol Street. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location include electroliers, curb and gutter installation, and guardrails to the left and right of the connector to protect drivers from existing embankment, OH signs, and bridge columns.
- Location 8 is a connector facility connecting NB SR-55 to NB SR-73. The connector has two travel lanes. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement for the two 12-foot travel lanes transitions from PCC to a brief segment of AC over PCC before the connector bridge with approach and departure slabs crosses over Bristol Street, SR-55, SR-73, and the NB SR-73 to SB SR-55 connector, and then PCC after the connector bridge until the connector merges with NB SR-73. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers and guardrails to the left and right of the connector to protect drivers from existing embankment, OH signs, and exposed approach bridge-rail ends.
 - Location 9 is a connector facility connecting NB SR-73 to NB SR-55. The connector has two travel lanes. Both travel lanes direct drivers to continue onto NB SR-55, while the right travel lane allows drivers to exit via the Baker Street off-ramp. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement for the two 12-foot travel lanes transitions from AC over PCC to a brief segment of PCC before the connector bridge with approach and departure slabs crosses over the NB SR-55 Baker Street off-ramp, and then PCC after the connector bridge until the connector merges with NB SR-55. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers and guardrails to the left and right of the connector to protect drivers from existing embankment, OH signs, and exposed approach bridge-rail ends.
 - Location 10 is a connector facility connecting SB SR-55 to SB SR-73. The connector has two travel lanes but briefly transitions into a three-travel-lane segment to accommodate merging traffic from the SB SR-73 on-ramp from Baker Street. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot PCC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement transitions from two 12-foot PCC travel lanes to three PCC/AC travel lanes where the AC travel lane from the SB SR-73 on-ramp from Baker Street merges before the connector bridge with

- approach and departure slabs crosses over the SB SR-55 on-ramp from Baker Street, the NB SR-73 to SB SR-55 connector, SR-73, SR-55, and the NB SR-55 to SB SR-73 connector, and then two 12-foot PCC travel lanes after the connector bridge until the connector merges with SB SR-73. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers and guardrail to the left and right of the connector to protect drivers from OH signs and exposed approach bridge-rail ends.
- Location 11 is a connector facility connecting NB SR-73 to SB SR-55. The connector has one travel lane. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, a 12-foot AC travel lane, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and after the connector bridge with approach and departure slabs crosses over SR-55, and before and after a second connector bridge with approach and departure slabs crosses over a drainage channel. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location include electroliers, a retaining wall, and guardrail to the left and right of the connector to protect drivers from exposed approach bridge-rail ends and bridge columns.
 - Location 12 is a connector facility connecting SB SR-73 to SB SR-55. The connector has two travel lanes, but the striping has been modified to transition into one travel lane prior to the merge onto SB SR-55, with the transition starting at the Bristol Street UC. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot PCC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and after the connector bridge with approach and departure slabs crosses over Bristol Street. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers, a soundwall, and guardrail to the left and right of the connector to protect drivers from exposed approach bridge-rail ends.
 - Location 13 is a connector facility connecting NB Interstate 5 (I-5) to NB I-405. The connector has three travel lanes that lead to the beginning of NB I-405. All three travel lanes direct drivers to continue to NB I-405, while the right travel lane allows drivers to exit via the Irvine Center Drive off-ramp. The existing pavement consists of a transitioning 5-foot to 8-foot AC over PCC shoulder on the left side of the connector, three 12-foot PCC travel lanes, and a 10-foot shoulder on the right side of the connector. The existing pavement for the 10-foot shoulder on the right side of the connector is AC before and after the connector bridge with approach and departure slabs crosses over I-5, and transitions to PCC from the Irvine Center Drive off-ramp until the connector merges onto I-

405. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers, curb and gutter installation, and guardrails to the left and right of the connector to protect drivers from exposed approach bridge-rail ends, existing embankment, and OH signs.

- Location 14 is a connector facility connecting SB I-5 to NB State Route 133 (SR-133). The connector has two travel lanes which briefly merge into a single lane prior to the merge onto NB SR-133. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, one or two 12-foot AC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and after the connector bridge with approach and departure slabs crosses over Sand Canyon Avenue, I-5, Marine Way, and SR-133. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location include electroliers, and guardrail and concrete barriers to the left and right of the connector to protect drivers from exposed approach bridge-rail ends, existing embankment, OH signs, and electrical cabinets.
- Location 15 is a connector facility connecting SB SR-133 to NB I-5. The connector has two travel lanes which briefly merge into a single lane prior to the merge onto NB I-5. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, one or two 12-foot AC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and after the connector bridge with approach and departure slabs crosses over a commercial driveway/entrance, Sand Canyon Avenue, the Sand Canyon Avenue off-ramp from NB I-5, and the Sand Canyon Avenue on-ramp to NB I-5. The condition of the existing pavement exhibits signs of surface distress. Other existing features identified at this location include electroliers, and guardrails to the left and right of the connector to protect drivers from existing embankment, exposed approach bridge-rail ends, and OH signs.
- Location 16 is an off-ramp from NB SR-55 to Fourth Street. The off-ramp begins with one travel lane, transitions to two travel lanes to accommodate merging traffic from the NB I-5 off-ramp to Fourth Street and ends with three travel lanes at the end of the off-ramp. The existing pavement consists of a transitioning 2-foot to 5-foot AC shoulder on the left side of the off-ramp, one, two or three 12-foot AC travel lanes, and a transitioning 5-foot to 8-foot AC shoulder on the right side of the off-ramp. The condition of the existing pavement exhibits signs of surface distress and slab cracking on NB SR-55 at the ramp exit. Other existing features identified at this location includes electroliers and guardrails to the left and right of the off-ramp to protect drivers from bridge columns and existing embankment.

- Location 17 is a connector facility connecting NB I-5 to NB SR-55. The connector has two travel lanes. Both travel lanes direct drivers to continue onto NB SR-55, while the right travel lane allows drivers to exit via the Fourth Street off-ramp. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot AC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The existing pavement configuration is the same before and after the connector bridge with approach and departure slabs crosses over the Fourth Street off-ramp from NB SR-55. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers and guardrails to the left and right of the connector to protect drivers from exposed approach bridge-rail ends.
- Location 18 is a segment of SB SR-73 at Cabot Road. This segment of the state route has three travel lanes. The existing pavement consists of a 10-foot AC shoulder on the left side, three 12-foot AC travel lanes, and a 10-foot AC shoulder on the right side. The existing pavement configuration for this segment is the same after a bridge with approach and departure slabs crosses over Crown Valley Parkway, and before and after a second bridge with approach and departure slabs crosses over Cabot Road. The condition of the existing pavement exhibits signs of surface distress and slab cracking.
- Location 19 is a connector facility connecting eastbound (EB) State Route 91 (SR-91) to SB SR-55. The connector has two travel lanes. The existing pavement consists of a 5-foot AC shoulder on the left side of the connector, two 12-foot PCC travel lanes, and a 10-foot AC shoulder on the right side of the connector. The condition of the existing pavement exhibits signs of surface distress and slab cracking. Other existing features identified at this location include electroliers and a soundwall.

Additional existing items to note at the 19 locations include:

- Needs no additional right of way or any access control modifications to facilitate the proposed improvements.
- No capacity improvements.
- Existing 2:1 and flatter slopes, will be maintained at all shoulder widening locations, except for 1.5:1 and flatter slopes at Location 2 adjacent to the drainage culverts and for 1.25:1 and flatter slopes at Location 5 adjacent to the maintenance road.
- Existing drainage will be reevaluated and adjusted as needed at the shoulder widening locations.
- Slope areas on the right side of the N405 to N55 Connector (Location 3) will be paved to prevent future deterioration.

4. PURPOSE AND NEED

Purpose:

The purpose of the project is to achieve the following within the project limits:

- Preserve ride quality and structural integrity of the roadway.
- Improve and enhance safety.

Need:

- Existing pavement and structure approach and departure slabs on the listed connectors, ramps and mainline segment are deteriorated; showing surface distress, slab displacement and cracking.
- There are existing nonstandard shoulder widths at four connectors and one ramp that need to be widened.
- Safety barriers at various locations need to be upgraded to the current Manual for Assessing Safety Hardware (MASH) standard.

4A. PROBLEM, DEFICIENCIES AND JUSTIFICATION

Pavement on existing connectors, ramps and mainline segment needs repairs. The current condition of pavement exhibits minor surface distress and slab cracking, and there are dips between departure slabs and adjacent pavement that create uneven roadway surfaces. If not addressed, these deficiencies will continue to deteriorate and will require major roadway rehabilitation in the future.

There are existing metal beam guardrails (MBGR), luminaires (fixed-base and slip-base), curb and gutter installations, and left and right shoulder widths that do not meet the current standards. This project proposes to improve these safety related deficiencies.

4B. REGIONAL AND SYSTEM PLANNING

Proposed improvements are consistent with State Highway System planning and Caltrans' Mission, Vision and Goals are reflected in the approved District System Management Plan on November 2014, Corridor System Management Plan on August 2010, and the 2015-2020 Caltrans Strategic Management Plan.

The Orange County Highway System consists of three interstate freeways, six controlled-access state routes, four toll roads and seven conventional highways. The exceptions are SR-73 and SR-133, as these two facilities are

combined as freeway, expressway toll road and conventional highway. This project includes connectors between six of these facilities, including two of the interstate freeways (I-5 and I-405), two of the state routes (SR-55 and SR-91) and the two combined facilities (SR-73 and SR-133), two SR-55 ramps, and a segment of the SR-73. The cities of Anaheim, Costa Mesa, Irvine, Santa Ana and Tustin are within the project limits.

4C. TRAFFIC

4C.1. Current Traffic

The latest Annual Average Daily Traffic (AADT) on Route 73 for the segment containing the Cabot Road UC, per 2017 Traffic Volumes on California State Highway System from the Caltrans website, is shown in **Table 4.1** below.

Table 4.1 - 2017 SR-73 (Location 18) Traffic Volumes

Post Mile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
10.0	SR-73 / I-5 Separation				4,100	39,000	35,900
11.8	SR-73 / Greenfield Drive	4,100	39,000	35,900	4,000	38,500	34,900
13.4	SR-73 / La Paz Road	4,600	44,000	39,800	5,300	54,000	48,800

The 2018 Traffic Volumes on California State Highway System from the Caltrans website lists the Average Daily Traffic (ADT) volumes shown in **Table 4.2** below for the various ramps and connectors that are being rehabilitated by this project. 2018 data is not provided at all locations, so the year associated with each ADT value is reflected in the table.

Table 4.2 - Traffic Volumes - Ramps and Connectors

Location				Year	ADT
No.	Route	Post Mile	Description		
1	55	R6.2	S55 to N405 Connector	2018	34,674
2	55	R5.7	N55 to S405 Connector	2018	19,458
3	405	8.3	N405 to N55 Connector	2018	20,462 ⁽¹⁾
4	405	9.0	S405 to N55 Connector	2015	30,339

Location				Year	ADT
No.	Route	Post Mile	Description		
5	405	8.3	N405 to S55 Connector	2018	16,028 ⁽¹⁾
6	55	R4.8	S55 Baker St On-Ramp	2018	3,876
7	55	R4.4	N55 to S73 Connector	2018	8,984 ⁽¹⁾
8	55	R4.4	N55 to N73 Connector	2015	13,304 ⁽¹⁾
9	73	R26.3	N73 to N55 Connector	2018	20,977 ⁽¹⁾
10	55	R5.1	S55 to S73 Connector	2018	21,425
11	73	R26.3	N73 to S55 Connector	N/A ⁽²⁾	N/A ⁽²⁾
12	73	R26.7	S73 to S55 Connector	2015	11,566
13	5	20.9	N5 to N405 Connector	2015	49,632
14	5	R24.2	S5 to N133 Connector	2015	8,132
15	133	10.4	S133 to N5 Connector	2015	8,625
16	55	10.6	N55 Fourth St Off-Ramp	2018	6,689
17	5	30.2	N5 to N55 Connector	2015	34,329
19	91	R9.0	E91 to S55 Connector	2015	23,410

⁽¹⁾ ADT for the end of the connector used where ADT at beginning of connector is not available or combined with another connector

⁽²⁾ Not available

4C.2. Collision Analysis

Traffic Accident Surveillance and Analysis System (TASAS) Table B and Selective Accident Rate Calculation data were provided by Caltrans District 12 for analyzing collisions at each of the project locations. **Table 4.3** below presents the 3-year collision data between October 1, 2016 through September 31, 2019 for the project locations. As shown in the table, the actual collision rates for 3 out of 19 of the project locations are equal to or lower than the statewide average for similar facilities. In 16 out of 19 locations, the actual fatality, combined fatality and injury, and/or total accident rates are higher than the statewide average and are shown in boldface in the table.

Table 4.3 - Collision Rates

Location				No. of Accidents			Accident Rate (a/mvm)					
							Actual Rate			Average Rate		
No.	Rte	PM	Description	F	F+I	TOT	F	F+I	TOT	F	F+I	TOT
1	55	R6.213	S55 to N405 Connector	0	8	25	0.000	0.21	0.67	0.003	0.12	0.37
2	55	R5.735	N55 to S405 Connector	0	3	6	0.000	0.14	0.28	0.001	0.06	0.17
3	55	R6.391	N405 to N55 Connector	0	2	10	0.000	0.09	0.45	0.002	0.11	0.32
	405	8.341		1	1	2	0.019	0.02	0.04	0.002	0.08	0.25
4	405	9.005	S405 to N55 Connector	0	6	24	0.000	0.18	0.72	0.003	0.15	0.45
5	55	R5.655	N405 to S55 Connector	0	2	10	0.000	0.11	0.56	0.000	0.04	0.12
	405	8.341		1	1	2	0.019	0.02	0.04	0.002	0.08	0.25
	405	8.469		0	4	17	0.000	0.17	0.71	0.003	0.15	0.45
6	55	R4.840	S55 Baker St On-Ramp	0	1	2	0.000	0.23	0.47	0.002	0.13	0.39
7	55	R4.416	N55 to S73 Connector	0	2	7	0.000	0.10	0.35	0.002	0.08	0.25
	73	R26.350		0	1	4	0.000	0.10	0.41	0.002	0.11	0.32
8	55	R4.416	N55 to N73 Connector	0	2	7	0.000	0.10	0.35	0.002	0.08	0.25
	73	R26.790		0	2	5	0.000	0.08	0.19	0.002	0.13	0.39
9	55	R5.008	N73 to N55 Connector	0	0	1	0.000	0.00	0.04	0.002	0.11	0.32
	73	R26.298		0	11	21	0.000	0.38	0.72	0.003	0.12	0.37
10	55	R5.063	S55 to S73 Connector	0	1	1	0.000	0.04	0.04	0.003	0.12	0.37
	73	R26.178		0	5	9	0.000	0.22	0.39	0.002	0.11	0.32
11	73	R26.452	N73 to S55 Connector	0	2	5	0.000	1.82	4.56	0.004	0.21	0.70
12	73	R26.719	S73 to S55 Connector	0	2	9	0.000	0.16	0.71	0.003	0.12	0.37
13	5	20.930	N5 to N405 Connector	1	8	13	0.018	0.15	0.24	0.003	0.15	0.45
14	5	R24.227	S5 to N133 Connector	0	1	2	0.000	0.11	0.23	0.003	0.15	0.45
15	133	10.372	S133 to N5 Connector	0	1	1	0.000	0.16	0.16	0.003	0.15	0.45
16	55	10.630	N55 Fourth St Off-Ramp	0	1	3	0.000	0.13	0.39	0.003	0.12	0.37
	55	10.721		0	5	11	0.000	0.48	1.06	0.002	0.08	0.25
17	55	10.806	N5 to N55 Connector	0	1	5	0.000	0.02	0.12	0.002	0.13	0.39
	5	30.185		0	3	11	0.000	0.08	0.29	0.002	0.08	0.25
18	73	11.320	S73 @ Cabot Rd UC	0	4	7	0.000	0.39	0.68	0.008	0.36	0.84
19	91	R8.986	E91 to S55 Connector	0	1	3	0.000	0.04	0.12	0.003	0.12	0.37

a/mvm = accidents per million vehicle miles; F = Fatality; I = Injury; TOT = Total
 Boldface indicates that the actual collision rate is higher than the statewide average.

The predominant types of collisions at the studied project locations were rear-end, hit object and broadside type collisions. During this 3-year period,

the primary collision factors were predominantly speeding and improper turns, followed by collisions involving alcohol and other violations. Since this project proposes to replace pavement, widen shoulders and install new barrier systems, the project is not expected to negatively impact any of the accident rates.

5. ALTERNATIVES

5A. VIABLE ALTERNATIVE - BUILD ALTERNATIVE

5A.1. Proposed Engineering Features

The following work is proposed on 16 connectors, 2 ramps and 1 mainline segment (near Cabot Road UC) for the Build Alternative:

Pavement Rehabilitation

(a) Rigid Pavement

- Repair or Replace Broken Concrete slabs by:
 - Rout and Seal cracks
 - Spall Repairs
 - Slab Replacement with either RSC or pre-cast concrete.
 - Repair isolated base using fast setting patching material under concrete slabs where there is base failure.
 - Lane Replacement (recommended for locations with many broken slabs).
- Grind all concrete pavement, including newly installed concrete slabs.
- Sawcut and seal the existing pavement joints and between new and existing pavement.

(b) Approach/Departure Slabs

- 1-inch grind and place polyester concrete.

(c) Flexible Pavement

- Cold Plane at variable depths of 0.20', 0.35', and 0.40'.
- Place Hot-Mix Asphalt (Type A) (HMA-A). Depths vary at 0.00', 0.15', and 0.20'.
- Place 0.20' RHMA-G over the HMA-A.
- Isolated reconstruction with geotextile fabric to improve subgrade strength as necessary.

Shoulder Widening

- (a) Construct standard width shoulders where required at locations 2 through 6, except at existing structures and transition locations.
- (b) Shoulder widening structural pavement section will be 0.20' RHMA-G over 0.20' HMA-A and variable depth of aggregate subbase (AS) to match the total depth of the adjacent existing structural pavement section per Caltrans Highway Design Manual, Seventh Edition (HDM).

Embankment Slopes

- (a) At shoulder widening locations, embankment slopes will be typically graded as 2:1 or flatter.
- (b) For a short segment along the left side of the N55 to S405 Connector (Location 2), the embankment slope of 1.5:1 and flatter will be located above the two existing culverts.
- (c) For a segment along the right side of the N405 to S55 Connector (Location 5), the embankment slope of 1.25:1 and flatter will be adjacent to the existing maintenance road and the existing HOV Connector bridge column.
- (d) Erosion control measures for these embankments including slope paving will be implemented as needed.

Safety Barriers Upgrade

- (a) Upgrade existing guardrail to Midwest Guardrail Systems (MGS) and AC dikes to HMA-A dikes to meet current standards.
- (b) Where hinge points are reduced to the 2.5-foot minimum, 7-foot-wood-post MGS or concrete barrier will be installed.
- (c) Use concrete barriers where the clearance between the edge of shoulder and the face of a fixed object is less than 3'.

Drainage

- (a) At shoulder widening locations, drainage inlets and dikes will be relocated to the edge of shoulder, and additional drainage features will be implemented for erosion control purposes.

Traffic Design

- (a) Replace OH sign structure with a cantilever sign structure on the left side of the S55 Baker Street On-Ramp (Location 6).
- (b) Refresh pavement striping to 6" with clear/red raised pavement markers.

Retaining Wall

- (a) Construct retaining wall on the N405 to S55 Connector (Location 5) at the S405-N55 Connector Separation bridge abutment to accommodate right shoulder widening.

Electrical Design

- (a) Replace inductive loop detectors.
- (b) Replace unshielded fixed-base electroliers with slip-base type.
- (c) Replace MGS-shielded slip-base electroliers with fixed-base type.
- (d) Install count station on route 405, at route 405/55 separation.

Maintenance

- (a) Construct six new MVPs at locations 4, 7, 11, 14, 17, and 19.
- (b) Adjust transitions to dirt and gravel Maintenance access roads as needed.

5A.2. Nonstandard Design Features

Table 5.1 and **Table 5.2** below provide a summary of proposed nonstandard design features with Headquarters Approval Authority and District Delegated Approval Authority, respectively, requiring design exceptions from the HDM, Seventh Edition, Boldface and Underlined standards, that have been identified to date for the Build Alternative. Design exceptions for deviations from design standards in the HDM are only being documented for project Locations 2 through 6 where shoulder widening occurs that would affect horizontal stopping sight distance, shoulder width and horizontal clearance, and side slopes. Since the other 14 locations fall into the Capital Preventative Maintenance (CAPM) category and are exempted.

Table 5.1 - Design Features with Headquarters Approval Authority

HDM	Location and Description	Standard	Existing	Proposed
201.1 Horizontal Stopping Sight Distance Boldface Standard	1. N55 to S405 Conn 390+91.79 to 393+87.09 (R=1000')	430'	357'	357'
	2. N55 to S405 Conn 404+81.44 to 409+65.49 (R=1000')	430'	354'	354'
	3. N55 to S405 Conn 409+65.49 to 412+25.23 (R=980.97')	430'	354'	354'
	4. N405 to N55 Conn 86+93.64 to 92+39.03 (R=754.50')	430'	285'	305'
	5. N405 to N55 Conn 93+42.54 to 100+20.71 (R=785.78')	430'	314'	314'
	6. S405 to N55 Conn 23+47.72 to 27+65.34 (R=987.53')	430'	353'	353'
	7. S405 to N55 Conn 30+48.73 to 45+75.63 (R=848.88')	430'	234'	234'
	8. S405 to N55 Conn 49+14.42 to 52+20.00 (R=808.82')	430'	318'	318'
	9. N405 to S55 Conn 398+53.69 to 411+24.98 (R=862')	430'	234'	234'
302.1 & 309.1(3)(a) Shoulder Width & Horizontal Clearance Boldface Standard	1. S405 to N55 Conn 40+87.60 to 47+38.76 Lt Shld	5'	2'	2'-5'
	2. N405 to S55 Conn 403+94 to 412+89 Rt Shld	10'	2'-4'	2'-10'
	3. N405 to S55 Conn 405+78 to 414+01.50 Shld	5'	2'	2'-5'
	4. N405 to S55 Conn 416+55.06 to 421+07.50 Lt Shld	5'	2'	2'-5'

Table 5.2 - Design Features with District Delegated Approval Authority

HDM	Location and Description	Standard	Existing	Proposed
201.1 Horizontal Stopping Sight Distance Boldface Standard	1. S55 Baker St On-Ramp 60+43.34 to 62+73.05 (R=850')	430'	262'	262'

HDM	Location and Description	Standard	Existing	Proposed
304.1 Side Slopes 4:1 or Flatter <u>Underlined</u> <u>Standard</u>	1. N55 to S405 Conn 398+00 to 409+00 Lt Side	4:1 or Flatter	2:1	1.5:1 to 2:1
	2. S405 to N55 Conn 36+00 to 42+00 Lt Side	4:1 or Flatter	2:1	2:1
	3. S405 to N55 Conn 46+26 to 50+26 Lt Side	4:1 or Flatter	2:1	2:1
	4. N405 to S55 Conn 402+42 to 406+92 Rt Side	4:1 or Flatter	2:1	1.25:1 to 2:1
	5. N405 to S55 Conn 402+42 to 406+92 Lt Side	4:1 or Flatter	2:1	2:1
	6. N405 to S55 Conn 412+89 to 417+68 Lt Side	4:1 or Flatter	2:1	2:1
	7. N405 to S55 Conn 419+95 to 422+20 Lt Side	4:1 or Flatter	2:1	2:1

5B. REJECTED ALTERNATIVE - NO BUILD ALTERNATIVE

This “No-build” alternative is recommended to be rejected as it would not prevent deterioration of the existing pavement conditions, such that major roadway rehabilitation would be needed.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. HAZARDOUS WASTE

Initial Site Assessment (ISA) was conducted in 2020. It is attached in **Appendix P**. Based on the ISA, there is no potentially hazardous waste involvement within the project limits. No further site assessment is needed. However, the project proposes to remove the existing curbs with gutter pans and construct standard shoulders. Grading and imported borrow on slope embankment (fill) are anticipated to accommodate shoulder widening. Installing/constructing new MGS, concrete barriers and retaining wall(s) will also disturb soil, so an aerially deposited lead (ADL) investigation will be needed. An ADL investigation should be performed during the early PS&E phase.

This project involves the removal and/or disposal of thermoplastic striping. If lead contamination is found, the results for lead testing will be included in the Standard Special Provisions (SSP) and the Material Information Handout. The SSP will be incorporated in the project PS&E phase. The yellow traffic striping and pavement marking material will be tested during the design phase and removed during construction in accordance with the Caltrans Construction Manual (Chapter 7-106).

The wood posts removed from the existing metal beam guardrail will be treated prior to disposal and will be included in the project's SSP.

6B. VALUE ANALYSIS

A VA study was conducted virtually via Webex from April 6-9, 2020. The VA study was sponsored by Caltrans, facilitated by Value Management Strategies (VMS), Inc. and included attendees from Caltrans, Parsons, OCTA, and VMS. The objective of the VA study was to identify and develop alternatives to the project baseline concept that will reduce project costs and construction time while maintaining and/or improving project performance. The Final VA Report is attached in **Appendix S** and discusses the results in greater detail.

Three alternatives of the VA study results were accepted and will be adopted in the project:

- Construct a temporary profile correction at Cabot Road UC
 - \$50,000 initial cost savings
 - 0.5 to 1-month schedule increase
 - 2% increase in performance
- Modify proposed pavement structural sections per revised HDM Chapter 680
 - \$610,000 initial cost savings
 - 2-month schedule reduction
 - 6% increase in performance
- Implement extended nighttime closures from 6 hours to 8 hours to maximize paving operations and implement ten 55-hour weekend closures
 - \$960,000 initial cost savings
 - 9-month schedule reduction
 - 2% increase in performance

6C. RESOURCE CONSERVATION

To conserve energy and nonrenewable resources, it is recommended that there be a reduction of roadway construction and demolition waste, and it is also recommended that material within a local radius of the project area be utilized to reduce energy use during transportation.

6D. RIGHT-OF-WAY ISSUES

6D.1. Right-of-Way Required

Right-of-Way Requirements

All work is within the State's right of way and the acquisition of fee or temporary construction easements are not needed. See **Attachment F** for the Right-of-Way Data Sheet.

Utilities

The proposed improvements will not conflict with the existing utilities; therefore, there are no utility relocations and all existing utilities will remain in place. No test holes are needed to meet Caltrans' policy regarding high priority utilities and no test holes are needed to determine utility conflicts.

Railroad Involvement

There are no railroad crossings or tracks within the project limits. As a result, no railroad involvement is necessary.

6D.2. Relocation Impact Studies

No relocation impact studies are required for this project.

6D.3. Airspace Lease Areas

Airspace lease areas are not required for this project, and no future right of way airspace lease areas are anticipated.

6E. ENVIRONMENTAL COMPLIANCE

In accordance with 23 Code of Federal Regulations (CFR) 771.117(c)(26), the project is Categorical Excluded under the National Environmental Policy Act (NEPA). The project is Categorical Exempt under Class 1(d) of the State California Environmental Quality Act (CEQA) Guidelines Article 19, Section 15301. The CE/CE Determination for NEPA and CEQA is provided as **Attachment A**.

Based on an examination of this proposal and supporting information, the following statements are true and exceptions do not apply:

- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").

- This project does not cause a substantial adverse change in the significance of a historical resource.

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA, and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b).

An overview of the main environmental considerations follows:

Cultural Resources

The Cultural Resources Technical Memorandum prepared for the project consisted of background research and field surveys. The undertaking as proposed has no potential to affect historical properties eligible for or listed in the National Register of Historic Places (NRHP) and is exempt from further review pursuant to Section 106 PA Stipulation VII and Attachment 2.

Biological Resources

Based on the analysis in the Natural Environment Study Minimal Impact (NES(MI)), there is no potential for federally listed species that are listed on the United States Fish and Wildlife Service (USFWS) and California Natural Diversity Database (CNDDDB) lists to be in the Biological Study Area (BSA) during construction activities, and the project would have no effect on federally listed species. There is also no designated critical habitat in the BSA.

There would be no take of state threatened, endangered, or candidate species. Therefore, an incidental take permit is not anticipated.

Based on the existing habitat in the BSA, there is potential for two special-status bird species to be in the BSA, including the Cooper's hawk and California gull. Native birds protected under the Migratory Bird Treaty Act (MBTA) may also nest within and adjacent to the BSA. In addition, there is also potential for several special-status bat species to be in the BSA. The proposed project includes numerous avoidance and minimization measures to reduce the potential for adverse effects.

There are several invasive plant species growing in the BSA. Standard measures would be implemented to prevent the spread of invasive species.

Detailed analysis of the biological resources, impacts, and mitigation are provided in the NES(MI) presented in **Attachment N**.

6F. AIR QUALITY CONFORMITY

Air Quality Conformity requirements are not applicable for this project.

6G. TITLE VI CONSIDERATIONS

Under Title VI of the Civil Rights Act of 1964 and related statutes, Caltrans 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 benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

6H. NOISE ABATEMENT DECISION REPORT

This project is not a Type I project, therefore there are no impacts to noise and no requirement for a Noise Abatement Decision Report.

6I. LIFE-CYCLE COST ANALYSIS

The proposed improvements fall into CAPM strategy, thus the Life-Cycle Cost Analysis (LCCA) was not required. Subsequently, the project engineer has consulted with the District's Materials and Research branch and it has been determined that a LCCA is not needed for this project.

6J. REVERSIBLE LANES

Not applicable for this project.

7. OTHER CONSIDERATIONS AS APPROPRIATE

7A. PUBLIC HEARING PROCESS

No public hearing is required for this project.

7B. ROUTE MATTERS

No revision needed to the existing Freeway Agreement.

7C. STORMWATER / NPDES PERMIT COMPLIANCE / WATER QUALITY

The limits of the proposed project are within the jurisdiction of both the Santa Ana and San Diego Regional Water Quality Control Board (RWQCB). This project must conform to all applicable water quality regulations and/or permit requirements of the State Water Resources Control Board (SWRCB), and the local Santa Ana and San Diego RWQCB, which include, but are not limited to, the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit (Order No. 2012-0011-DWQ, NPDES No. CAS000003 as amended in Order WQ 2014-0077-DWQ), the Statewide General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002), the Caltrans Storm Water Management Plan (SWMP) and any subsequent revisions and/or additional requirements at the time of construction.

The estimated Disturbed Soil Area (DSA) for this project is 5.41 acres, which will require the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to comply with the NPDES Statewide Construction General Permit (CGP). The SWPPP will identify and implement temporary Best Management Practices (BMPs) during construction to address the temporary impacts to water quality.

At this PA&ED phase, it has been determined that dewatering is not required. If dewatering is required for the proposed project, then coverage with the Santa Ana RWQCB would be obtained at least 45 days before the intended start of a new discharge under Order No. R8-2015-004, NPDES No. CAG998001, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality. Coverage with the San Diego RWQCB would be obtained at least 60 days before the intended start of a new discharge under Order No. R9-2015-0013, NPDES No. CAG919003, General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region. Coverage under Order No. R8-2009-0045, NPDES No. CAG918002, General Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites within San Diego Creek/Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals and/or Salts will also be required.

The project discharges to San Diego Creek Reach 1, San Diego Creek Reach 2, Upper Newport Bay, Santa Ana Delhi Channel, Peters Canyon Channel, Serrano Creek, Agua Chinon Wash, Oso Creek, and Santa Ana River Reach 2. According to the final 2014-2016 Integrated Report (CWA Section 303(d)

List/305(b) Report), the following receiving water bodies are listed as impaired and Total Maximum Daily Loads (TMDLs) have been established:

- San Diego Creek Watershed (Organochlorine Compounds - DDT, Chlordane, PCBs, and Toxaphene),
- San Diego Creek and Upper Newport Bay (Metals - Cadmium, Copper, Lead and Zinc),
- Upper and Lower Newport Bay (Organochlorine Compounds - DDT, Chlordane and PCBs), and
- Project 1 - Revised Twenty Beaches and Creeks in the San Diego Region, including Tecolote Creek (Indicator Bacteria).

Portions of the proposed project are located within "Significant Trash Generating Areas" (STGAs) as defined by the Statewide Trash Implementation Plan (April 2019). In compliance with the Statewide Trash Implementation Plan, full trash capture systems are proposed, where feasible, within or adjacent to areas where there are proposed roadway improvements located within STGAs. Full trash capture systems are defined as "a treatment control, or series of treatment controls including but not limited to a multi-benefit project or a low-impact development control that traps all particles that are 5 mm or greater and has a design treatment capacity that is either: a) of not less than the peak flow rate resulting from a one-year, one-hour storm in the sub-drainage area, or b) appropriately sized to, and designed to carry at least the same flows as the corresponding storm drain." Full trash capture systems proposed will be similar to the inlet filter inserts as outlined by the SWRCB's Certified Full Capture System List of Trash Treatment Control Devices (October 2018). Where full trash capture systems cannot be feasibly incorporated, a combination of controls which achieves the equivalent level of trash removal as full capture devices will be implemented. The combination of controls may include full trash capture systems, institutional controls, other treatment controls, and/or multi-benefit projects.

A Storm Water Data Report (SWDR) for PA&ED was prepared and approved for this project and the signed cover sheet can be found in **Attachment G**. Significant Trash Generating Area Exhibits are provided as an attachment to the SWDR, and cost estimates for full trash capture systems are also included as part of the PA/ED project cost estimate.

The permits, reviews and approvals listed in **Table 7.1** below would be required for project construction.

Table 7.1 - Required Permit Approvals

Agency	Permit/Approval
State Water Resources Control Board	Storm Water Pollution Prevention Plan under the Construction General Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002)

7D. COOPERATIVE AGREEMENTS

No cooperative agreement is needed for this project.

7E. OTHER AGREEMENTS

No other agreements are needed for this project.

7F. REPORT ON FEASIBILITY OF PROVIDING ACCESS TO NAVIGABLE RIVERS

None applicable.

7G. PUBLIC BOAT RAMPS

None applicable.

7H. TRANSPORTATION MANAGEMENT PLAN

A TMP is required for this project during the PS&E phase. Additionally, traffic analysis should be performed at each location in order to evaluate the potential impacts that the project will have on traffic. The TMP should identify methods to reduce traffic delay, maintain traffic flow, and provide a safe environment for the work force and the traveling public. The expected TMP elements include:

- Public Information
- Motorist Information
- Construction Strategies
- Traffic Handling Plans
- Press releases
- The internet / social media
- Changeable message signs (CMS), both fixed and portable
- Construction Zone Enhanced Enforcement Program (COZEEP)
- Lane Requirements Charts
- Reduced Speed Limits in Construction Zones

- Connector / Ramp closures
- Detours

Coordination between Caltrans, local cities, John Wayne Airport, law enforcement, and the Transportation Management Center (TMC) should occur during the PS&E phase to verify the proposed TMP elements, including the lane requirements charts and proposed detours. The project TMP will need to be further evaluated and updated during the PS&E phase.

Lane Requirements Charts (**Attachment K**) and a TMP Data Sheet (**Attachment L**) that estimates the associated cost for these strategies are included in this document as attachments.

7I. STAGE CONSTRUCTION

Staging of construction will be required for all work on the proposed project and will be addressed in detail during the PS&E phase of the project. Connector and ramp shoulder widening and construction of Midwest Guardrail Systems and concrete barrier is expected to be constructed behind temporary railing (Type K). Because of limited pavement widths, both left and right sides of the connectors cannot be closed concurrently, and each side will require separate stages of construction.

Construction on the N405 to S55 Connector (Location 5) for pavement widening and retaining wall construction is anticipated to occur in two stages. Stage 1 would consist of constructing the left side pavement widening while closing an adjacent lane. Stage 2 would shift traffic onto the previously constructed pavement widening while maintaining a single lane open for traffic. With this shift, the right shoulder widening can be constructed along with the retaining walls.

Replacement of concrete slabs will be accomplished with the use of 55-hour weekend closures. This closure strategy will require the use of RSC.

Construction of RHMA-G and HMA-A overlay will be accommodated utilizing a series of overnight closures. To facilitate traffic during construction, Stage Construction Details (**Attachment J**) are included in this document as an attachment.

7J. ACCOMMODATION OF OVERSIZE LOADS

Not applicable for this project.

7K. GRAFFITI CONTROL

The project is located in the urban area of Orange County, which is an identified graffiti-prone area in the Caltrans Project Development Procedures Manual, Appendix K. Graffiti deterrent techniques would be used as part of the proposed design to limit accessibility to an OH sign structure, which may include the use of curved tubular sign structure and/or placement of collars and barbed wire around the OH sign. For wall surfaces, graffiti resistant/deterrent paint and/or protective coating, wall texturing, and/or aesthetic surface treatments will be used where practical. Details of graffiti deterrent techniques will be provided during the final design.

7L. ASSET MANAGEMENT

This project was initiated as a "stand alone". However, the proposed improvements include two performance objectives: Pavement and Traffic Safety. A Count station is added as part of the Transportation Management System. An Overhead sign is included as one of the Supplementary Asset Classes. Other Primary Asset Classes such as Bridges and Drainage Culverts are not proposed for this project.

7M. COMPLETE-STREETS

There are no sidewalks or bicycle facilities in the project area as the proposed work is on freeway connectors. Public buses are currently operating on the entire State Highway System, but there are no designated separate transit facilities or park-and-ride facilities located within the vicinity of the project. Trains are not considered in this pavement rehabilitation project. Due to the absence of multi-modal facilities, there are no applicable Complete-Streets improvements proposed in the project area.

7N. CLIMATE CHANGE CONSIDERATIONS

As the State Highway System and other transportation infrastructure are at increasing risk of damage and impacts from climate change and associated extreme weather events, Caltrans must account for climate change in planning and investment decisions to comply with both Executive Orders EO B-30-15 and Assembly Bill 2800. The climate change mitigation (greenhouse gas (GHG) reduction) and adaptive measures that respond to climate risks shall be identified and must be implemented where appropriate and feasible.

Findings from a quantitative analysis of GHG emissions that was prepared using the Federal Highway Administration (FHWA) Infrastructure Carbon Estimator (ICE) tool to estimate this project's life-cycle energy and GHG emissions from

construction and maintenance of transportation facilities were presented in the PIR. Results indicated that there were 3,437 Metric tonnes (MT) of carbon dioxide equivalent (CO_{2e}) emissions for the unmitigated strategy, and that there were no potential mitigation strategies that could be implemented for this project. Therefore, the tool indicated that the proposed mitigated GHG emissions were also 3,437 MT of CO_{2e}, thus resulting in a 0% reduction in GHG emissions.

The FHWA ICE tool helps provide strategies to reduce emissions for construction and does not attempt to formally determine the project's environmental impact as done by CEQA/NEPA documentation, and it noted that although construction emissions are unavoidable, they would be reduced to best extent possible. Reducing roadway construction and demolition waste, and the utilization of material within a local radius of the project area were recommended as potential strategies to help reduce GHG emissions.

7O. BROADBAND AND ADVANCE TECHNOLOGIES

Upgrading and expanding wired broadband facility networks is an essential part of building "smart" road systems that enable vehicles to communicate with road infrastructure, as stated in the PIR, this pavement rehabilitation project does not propose any new fiber optic communication cables. "Smart" pavement is not proposed for this project as both the technology and pavement-embedded sensors are not currently available. Charging stations for zero-emission vehicles are also not proposed for this project as they would need to be constructed outside of the state right of way.

7P. FHWA MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)

Caltrans has adopted the MASH, which was published by AASHTO. The Caltrans MASH Implementation memo, dated December 23, 2016, lists the sequence of dates that MASH safety devices will take effect, and projects on the California State Highway System advertised on or after October 31, 2019, must comply with MASH criteria for all new permanent installations and full replacements of roadside safety hardware devices. Subsequently, all safety devices proposed in this project must be MASH compliant. Guardrails, terminal systems, end treatments, breakaway hardware, concrete barriers and crash cushions must now comply with the MASH criteria.

7Q. TRAFFIC ELECTRICAL

To comply with the safety enhancement criteria of the project, electroliers along connectors shall be replaced falling into the following criteria:

- Existing slip-base electroliers behind existing or new guard rail systems shall be replaced with fixed-base electroliers placed at least 4' behind the new guard rail system.
- Electroliers within 30' of the edge of traveled way (ETW) shall be replaced with a Type 32 electrolier placed outside the 30' clear recovery zone, as allowed per right of way, or other slip-base electrolier.
- Existing pull boxes, conduit, and wiring will also be replaced. This will be better defined during the PS&E phase.
- Install count station to provide more accurate traffic volume counts, increase productivity, and improve safety to the traveling public and Caltrans field personnel. A count station will include in-pavement inductive loop detectors, traffic rated tamper resistant pull boxes, piezos sensors, Type III electrical service, conduit and conductors, and Model-334 cabinet with communications, and cabinet foundation .

Additional electrical elements such as loop detectors for ramp meter and others shall be replaced. Similar to the lighting systems, existing pull boxes, conduit, and wiring for loop detectors requiring replacement will be defined during the PS&E phase.

7R. DRAINAGE

Existing drainage facilities will be protected in place at locations where existing pavement are proposed to be rehabilitated by replacing broken concrete slabs with RSC and repairing existing AC with RHMA-G. Temporary drainage inlet protection will be implemented during construction at all existing and proposed drainage inlet locations impacted by the proposed improvements to minimize pollutants to downstream receiving water bodies.

Proposed roadway improvements which require shoulder widening will increase storm water runoff within the project limits. Where applicable, existing cross culverts conveying offsite or onsite flows will be extended and existing storm drains will be modified or removed to accommodate the proposed roadway improvements. Existing drainage inlets will also be relocated or reconstructed to match the proposed shoulder. Existing drainage patterns will be maintained, and proposed drainage systems will be implemented where necessary to maintain pavement drainage criteria as outlined in the Caltrans HDM. In order to meet the flood spread width criteria, drainage inlets and pipes will be incorporated where necessary along the proposed shoulder where barriers or dikes will impede runoff from sheet flowing off the roadway. Drainage inlets will also be proposed in areas with roadway low points and superelevation reversals. Hydrological and hydraulic calculations shall be

prepared during the PS&E design phase to determine the location and size of the proposed drainage facilities.

8. FUNDING, PROGRAMMING AND ESTIMATE

This project is programmed in SHOPP 2020 in Pavement Rehabilitation with Program Code of 201.121. As such, it is funded by SB1 Road Maintenance and Rehabilitation Account (RMRA) funds. The delivery FY is 2021/2022. It has been determined that this project is eligible for federal-aid funding.

Table 8.1 - Estimated Capital Outlay and Support Costs

Fund Source	Fiscal Year Estimate							
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Total (escalated)
20.XX.201.121								
Component	In thousands of dollars (\$1,000)							
PA&ED Support	\$3,000							\$3,000
PS&E Support			\$5,400					\$5,400
ROW Support								\$0
Const. Support				\$5,500				\$5,500
Support Subtotal	\$3,000		\$5,400	\$5,500				\$13,900
ROW Capital								\$0
Const. Capital				\$26,500				\$26,500
Capital Subtotal				\$26,500				\$26,500
Project Total	\$3,000		\$5,400	\$32,000				\$40,400

As shown on **Attachment E**, the current FY 20/21 construction capital estimate of \$23,920,000 is escalated to \$26,500,000 using the escalated annual factor of 3.2%.

The escalated support-to-capital cost ratio is 52 %.

9. DELIVERY SCHEDULE

Table 9.1 - Project Milestones

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Actual)
Program Project	M015	March 2019	March 2019
Begin Environmental	M020	April 2019	September 2019
PA&ED	M200	August 2020	September 2020

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Actual)
PS&E to DOE	M377	February 2022	February 2022
Right of Way Certification	M410	April 2022	April 2022
Ready to List	M460	May 2022	May 2022
Fund Allocation	M470	June 2022	June 2022
Headquarters Advertise	M480	July 2022	July 2022
Bid Open	M490	September 2022	September 2022
Award	M495	October 2022	October 2022
Approved Contract	M500	November 2022	November 2022
Contract Acceptance	M600	September 2025	September 2025
End Project	M800	November 2027	November 2027

10. RISKS

The project risk register is prepared at the project studies level using the ranking method and includes identified risks, qualitative risk analysis, response strategy, and risk owners/managers.

The project risk register prepared at the project studies level is based on utilizing a qualitative risk analysis approach to rank the risks into high, medium and low risk categories based on their probability of occurrence and their impact on the project objectives such as schedule, cost, right of way impact, and quality.

The Caltrans and Parsons Risk Management Team has prepared a risk register (**Attachment I**) that identifies risks updated for PA&ED phase. These risks should be monitored throughout the project and updated during the entire project development phase.

11. EXTERNAL AGENCY COORDINATION

All traffic handling must be coordinated with John Wayne Airport and the cities of Anaheim, Costa Mesa, Irvine, Newport Beach, Santa Ana and Tustin.

This project is considered to be an assigned project in accordance with the Stewardship and Oversight Agreement on Project Assumption and Program Oversight between FHWA California Division and Caltrans, executed on May 28, 2015. This oversight agreement is for project actions assumed by Caltrans

and project actions where FHWA has retained their authority. These project actions are identified in the "Project Action Responsibility Matrix" within the stewardship agreement.

A Notice of Proposed Construction or Alteration on Airport is required to be filed with the Federal Aviation Administration (FAA) at least 45 days prior to construction.

12. PROJECT REVIEWS

Scoping team Design:	<u>Parisa Bozorgchami</u>	Date	<u>04/14/2020</u>
District Program Advisor:	<u>Irvin Nguyen</u>	Date	<u>08/04/2020</u>
District Safety Program Advisor:	<u>Bryan Sorensen</u>	Date	<u>06/30/2020</u>
District Maintenance:	<u>Bala Nanjappa</u>	Date	<u>04/15/2020</u>
Project Manager:	<u>Bob Bazargan</u>	Date	<u>04/10/2020</u>
District Safety Review:	<u>Thuan Nguyen</u>	Date	<u>04/15/2020</u>
Constructability Review:	<u>Robert Zordani</u>	Date	<u>04/15/2020</u>
District TMP Engineer:	<u>Adrian Becerra</u>	Date	<u>04/15/2020</u>
District Materials Engineer:	<u>Mehrdad Mahdavian</u>	Date	<u>04/27/2020</u>
District Traffic Engineer:	<u>Gary Slater</u>	Date	<u>07/09/2020</u>

13. PROJECT PERSONNEL

Name	Title	Phone
Irvin Nguyen	Caltrans District Program Advisor Maintenance Engineer - Acting Branch Chief	949-279-8590
Bob Bazargan	Caltrans Program and Project Management - Project Manager	657-328-6298
David Lam	Caltrans Design - Branch Chief	657-328-6080
Charles Baker	Caltrans Environmental Analysis - Branch Chief	657-328-6139
Grace Pina-Garrett	Caltrans NPDES - Branch Chief	657-328-6159
Evangelina Washington	Caltrans Right of Way P&M and Project Coordination - Branch Chief	657-328-6349
Anhhuy (Ann) Truong	Parsons - Project Engineer	949-255-5901
Pija Ansari	Parsons - Project Manager	949-333-4550
David Ovadia	Parsons - Traffic Lead	949-333-4549
Dennis Serafica	Parsons - Traffic Design	949-333-4556
Angela Schnapp	Parsons - Environmental Lead	626-440-2427

14. ATTACHMENTS

- A. Categorical Exemption / Categorical Exclusion Determination (9)
- B. Location Map / Title Sheet (1)
- C. Preliminary Layout (35)
- D. Typical Sections (16)
- E. Cost Estimate (10)
- F. Right-of-Way Data Sheet (5)
- G. Storm Water Data Report - Signed Cover Sheet (1)
- H. Preliminary Materials Report – Signed Cover Sheets (4)
- I. Risk Register (4)
- J. Stage Construction Details (1)
- K. Lane Requirements Charts (9)
- L. TMP Data Sheet (3)
- M. Preliminary Geotechnical Reports – Signed Cover Sheets (2)
- N. Environmental Technical Studies (13)
- O. Structure Advance Planning Study (1)
- P. Asset Management Performance Measures (1)
- Q. Final Value Analysis Study Report – Signed Cover Sheets (2)

ATTACHMENT A

Categorical Exemption / Categorical Exclusion Determination

- Categorical Exemption / Categorical Exclusion
Determination Form
 - Environmental Commitments Record



**CEQA EXEMPTION / NEPA CATEGORICAL EXCLUSION
DETERMINATION FORM**

Project Information

DIST-CO-RTE: 12-Orange-Variou **PM/PM:** Various

EA: 0R5600 **Federal-Aid Project Number:** 1218000117

Project Description

The California Department of Transportation (Caltrans) District 12, proposes to rehabilitate existing pavement at various locations within Orange County on State Routes (SR) 55, 73, 91, 133, and Interstates (I) 5 and 405. The project would include resurfacing the bridge structural departure slabs at the Cabot Road undercrossing at southbound SR-73 in Laguna Niguel and rehabilitating the existing pavement by replacing the broken concrete slabs with Rapid Strength Concrete (RSC) and repairing the existing asphalt concrete (AC) with Rubberized Hot-Mix Asphalt - Gap Graded (RHMA-G) pavement at 18 locations, including 16 connectors and two ramps in the cities of Anaheim, Costa Mesa, Irvine, Santa Ana, and Tustin in Orange County. (see Continuation Sheet)

Caltrans CEQA Determination (Check one)

- Not Applicable** – Caltrans is not the CEQA Lead Agency
- Not Applicable** – Caltrans has prepared an IS or EIR under CEQA

Based on an examination of this proposal and supporting information, the project is:

- Exempt by Statute.** (PRC 21080[b]; 14 CCR 15260 et seq.)
- Categorically Exempt. Class 1 (c).** (PRC 21084; 14 CCR 15300 et seq.)
 - No exceptions apply that would bar the use of a categorical exemption (PRC 21084 and 14 CCR 15300.2). See the [SER Chapter 34](#) for exceptions.
- Covered by the Common Sense Exemption.** This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (14 CCR 15061[b][3].)

Senior Environmental Planner or Environmental Branch Chief

Charles Baker	<i>Charles Baker</i>	7/17/2020
Print Name	Signature	Date

Project Manager

Bob Bazargan	<i>Bob Bazargan</i>	7/17/2020
Print Name	Signature	Date



CEQA EXEMPTION / NEPA CATEGORICAL EXCLUSION DETERMINATION FORM

Caltrans NEPA Determination (Check one)

Caltrans has determined that this project has no significant impacts on the environment as defined by NEPA, and that there are no unusual circumstances as described in 23 CFR 771.117(b). See SER Chapter 30 for unusual circumstances. As such, the project is categorically excluded from the requirements to prepare an EA or EIS under NEPA and is included under the following:

[X] 23 USC 326: Caltrans has been assigned, and hereby certifies that it has carried out the responsibility to make this determination pursuant to 23 USC 326 and the Memorandum of Understanding dated April 18, 2019, executed between FHWA and Caltrans. Caltrans has determined that the project is a Categorical Exclusion under:

- [X] 23 CFR 771.117(c): activity (c)(26)
[] 23 CFR 771.117(d): activity (d)(Enter activity number)
[] Activity Enter activity number listed in Appendix A of the MOU between FHWA and Caltrans

[] 23 USC 327: Based on an examination of this proposal and supporting information, Caltrans has determined that the project is a Categorical Exclusion under 23 USC 327. The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Senior Environmental Planner or Environmental Branch Chief

Charles Baker (Print Name), Charles Baker (Signature), 7/17/2020 (Date)

Project Manager/ DLA Engineer

Bob Bazargan (Print Name), Bob Bazargan (Signature), 7/17/2020 (Date)

Date of Categorical Exclusion Checklist completion: 7/16/20
Date of Environmental Commitment Record or equivalent: 7/16/20



CEQA EXEMPTION / NEPA CATEGORICAL EXCLUSION DETERMINATION FORM

Continuation sheet:

(Continued from Page 1)

The purpose of the project is to restore the pavement, correct structural defects, improve the ride quality and structural integrity of the roadway, and improve and enhance safety. The project is needed because the existing pavement on the listed connectors and ramps and the existing departure slabs on the SR-73 Cabot Road undercrossing have deteriorated, showing surface distress, slab displacement, and cracking. In addition, there are existing non-standard shoulder widths at four connectors and one ramp that need to be widened. Safety barriers at various locations need to be upgraded to the new standard.

The project will include, as applicable, standardized features included as part of the project description (<http://www.dot.ca.gov/des/oe/construction-contract-standards.html>). Standardized features (such as Best Management Practices [BMPs]) are those features that are generally applied to most or all Department projects. These standardized or pre-existing features allow little discretion regarding their implementation and are not specific to the circumstances of a particular project. The attached Environmental Commitment Record (ECR) documents environmental commitments that must be implemented throughout Design and Construction Phases.



Environmental Commitments Record (ECR)

DIST-CO-RTE: 12-Orange-Various

PM/PM: Various **EA/Project ID.:** 1218000117

Project Description: The California Department of Transportation (Caltrans) District 12, proposes to rehabilitate existing pavement at various locations within Orange County on State Routes (SR) 55, 73, 91, 133, and Interstates (I) 5 and 405. The project would include resurfacing the bridge structural departure slabs at the Cabot Road undercrossing at southbound SR-73 in Laguna Niguel and rehabilitating the existing pavement by replacing the broken concrete slabs with Rapid Strength Concrete (RSC) and repairing the existing asphalt concrete (AC) with Rubberized Hot-Mix Asphalt - Gap Graded (RHMA-G) pavement at 18 locations, including 16 connectors and two ramps in the cities of Anaheim, Costa Mesa, Irvine, Santa Ana, and Tustin in Orange County.

Date (Last modification): 7/1/20

Environmental Planner: Brian Liu

Phone No.: 657-328-6135

Construction Liaison: TBD

Phone No.: TBD

Resident Engineer: TBD

Phone No.: TBD

PERMITS

Permit	Agency	Application Submitted	Permit Received	Permit Expiration	Permit Requirement Completed by:	Permit Requirement Completed on:	Comments
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

ENVIRONMENTAL COMMITMENTS

PS&E/BEFORE RTL

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Biology	BIO-4: Prior to work occurring, bats will be humanely excluded outside of the maternity season, between October to March, by a bat specialist in coordination with the Caltrans Biologist. In June of the year before construction, bat emergence surveys would be conducted in the BSA, one hour before sunset to one hour after sunset.	Natural Environment Study (Minimal Impacts), Section 4.3.2	Yes	Caltrans Biologists RE	Complete and document bat emergency surveys, as appropriate.	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-1: Aerially deposited lead (ADL) testing will need to be conducted during 35% of plans, specifications and estimates (PS&E). The handling, reuse, and disposal of ADL-impacted soils will have to be conducted in accordance with Caltrans' Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (ADL Agreement) with the Department of Toxic Substances Control.	ISA Checklist, p. 3	Yes	Design Caltrans Hazardous Waste	Conduct testing and prepare a report of findings. Further actions will be implemented during construction, as appropriate (see below).	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-2: The testing of yellow paint stripping for the presence of lead-based paint (LBP) will have to be conducted prior to removal. The handling, storage, and disposal of LBP in yellow stripping will have to be made in accordance with Caltrans' Standard Specifications 14-11.12, Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.	ISA Checklist, p. 3	Yes	Design Caltrans Hazardous Waste	Conduct testing and prepare a report of findings. Further actions will be implemented during construction, as appropriate (see below).	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-3: Since there are existing bridge structures near planned work areas, should any disturbance of the bridge structures (or overcrossings) be required, testing for potential asbestos-containing materials (ACM) shall be conducted to determine appropriate noticing, handling, and disposal of ACM per South Coast Air Quality Management District's (SCAQMD's) Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.	ISA Checklist, p. 3	Yes	Design Caltrans Hazardous Waste	Determine if disturbance to the bridge structures or overcrossing is required. If so, conduct testing and prepare a report of findings. Further actions will be	Enter date	Enter Name	Enter date	Enter remarks	No

Environmental Commitment Record for District 12 Pavement Rehabilitation

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
					implemented during construction, as appropriate (see below).					
Hazardous Waste	HW-4: Shallow groundwater (i.e., groundwater within 5 to 10 feet of the ground surface) is expected to be present at Site 2 (SR-55/I-405 interchange). Most of the work would only disturb the upper 2 feet of soils. However, potential excavation activities for the foundations of retaining walls may encounter shallow groundwater. For the proper handling and disposal of any potentially contaminated groundwater, all dewatering activities will have to comply with the Santa Ana Regional Water Quality Control Board Order R8-2015-004-025, NPDES No. CAG998001 (for Sites 1-5 and 7) or the San Diego Regional Water Quality Control Board Order R9-2015-0013, NPDES No. CAG91903 (for Site 6 – SR-73/Cabot Road undercrossing), depending on the site location.	ISA Checklist, p. 3	Yes	Design Caltrans Hazardous Waste	Identify locations where work would be conducted lower than 2 feet below the ground surface (e.g., where foundations of retaining walls would be constructed). Further actions will be implemented during construction, as appropriate (see below).	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-5: Caltrans' Standard Specifications 14-11.02, Discovery of Unanticipated Asbestos and Hazardous Substances, and Standard Specifications 14-11.03, Hazardous Waste Management, will have to be followed in the event of discovery of unanticipated hazardous materials.	ISA Checklist, p. 3	Yes	Design Caltrans Hazardous Waste	Include Caltrans' specifications in PS&E package. Further actions will be implemented during construction, as appropriate (see below).	Enter date	Enter Name	Enter date	Enter remarks	No

PRE-CONSTRUCTION

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Biology	BIO-1: If construction is required during the nesting season (February 1 to September 30), nesting bird surveys would be completed in sensitive areas of the BSA, or if vegetation is being removed, no more than 72 hours prior to construction activities to determine if nesting birds/raptors or active nests are within 300 feet (500 feet for potential raptor nests) of the construction area. Surveys would be repeated if construction activities are suspended for three days or more.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Environmental/Qualified Biologist Design/PE	Determine if construction will be required during nesting season. If so, conduct nesting bird surveys and prepare a report of findings.	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	BIO-2: In the event that trimming or removal of trees or vegetation is conducted in Sections A or B during the nesting bird season (typically February 1 to September 30), a qualified biologist would conduct a nesting survey of these trees no more than 72 hours prior to trimming or removal activities. If any nests are identified, appropriate buffers would be installed under direction of the qualified biologist. These surveys would be repeated if trimming or removal activities are suspended for three days or more.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Caltrans Biologists RE	Determine if trimming or removal of trees or vegetation would be required in Sections A and B during the nesting bird season. If so, conduct a nesting survey and prepare a report of findings. Further actions will be implemented during construction, as	Enter date	Enter Name	Enter date	Enter remarks	No

Environmental Commitment Record for District 12 Pavement Rehabilitation

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
					appropriate (see below).					
Biology	BIO-4: Prior to work occurring, bats will be humanely excluded outside of the maternity season, between October to March, by a bat specialist in coordination with the Caltrans Biologist. In June of the year before construction, bat emergence surveys would be conducted in the BSA, one hour before sunset to one hour after sunset.	Natural Environment Study (Minimal Impacts), Section 4.3.2	Yes	Caltrans Biologists RE	Complete and document bat exclusions, as appropriate.	Enter date	Enter Name	Enter date	Enter remarks	No

CONSTRUCTION

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Biology	BIO-2: In the event that trimming or removal of trees or vegetation is conducted in Sections A or B during the nesting bird season (typically February 1 to September 30), a qualified biologist would conduct a nesting survey of these trees no more than 72 hours prior to trimming or removal activities. If any nests are identified, appropriate buffers would be installed under direction of the qualified biologist. These surveys would be repeated if trimming or removal activities are suspended for three days or more.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Caltrans Biologists RE	Install appropriate buffers if any nests are identified and provide documentation that buffers were installed under direction of a qualified biologist. Repeat surveys if trimming or removal activities are suspended for five days or more and prepare a report to document findings.	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	BIO-3: If nesting birds are found in the construction area, measures to ensure that the birds and/or their nests are not harmed would be implemented, including but not limited to, installation and maintenance of appropriate buffers (typically 150 feet for song birds and 500 feet for raptors) until nesting activity has ended. The buffer size may be modified, under direction of a qualified biologist, and CDFW if appropriate, if it is determined that construction activities would not likely have adverse effect on the birds. The nests would be monitored until the birds have fledged or the nests are no longer active.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Caltrans Biologists RE	Provide documentation that measures were implemented and monitoring was conducted under the direction of a qualified biologist and CDFW, as appropriate.	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	BIO-5: If bat emergence surveys confirm the presence of bats, a bat monitor would be onsite during disturbance of this area, as determined by the Caltrans Biologist and bat specialist. If the biologist determines that bats are being disturbed during this work, work would be suspended until bats have left the vicinity on their own or can be safely excluded under direction of the biologist. Work would resume only once all bats have left the site and/or approval to resume work is given by a qualified biologist.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Caltrans Biologists RE	Provide documentation of bat monitoring activities, as appropriate. If bats are being disturbed, provide documentation that work was suspended until bats left the vicinity on their own and approval provided to resume work, as	Enter date	Enter Name	Enter date	Enter remarks	No

Environmental Commitment Record for District 12 Pavement Rehabilitation

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
					directed by a qualified biologist.					
Biology	BIO-6: If a maternal colony of bats is identified within the BSA, the Resident Engineer and Caltrans Biologist would be immediately notified to identify any necessary protection measures. If warranted, the California Department of Fish and Wildlife (CDFW) would be contacted to identify the proper avoidance and minimization measures required.	Natural Environment Study (Minimal Impacts), Section 4.3.1	No	Caltrans Biologists RE	Identify and document any necessary protection measures, and contact CDFW if warranted.	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	BIO-7: Vegetation would be disposed of in accordance with Caltrans Standard Specification Section 14-10 and all applicable laws and regulations.	Natural Environment Study (Minimal Impacts), Section 5.5	No	Caltrans Biologists RE	Provide documentation that vegetation disposal was conducted in accordance with Caltrans Standard Specification 14-10.	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	BIO-8: Revegetation within the project area would be completed in accordance with Executive Order 13112. Prior to any revegetation within the project area, the Landscape Architect and Resident Engineer will coordinate with the Caltrans Biologist to review and approve the proposed plant list or seed mix to be used as part of the project.	Natural Environment Study (Minimal Impacts), Section 5.5	No	Caltrans Biologists RE Landscape Architect	Provide documentation that revegetation was conducted in accordance with Executive Order 13112; and that coordination was conducted with the Landscape Architect to review/approve proposed plant list or seed mix.	Enter date	Enter Name	Enter date	Enter remarks	No
Cultural Resources	CUL-1: In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, NEPA, or Section 106 of the National Historic Preservation Act (NHPA), additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.	Cultural Resources Technical Memorandum, p. 10	No	Caltrans Archaeologist RE	Provide documentation that construction stopped immediately; and appropriate analysis, coordination, and treatment were conducted.	Enter date	Enter Name	Enter date	Enter remarks	No
Cultural Resources	CUL-2: In the unlikely event that human remains are encountered, all activity within the work location shall be halted, and Caltrans and the County Coroner notified immediately, with procedures implemented to comply with CEQA Guidelines Section 15064.5(e), California Health and Safety Code Section 7050.5(b), and California PRC 5097.98. If the Coroner determines the remains to be of Native American origin, he or she shall notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the most likely descendant (MLD) to be consulted regarding treatment and/or	Cultural Resources Technical Memorandum, p. 10	No	Caltrans Archaeologist RE	Provide documentation that construction stopped immediately; and appropriate analysis, coordination, and treatment were conducted.	Enter date	Enter Name	Enter date	Enter remarks	No

Environmental Commitment Record for District 12 Pavement Rehabilitation

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	repatriation of the remains. The MLD shall be granted access to examine the remains and then has 48 hours to provide recommendations for the treatment or reburial of the remains. If the MLD fails to make a recommendation within 48 hours of being granted access to the remains, Caltrans shall rebury the remains in a location not subject to further disturbance.									
Hazardous Waste	HW-1: Aerially deposited lead (ADL) testing will need to be conducted during 35% of plans, specifications and estimates (PS&E). The handling, reuse, and disposal of ADL-impacted soils will have to be conducted in accordance with Caltrans' Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (ADL Agreement) with the Department of Toxic Substances Control.	ISA Checklist, p. 3	Yes	Caltrans Hazardous Waste RE	Provide documentation that ADL-impacted soils were handled, reused, and disposed of in accordance with Caltrans' Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (ADL Agreement) with the Department of Toxic Substances Control.	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-2: The testing of yellow paint stripping for the presence of lead-based paint (LBP) will have to be conducted prior to removal. The handling, storage, and disposal of LBP in yellow striping will have to be made in accordance with Caltrans' Standard Specifications 14-11.12, Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.	ISA Checklist, p. 3	Yes	Caltrans Hazardous Waste RE	Provide documentation that LBP was handled, stored, and disposed of in accordance with Caltrans' Standard Specifications 14-11.12, Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-3: Since there are existing bridge structures near planned work areas, should any disturbance of the bridge structures (or overcrossings) be required, testing for potential asbestos-containing materials (ACM) shall be conducted to determine appropriate noticing, handling, and disposal of ACM per South Coast Air Quality Management District's (SCAQMD's) Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.	ISA Checklist, p. 3	Yes	Caltrans Hazardous Waste RE	Provide notification to the SCAQMD and complete documentation that ACM was handled and disposed of in accordance with SCAQMD's Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HW-4: Shallow groundwater (i.e., groundwater within 5 to 10 feet of the ground surface) is expected to be present at Site 2 (SR-55/I-405 interchange). Most of the work would only disturb the upper 2 feet of soils. However, potential excavation activities for the foundations of retaining walls may encounter shallow groundwater. For the proper handling and disposal of	ISA Checklist, p. 3	Yes	Caltrans Hazardous Waste RE	Provide documentation that dewatering activities complied with the Santa Ana Regional Water Quality Control	Enter date	Enter Name	Enter date	Enter remarks	No

Environmental Commitment Record for District 12 Pavement Rehabilitation

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	any potentially contaminated groundwater, all dewatering activities will have to comply with the Santa Ana Regional Water Quality Control Board Order R8-2015-004-025, NPDES No. CAG998001 (for Sites 1-5 and 7) or the San Diego Regional Water Quality Control Board Order R9-2015-0013, NPDES No. CAG91903 (for Site 6 – SR-73/Cabot Road undercrossing), depending on the site location.				Board Order R8-2015-004-025, NPDES No. CAG998001 (for Sites 1-5 and 7) or the San Diego Regional Water Quality Control Board Order R9-2015-0013, NPDES No. CAG91903 (for Site 6 – SR-73/Cabot Road undercrossing), as appropriate.					
Hazardous Waste	HW-5: Caltrans' Standard Specifications 14-11.02, Discovery of Unanticipated Asbestos and Hazardous Substances, and Standard Specifications 14-11.03, Hazardous Waste Management, will have to be followed in the event of discovery of unanticipated hazardous materials.	ISA Checklist, p. 3	Yes	Caltrans Hazardous Waste RE	Provide documentation that the project activities were conducted in compliance with Caltrans' Standard Specifications 14-11.02, Discovery of Unanticipated Asbestos and Hazardous Substances, and Standard Specifications 14-11.03, Hazardous Waste Management, as appropriate.	Enter date	Enter Name	Enter date	Enter remarks	No

ATTACHMENT B
Location Map / Title Sheet

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN ORANGE COUNTY
AT
VARIOUS LOCATIONS

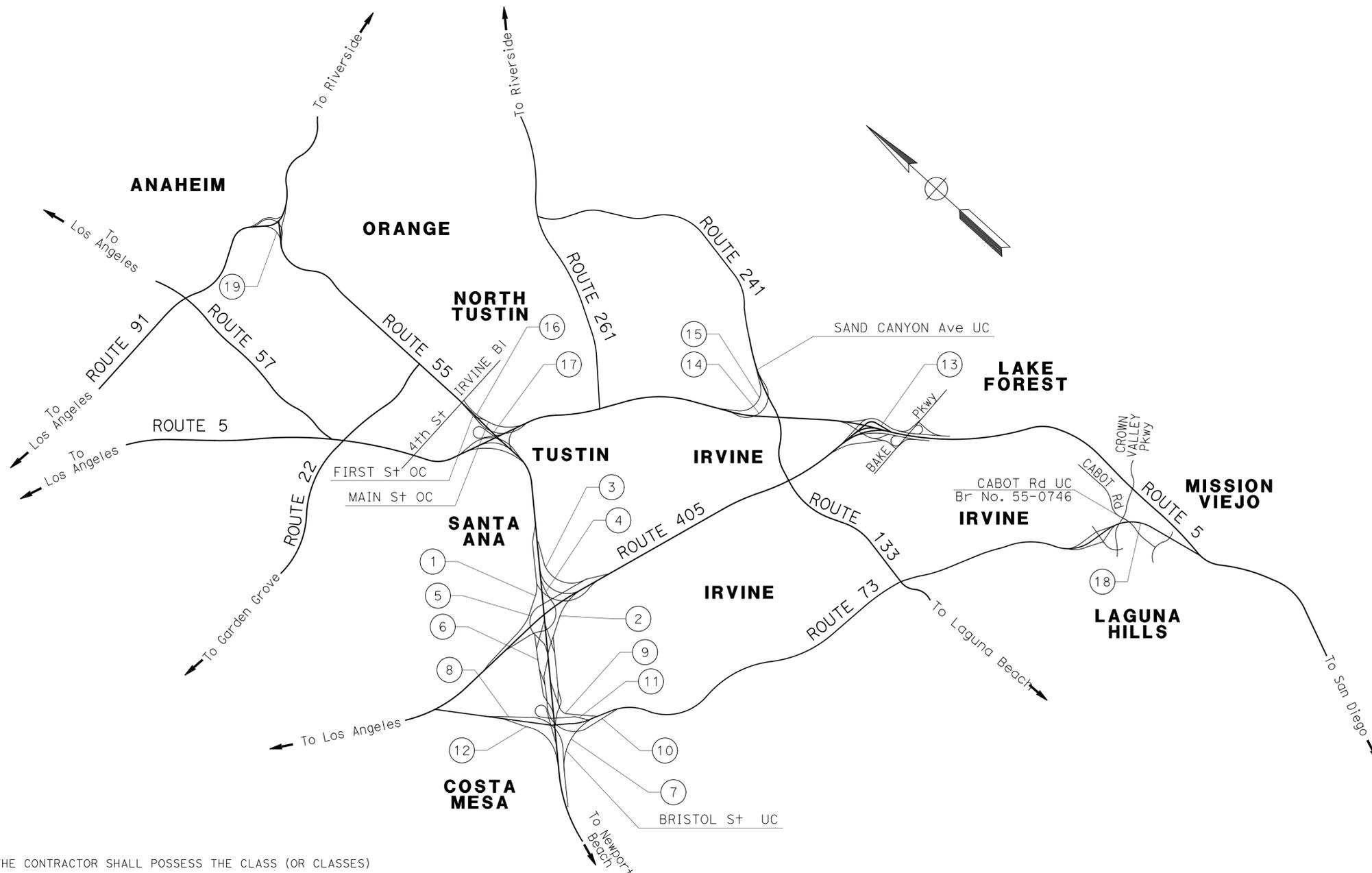
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	ORA	5,55,73 91,133,405	Var		

LOCATION MAP

LOCATIONS OF CONSTRUCTION

Loc ID	ROUTE	PM	DESCRIPTION
1	55	R6.2	SB OFF TO NB 405 CONNECTOR
2	55	R5.7	NB OFF TO SB 405 CONNECTOR
3	405	8.3	NB OFF TO NB 55 CONNECTOR
4	405	9.0	SB OFF TO NB 55 CONNECTOR
5	405	8.3	NB OFF TO SB 55 CONNECTOR
6	55	R4.8	BAKER ST ON-RAMP
7	55	R4.4	NB OFF TO SB 73 CONNECTOR
8	55	R4.4	NB OFF TO NB 73 CONNECTOR
9	73	R26.3	NB OFF TO NB 55 CONNECTOR
10	55	R5.1	SB OFF TO SB 73 CONNECTOR
11	73	R26.3	NB OFF TO SB 55 CONNECTOR
12	73	R26.7	SB OFF TO SB 55 CONNECTOR
13	5	20.9	NB OFF TO NB 405 CONNECTOR
14	5	R24.2	SB OFF TO NB 133 CONNECTOR
15	133	10.4	SB OFF TO NB 5 CONNECTOR
16	55	10.6	NB OFF-RAMP TO 4th St
17	5	30.2	NB OFF TO NB 55 CONNECTOR
18	73	11.3	SB @ CABOT Rd UC
19	91	R8.9	EB OFF TO SB 55 CONNECTOR



PROJECT ENGINEER _____ DATE _____
 REGISTERED CIVIL ENGINEER



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

PARSONS
 2201 DUPONT DRIVE, SUITE 200
 IRVINE, CA 92612

CONTRACT No.	12A1798
PROJECT ID	1218000117

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

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.

DATE SIGNED _____
 LICENSE EXP DATE _____
 REGISTRATION No. _____
 CALTRANS DESIGN OVERSIGHT APPROVAL _____
 CONSULTANT DESIGN MANAGER PIJA ANSARI

ATTACHMENT C
Preliminary Layout

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

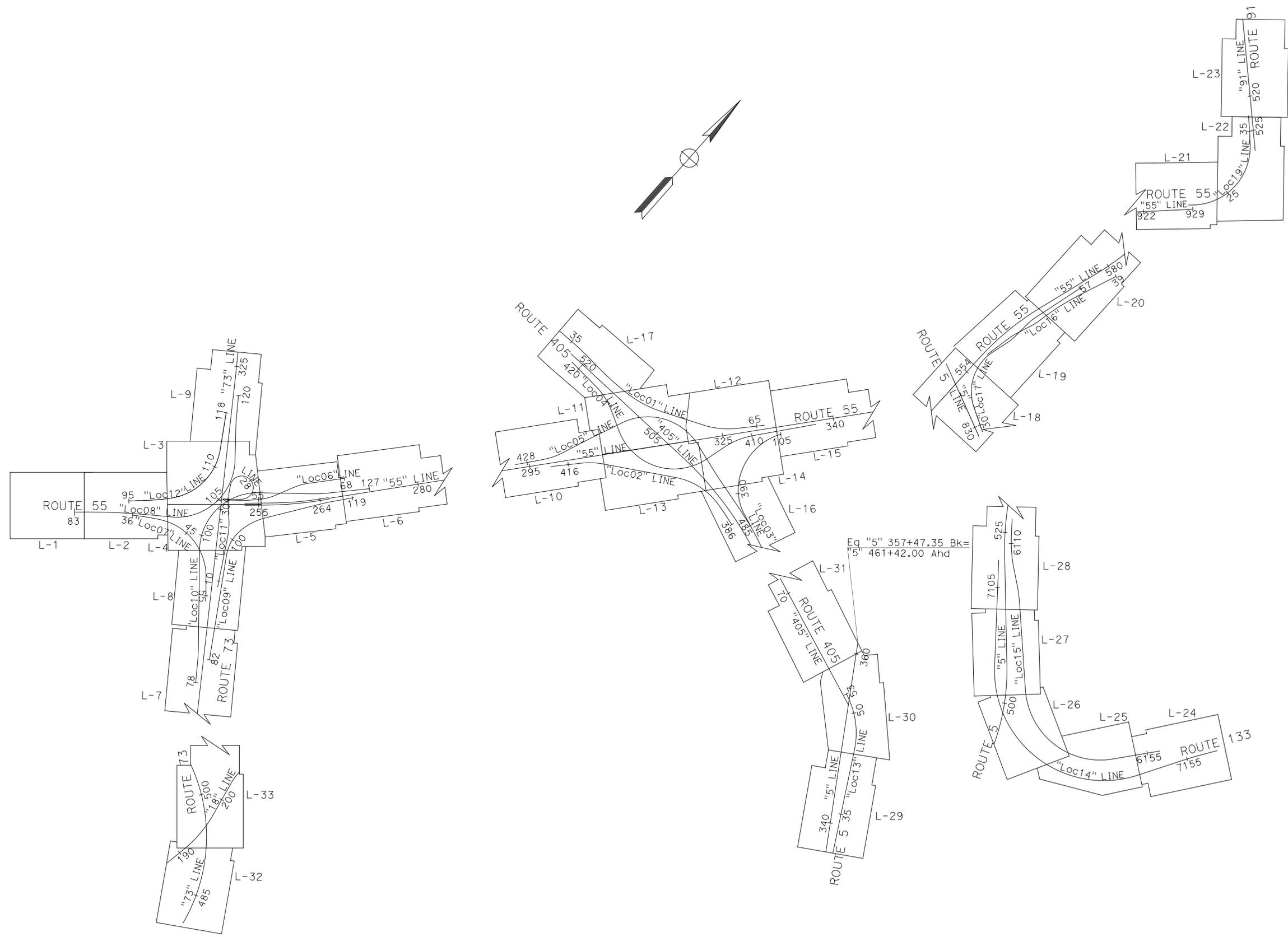
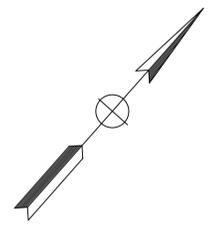
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PARSONS
 2201 DUPONT DRIVE
 SUITE 200
 IRVINE, CA 92612

CALTRANS D12
 1750 E 4th St
 Santa Ana, CA 92705



KEY MAP
 NO SCALE
K-1

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

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LAST REVISION | DATE PLOTTED => \$DATE
 03-19-20 | TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED

NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
 2. SEE CONSTRUCTION DETAILS SHEETS FOR HMA DIKE LOCATIONS.

ABBREVIATIONS:

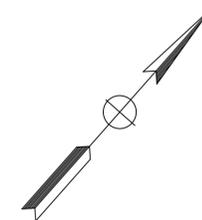
COCM CITY OF COSTA MESA
 COI CITY OF IRVINE
 CMSD COSTA MESA SANITATION DISTRICT
 COX COX CABLE TELEVISION
 IRWD IRVINE RANCH WATER DISTRICT
 MCWD MESA CONSOLIDATED WATER DISTRICT
 MWD METROPOLITAN WATER DISTRICT
 MNWD MOULTON NIGUEL WATER DISTRICT
 OCSD ORANGE COUNTY SANITATION DISTRICT
 PACBELL PACIFIC BELL COMPANY
 PTT PACIFIC TELEPHONE & TELEGRAPH
 SAHWD SANTA ANA HEIGHTS WATER DISTRICT
 STRE SEATREE
 SCE SOUTHERN CALIFORNIA EDISON
 SCG SOUTHERN CALIFORNIA GAS
 TIC THE IRVINE COMPANY
 TSTN TUSTIN WATER
 VRZN VERIZON

LEGEND:

- (X) CURVE NUMBER
- (X) PAVEMENT STRUCTURAL SECTION (SEE TYPICAL CROSS SECTIONS)
- XX-XX-XX SAFETY BARRIER SYSTEM (SEE CONSTRUCTION DETAILS SHEETS)
- (F) FIXED-BASE ELECTROLIER
- (SB) SLIP-BASE ELECTROLIER
- Temp DRAINAGE INLET PROTECTION
- 1" POLYESTER CONCRETE OVERLAY
- (A) DETAIL A (SEE CONSTRUCTION DETAILS SHEETS)

CURVE DATA

No. (X)	R	Δ	T	L
1A	10000.00'	7°18'05"	638.03'	1274.31'
81	9925.00'	6°15'56"	543.21'	1085.35'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

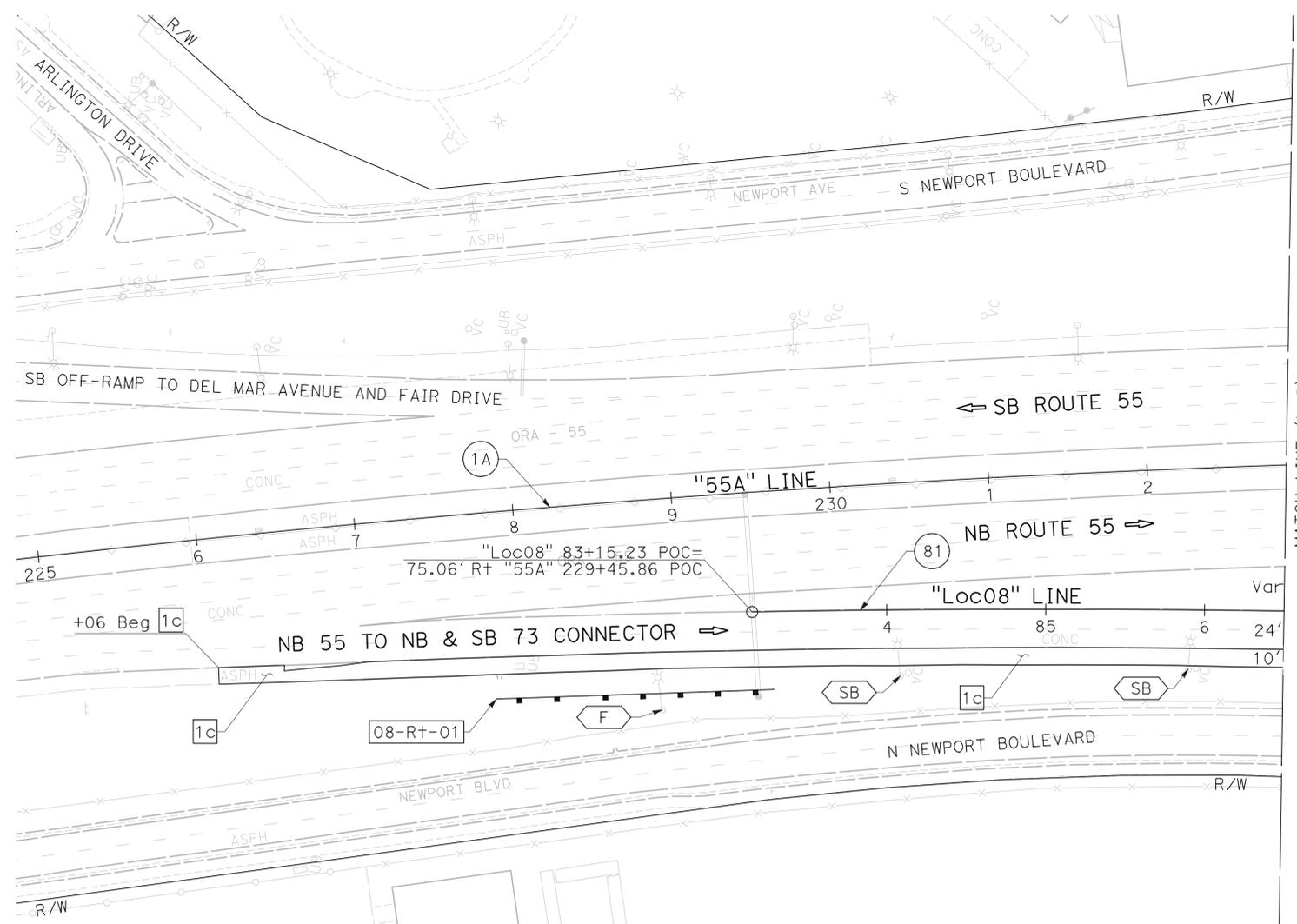
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PARSONS
 2201 DUPONT DRIVE
 SUITE 200
 IRVINE, CA 92612

CALTRANS D12
 1750 E 4th St
 Santa Ana, CA 92705



MATCH LINE (L-2)

LAYOUT
 SCALE: 1" = 50'

L-1

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 LAST REVISION DATE PLOTTED => 7/14/2020 03-19-20 TIME PLOTTED => 3:57:10 PM

NOTE:
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RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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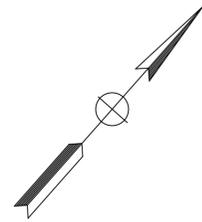
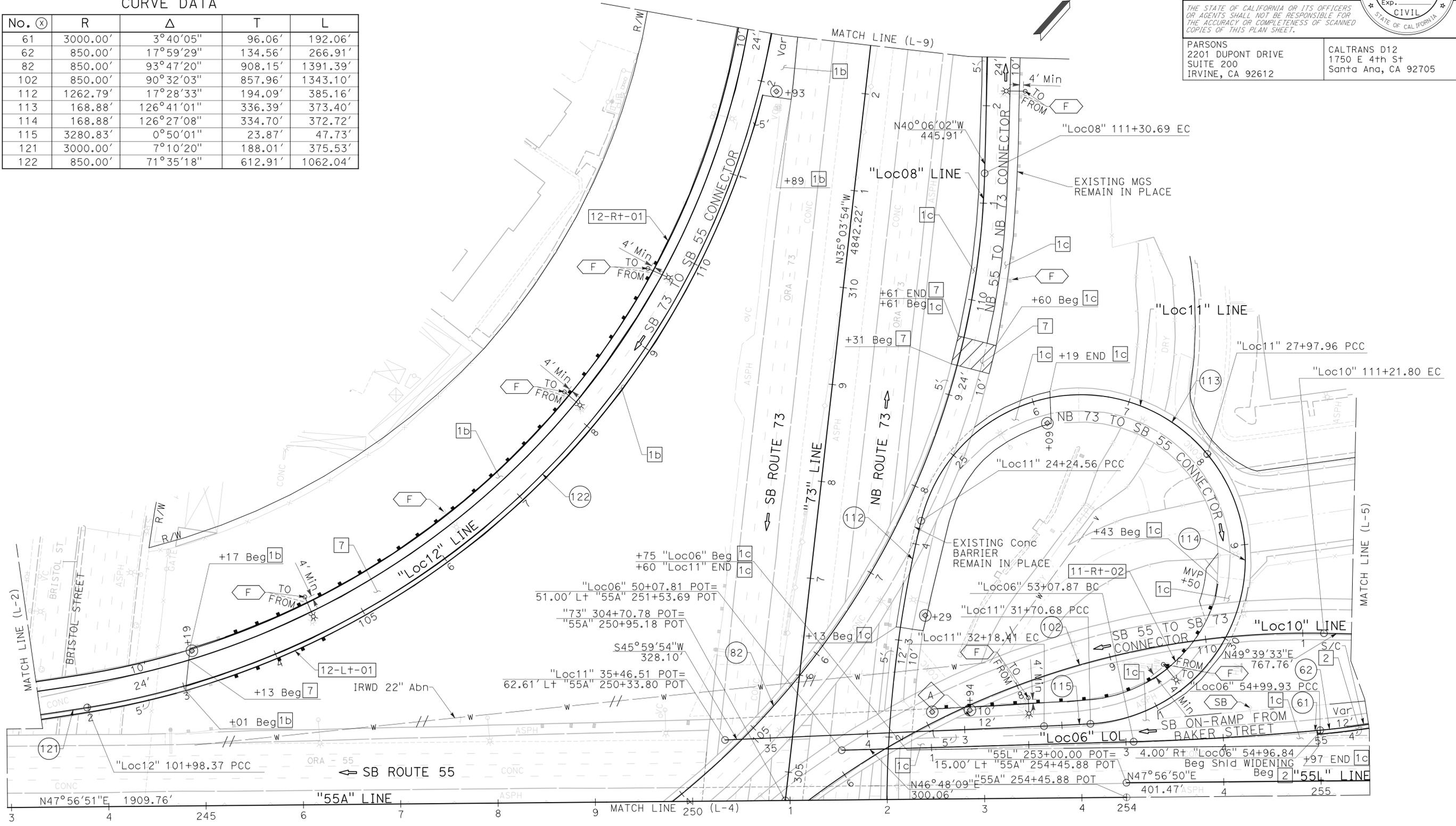
PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



CURVE DATA

No. (X)	R	Δ	T	L
61	3000.00'	3°40'05"	96.06'	192.06'
62	850.00'	17°59'29"	134.56'	266.91'
82	850.00'	93°47'20"	908.15'	1391.39'
102	850.00'	90°32'03"	857.96'	1343.10'
112	1262.79'	17°28'33"	194.09'	385.16'
113	168.88'	126°41'01"	336.39'	373.40'
114	168.88'	126°27'08"	334.70'	372.72'
115	3280.83'	0°50'01"	23.87'	47.73'
121	3000.00'	7°10'20"	188.01'	375.53'
122	850.00'	71°35'18"	612.91'	1062.04'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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 DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

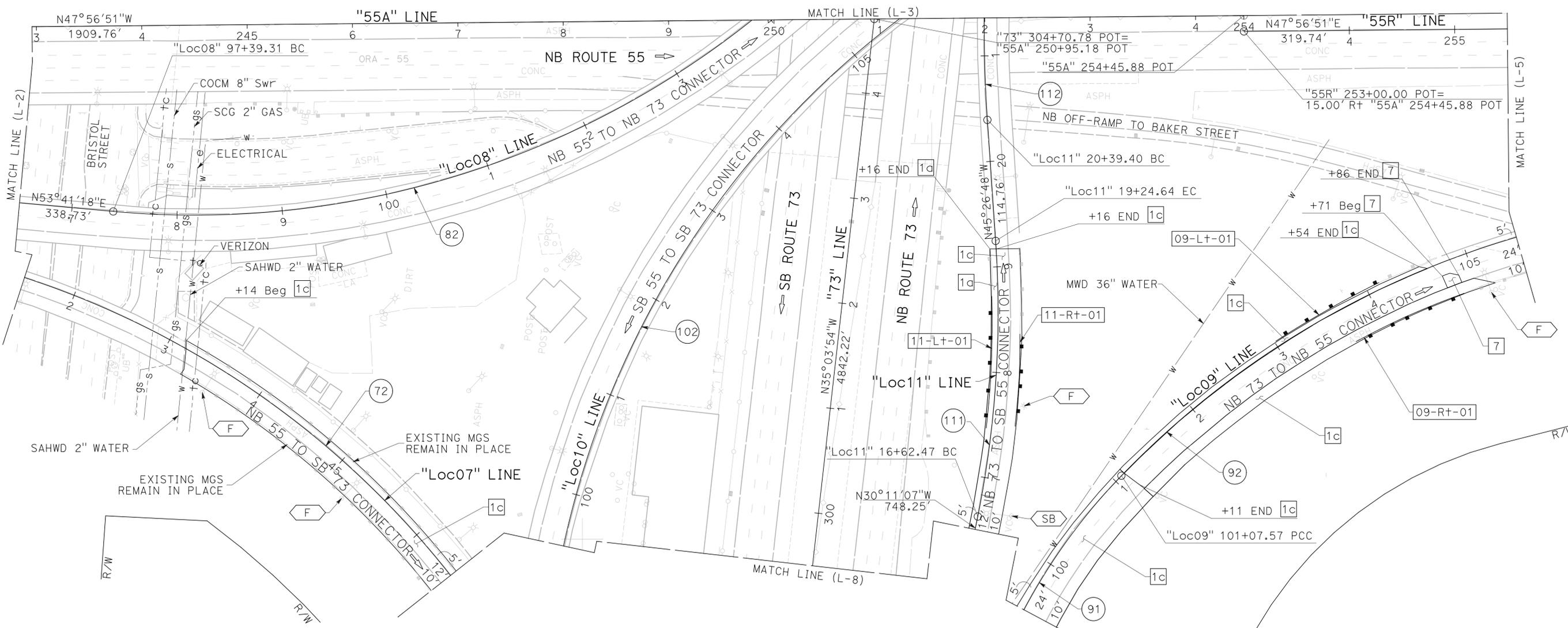
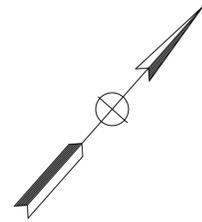
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.	
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
72	850.00'	77°37'16"	683.68'	1151.53'
82	850.00'	93°47'20"	908.15'	1391.39'
91	566.67'	34°43'15"	177.15'	343.40'
92	850.00'	31°54'27"	242.99'	473.36'
102	850.00'	90°32'03"	857.96'	1343.10'
111	984.25'	15°15'41"	131.86'	262.16'
112	1262.79'	17°28'33"	194.09'	385.16'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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 CHECKED BY
 REVISOR BY
 DATE REVISED

NOT FOR CONSTRUCTION

LAYOUT
SCALE: 1" = 50'

L-4

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NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
1	5189.90'	4°29'58"	203.88'	407.55'
2	4720.00'	5°11'18"	213.85'	427.42'
3	5000.00'	3°59'12"	174.02'	347.90'
4	4900.00'	3°17'52"	141.05'	282.03'
62	850.00'	17°59'29"	134.56'	266.91'
63	850.00'	15°29'03"	115.56'	229.71'
64	1600.00'	12°45'12"	178.81'	356.14'
65	850.00'	12°32'28"	93.40'	186.05'
92	850.00'	31°54'27"	242.99'	473.36'
93	3000.00'	3°55'07"	102.63'	205.17'
103	2000.00'	7°20'09"	128.21'	256.07'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIABLES		

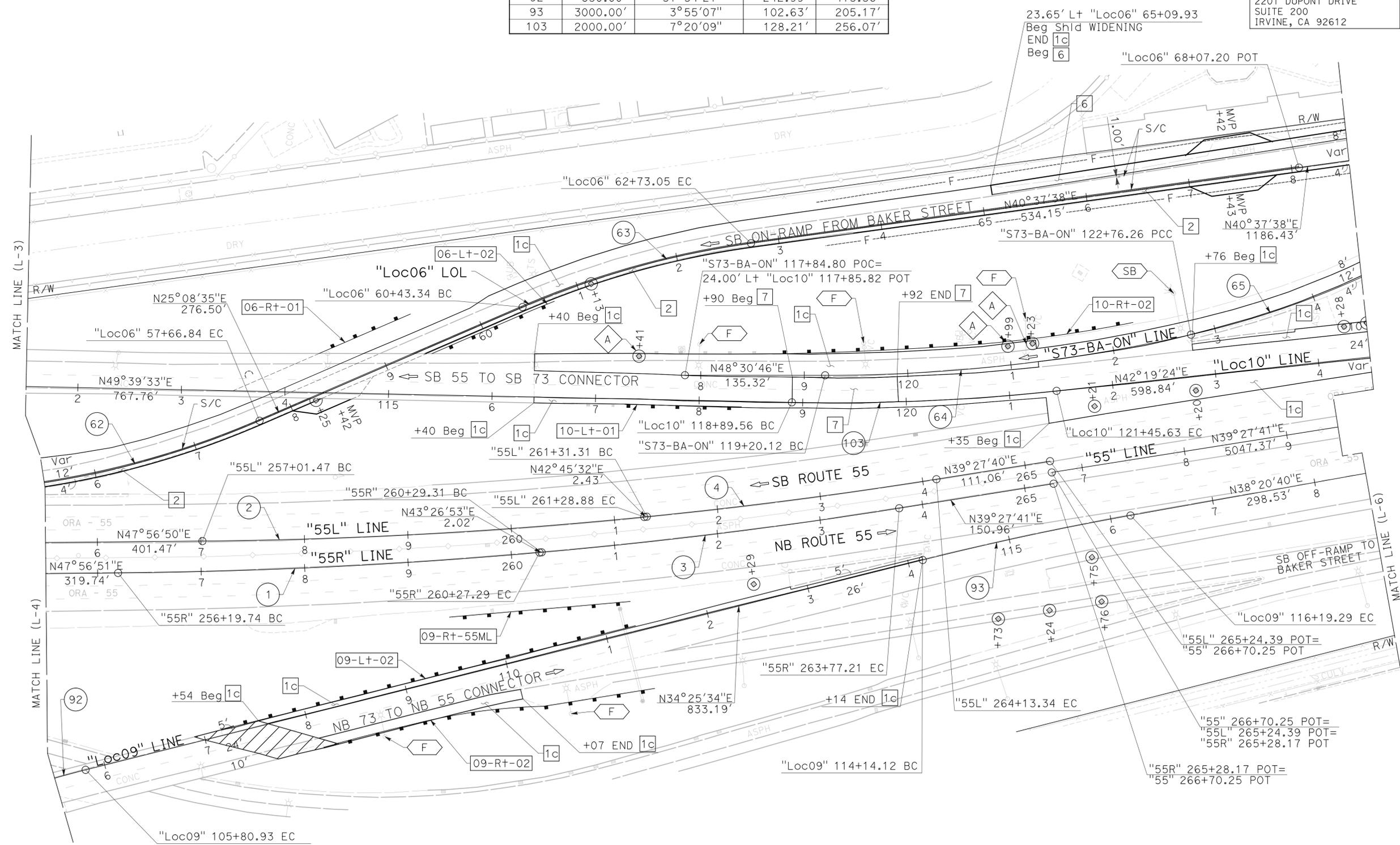
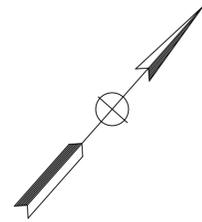
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



LAYOUT
SCALE: 1" = 50'

L-5

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

NOT FOR CONSTRUCTION

LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 3:39:00 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.

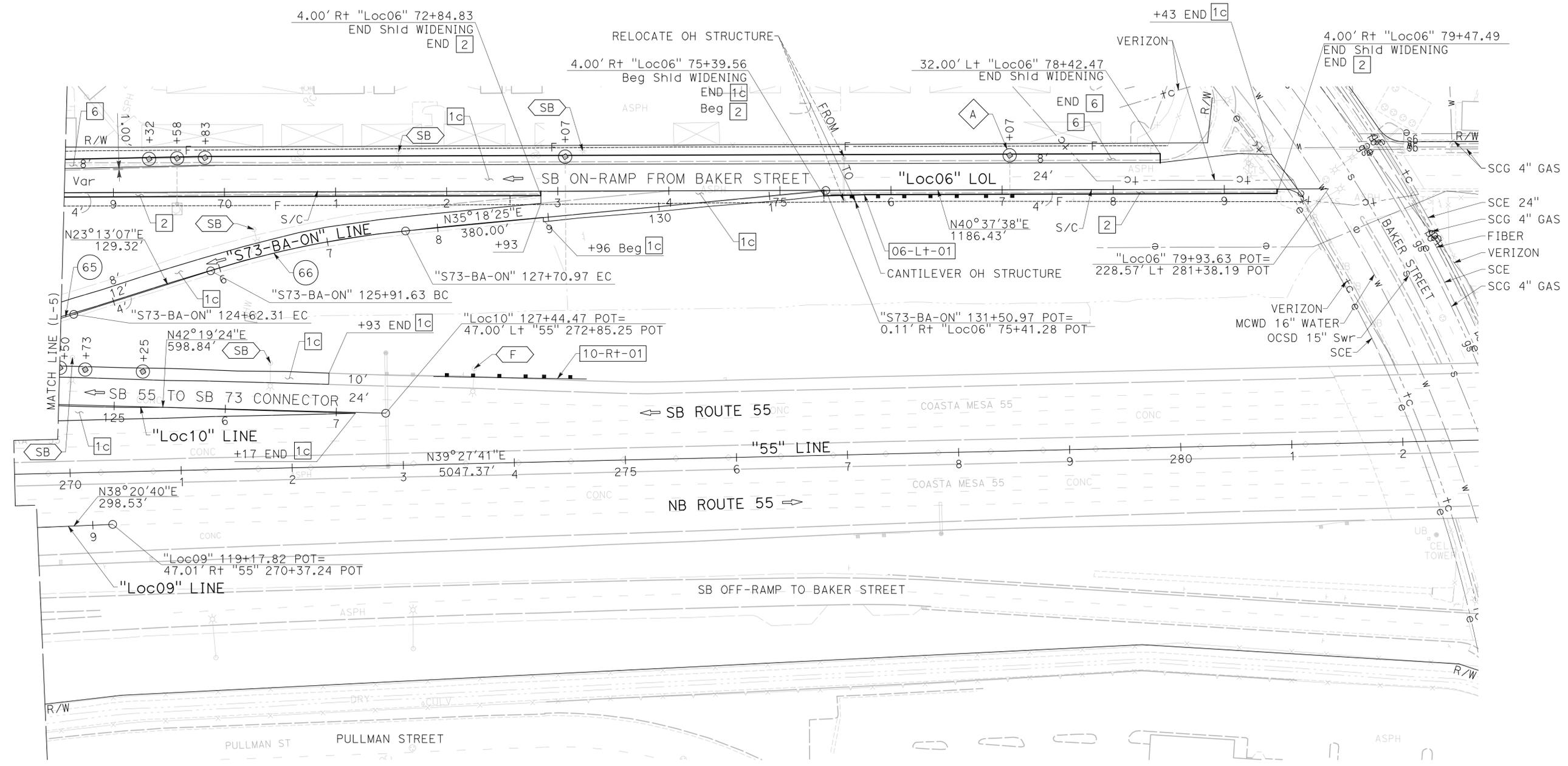
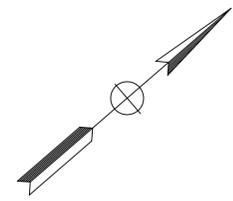
PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
65	850.00'	12°32'28"	93.40'	186.05'
66	850.00'	12°05'18"	90.00'	179.34'



LAYOUT
SCALE: 1" = 50'

L-6

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CALCULATED/DESIGNED BY
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CONSULTANT FUNCTIONAL SUPERVISOR

USERNAME => p0027520
DGN FILE => 1218000117ea006.dgn

RELATIVE BORDER SCALE 1" = 10" INCHES

UNIT 2994

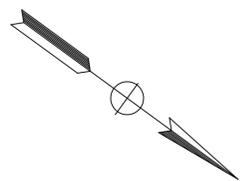
PROJECT NUMBER & PHASE

12180001171

NOT FOR CONSTRUCTION

LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 3:39:26 PM

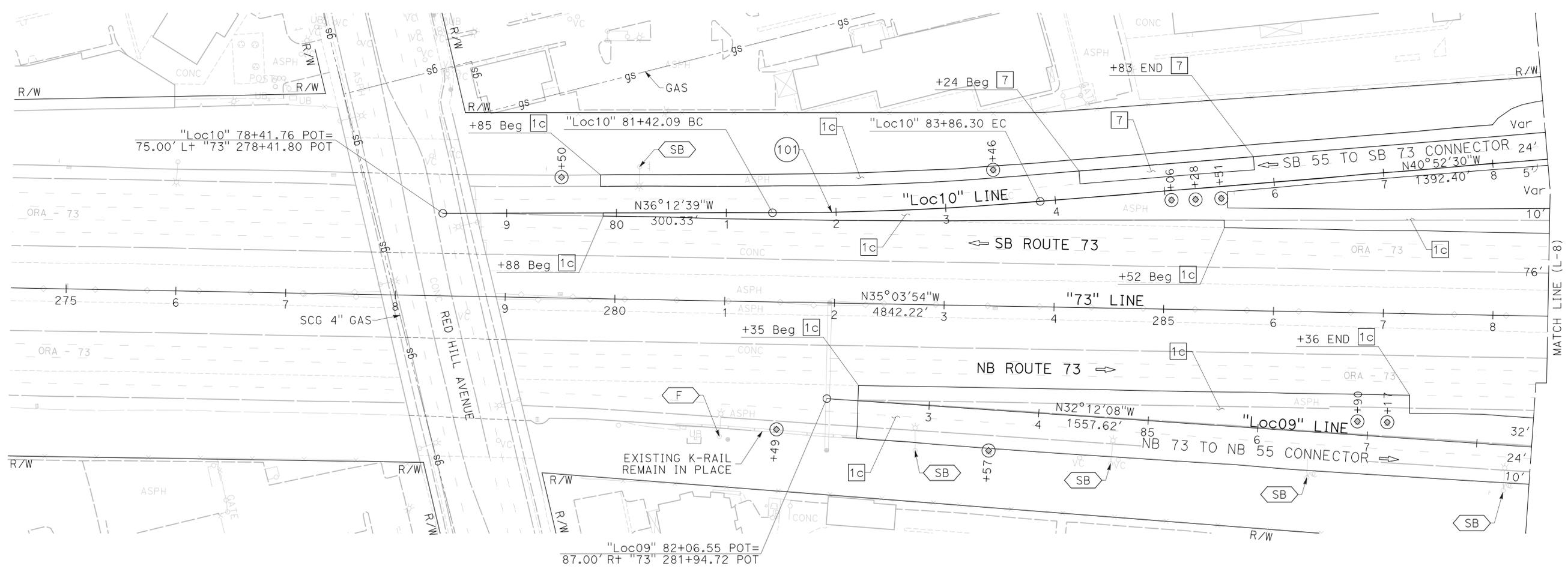
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



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

CURVE DATA

No. (X)	R	Δ	T	L
101	3000.00'	4°39'51"	122.17'	244.21'



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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:39:50 PM

LAYOUT
SCALE: 1" = 50'

L-7

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NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

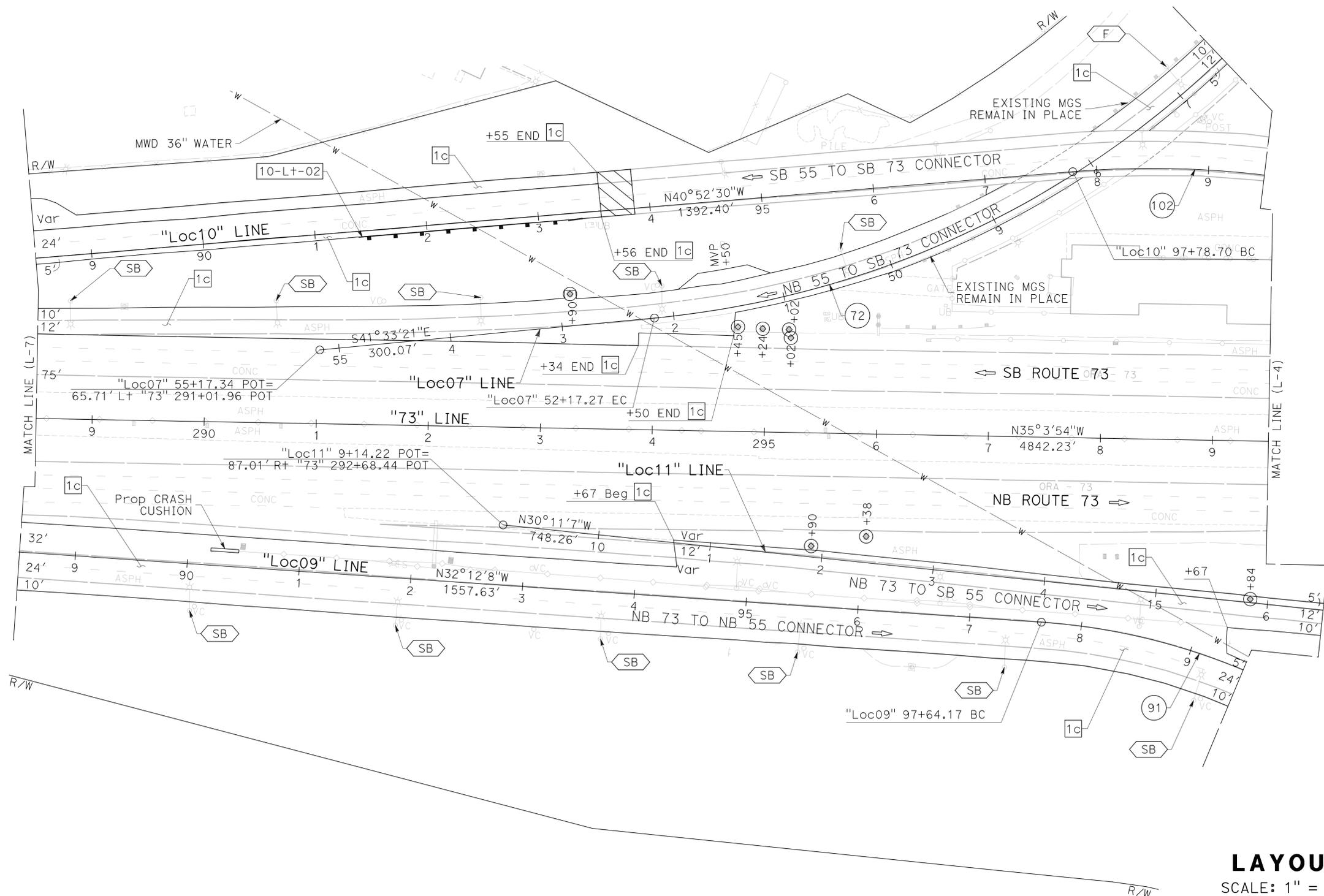
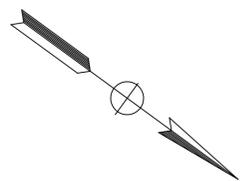
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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

CURVE DATA

No. (X)	R	Δ	T	L
72	850.00'	77°37'16"	683.68'	1151.53'
91	566.67'	34°43'15"	177.15'	343.40'
102	850.00'	90°32'03"	857.96'	1343.10'



LAYOUT
SCALE: 1" = 50'

L-8

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISOR: []

DESIGNER: []

CHECKER: []

DATE: []

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NOTE:

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

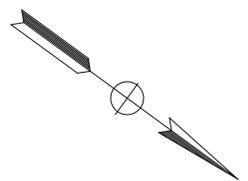
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

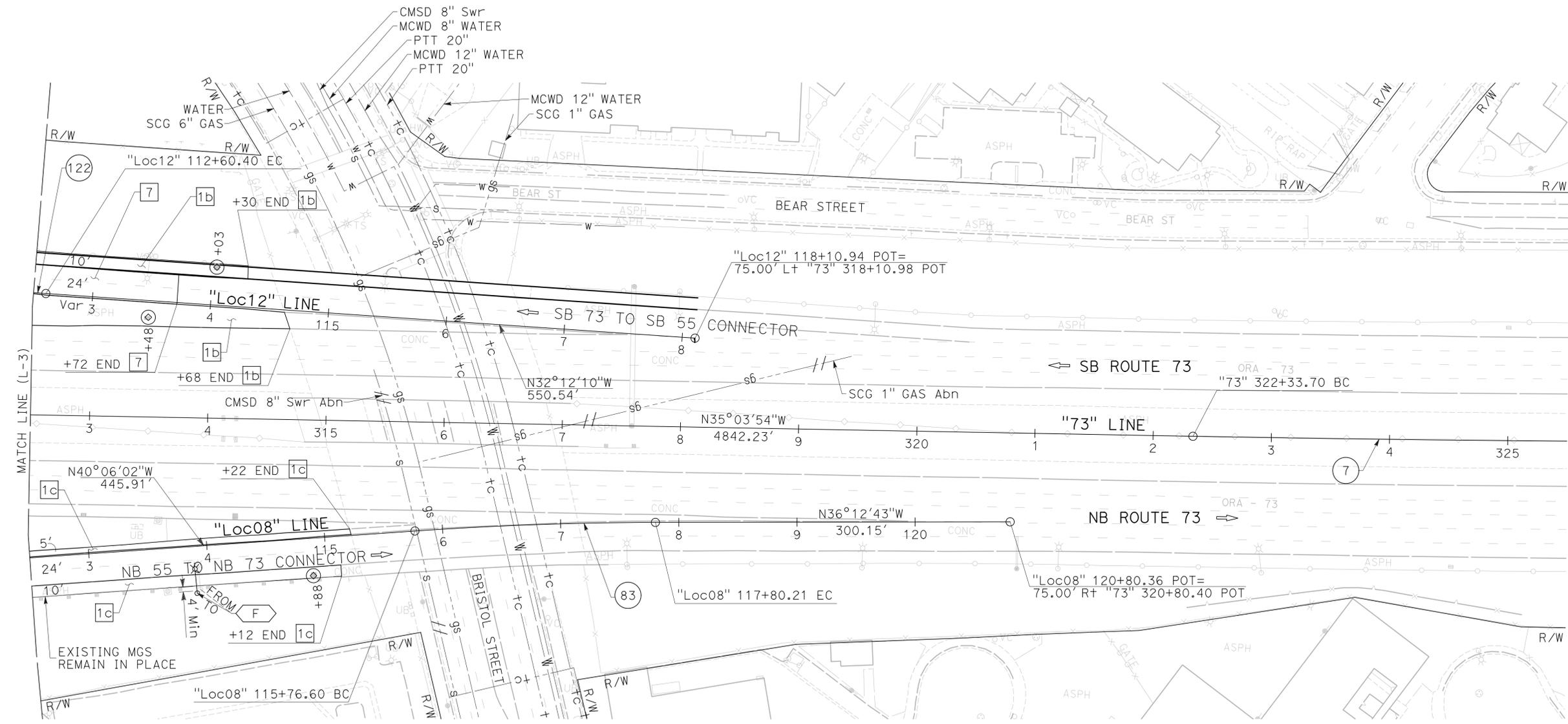
PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



CURVE DATA

No. (X)	R	Δ	T	L
7	30000.00'	1°08'05"	297.06'	594.10'
83	3000.00'	3°53'19"	101.84'	203.61'
122	850.00'	71°35'18"	612.91'	1062.04'



REVISIONS: REVISED BY, DATE REVISED, CALCULATED/DESIGNED BY, CHECKED BY, CONSULTANT FUNCTIONAL SUPERVISOR, DEPARTMENT OF TRANSPORTATION, STATE OF CALIFORNIA, Caltrans

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LAST REVISION: DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:40:40 PM

LAYOUT
SCALE: 1" = 50'

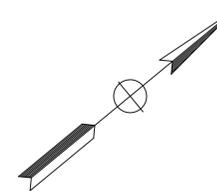
L-9

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

CURVE DATA

No. (X)	R	Δ	T	L
21	1000.00'	16°55'10"	148.73'	295.30'
55	1000.00'	14°00'33"	122.87'	244.51'
56	3000.00'	3°11'29"	83.57'	167.10'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE

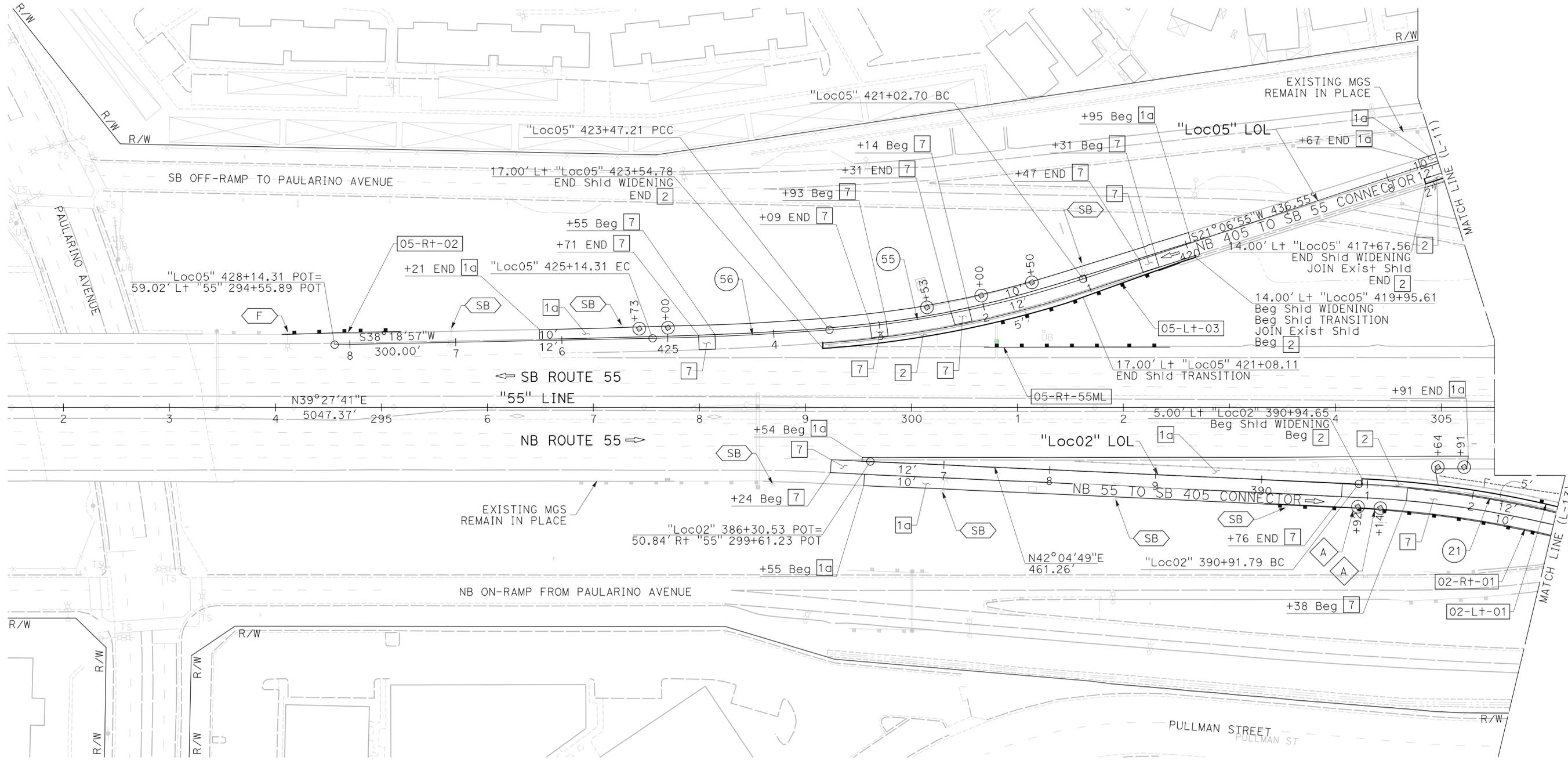
PLANS APPROVAL DATE

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

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

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Caltrans



LAYOUT
SCALE: 1" = 50'

L-10

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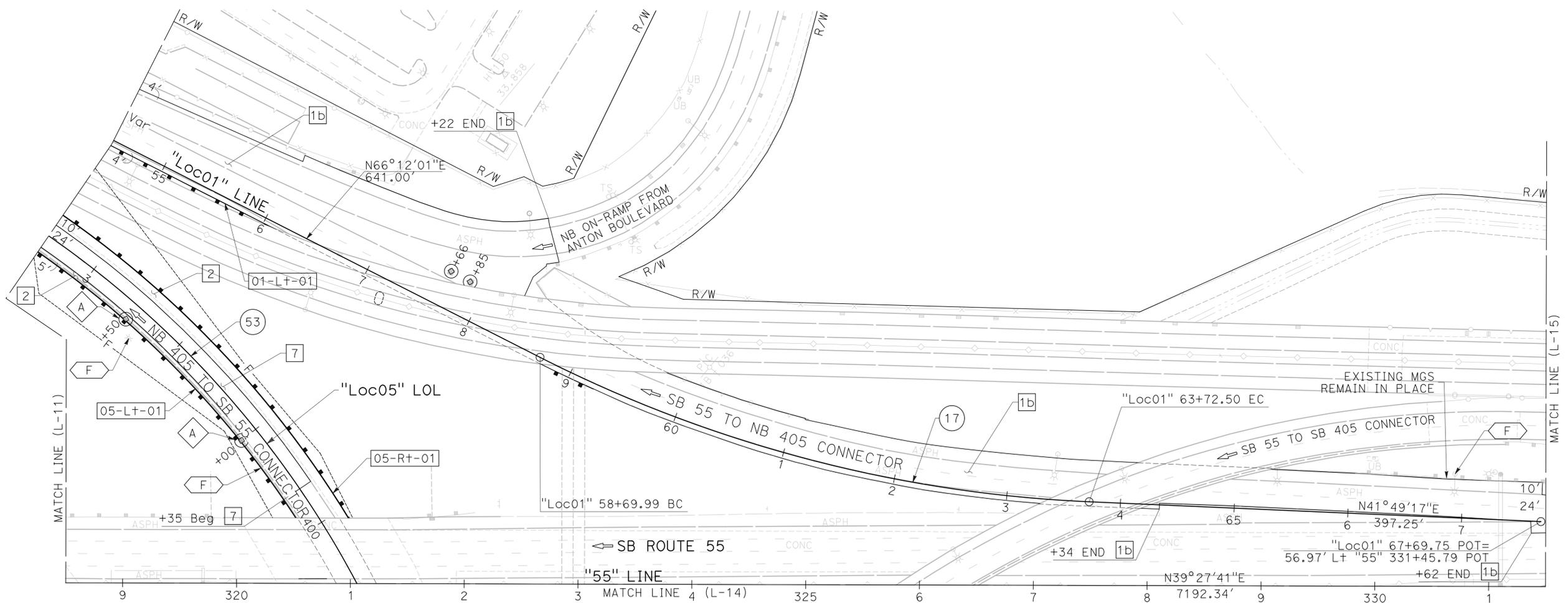
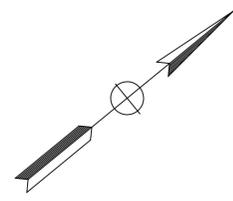
LAST REVISION DATE PLOTTED => 7/14/2020 03-19-20 TIME PLOTTED => 3:41:06 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		

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

CURVE DATA

No. (X)	R	Δ	T	L
17	1181.00'	24°22'44"	255.11'	502.51'
53	862.00'	84°30'02"	782.99'	1271.29'



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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:41:57 PM

LAYOUT
SCALE: 1" = 50'

L-12

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

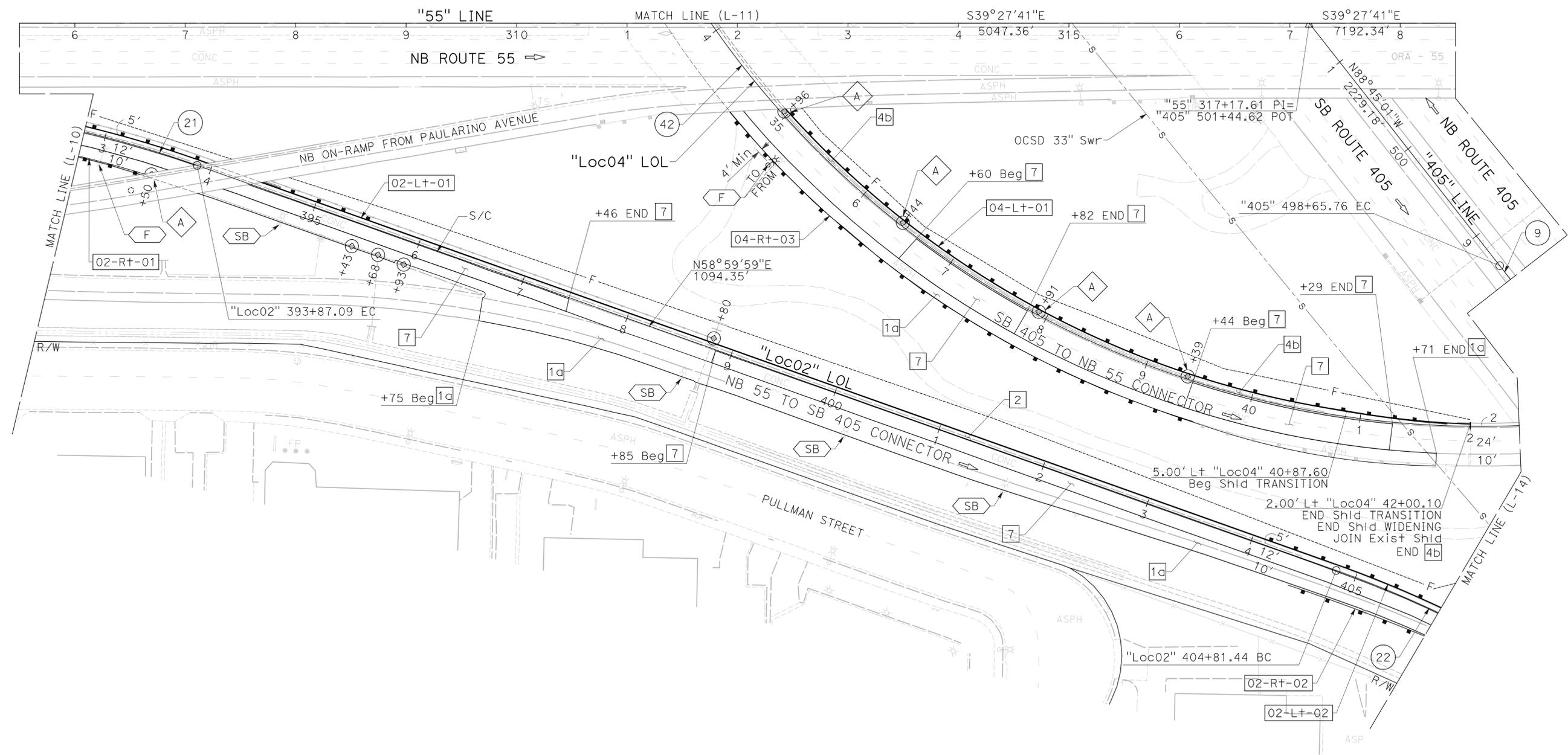
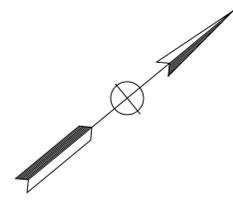
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.	
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
9	5000.00'	27°33'05"	1225.87'	2404.31'
21	1000.00'	16°55'10"	148.73'	295.30'
22	1000.00'	27°44'02"	246.86'	484.05'
42	848.88'	103°03'35"	1068.33'	1526.91'



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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:42:22 PM

LAYOUT
 SCALE: 1" = 50'

L-13

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NOTE:

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

CURVE DATA

No. ⓧ	R	Δ	T	L
9	5000.00'	27°33'05"	1225.87'	2404.31'
22	1000.00'	27°44'02"	246.86'	484.05'
34	785.78'	49°26'57"	361.83'	678.17'
42	848.88'	103°03'35"	1068.33'	1526.91'
43	808.82'	21°38'49"	154.63'	305.58'
44	3280.84'	2°51'52"	82.03'	164.02'
45	17554.25'	1°04'17"	164.13'	328.25'
52	5000.00'	2°52'44"	125.65'	251.24'
53	862.00'	84°30'02"	782.99'	1271.29'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

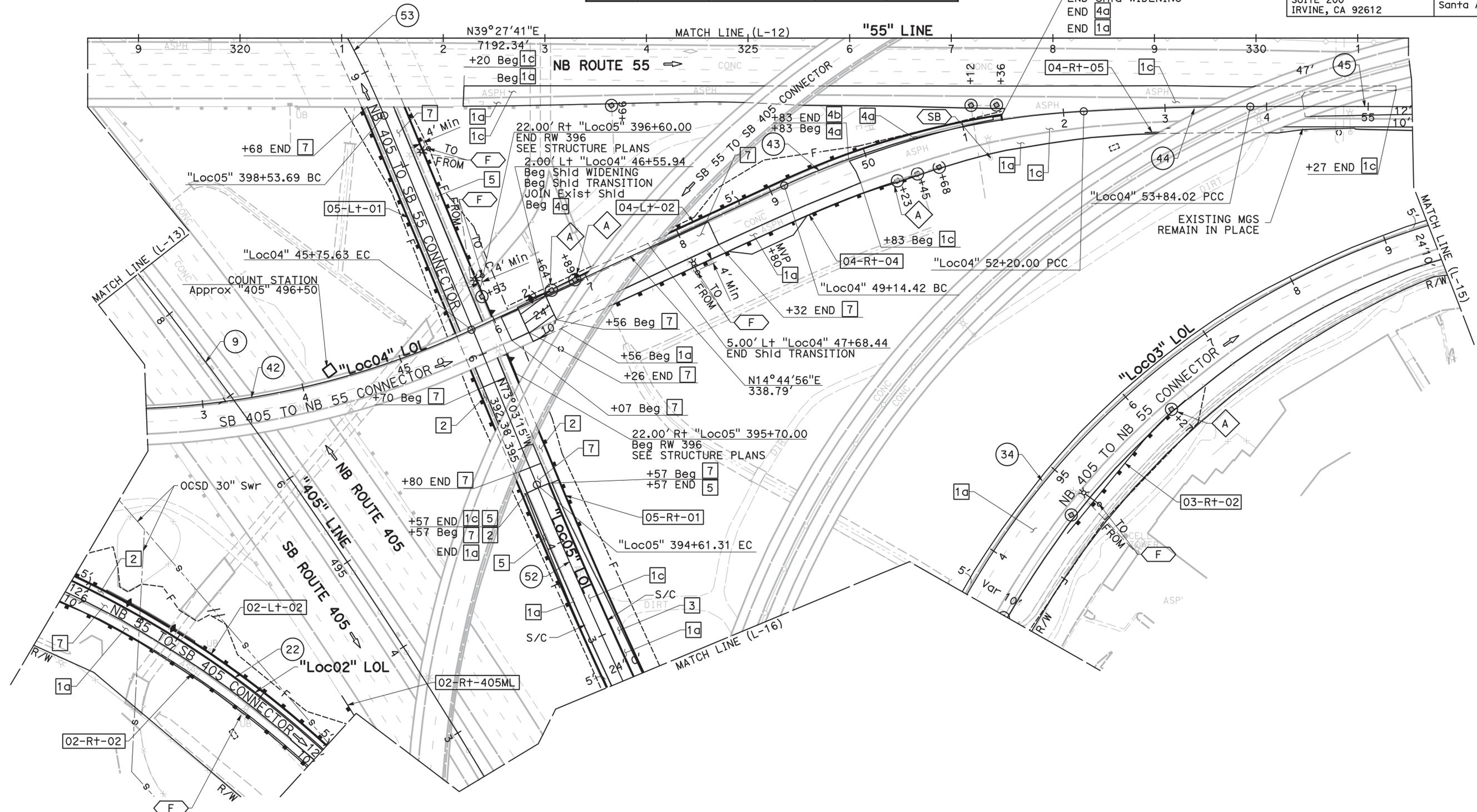
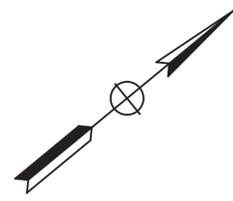
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



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LAST REVISION DATE PLOTTED => 8/5/2020
03-19-20 TIME PLOTTED => 8:23:04 AM

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LAYOUT
SCALE: 1" = 50'
L-14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.

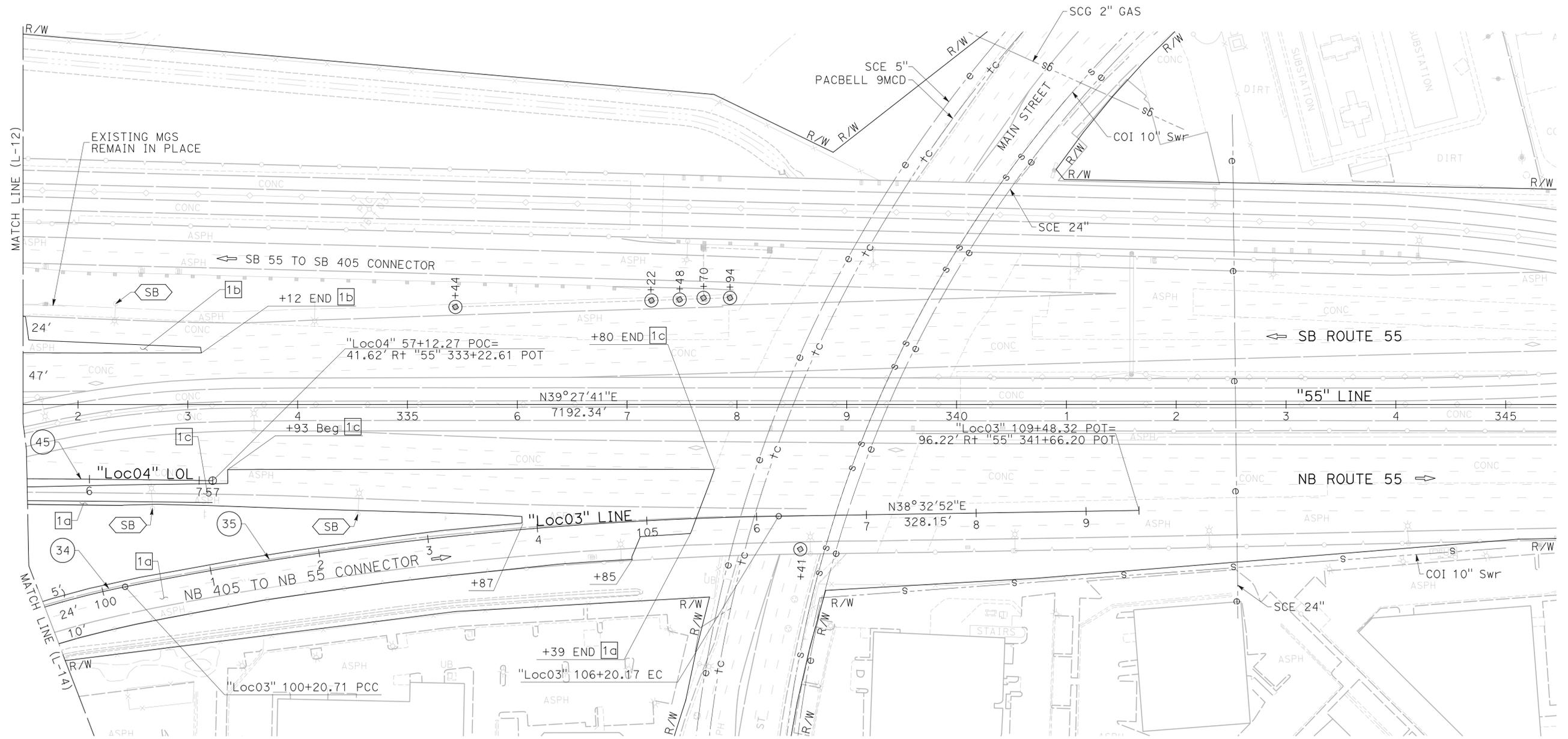
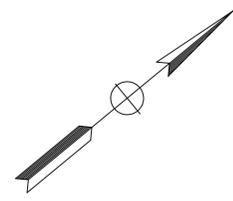
PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
34	785.78'	49°26'57"	361.83'	678.17'
35	3280.84'	10°28'08"	300.57'	599.46'
45	17554.25'	1°04'17"	164.13'	328.25'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 3:43:14 PM

LAYOUT
SCALE: 1" = 50'

L-15

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.

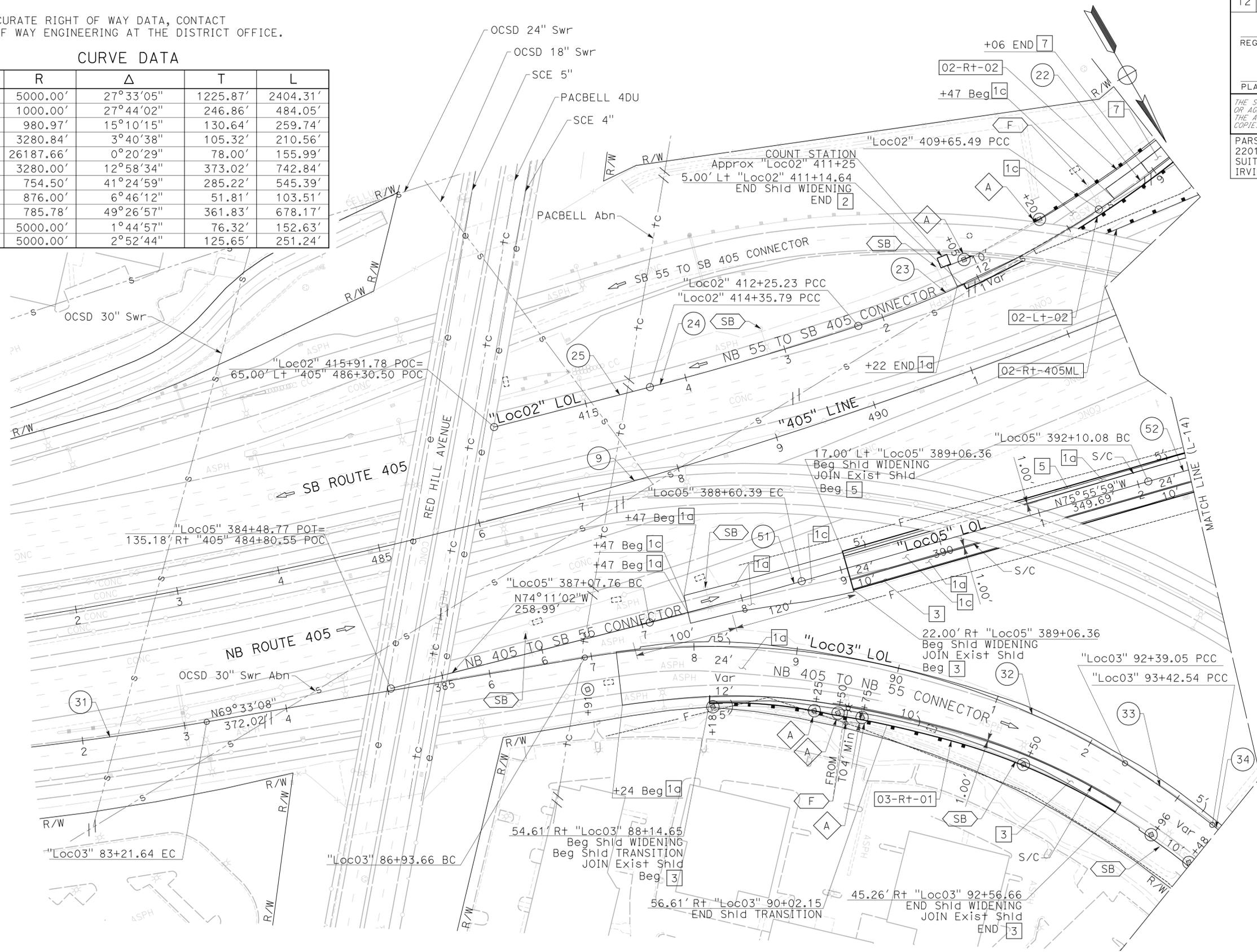
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
9	5000.00'	27°33'05"	1225.87'	2404.31'
22	1000.00'	27°44'02"	246.86'	484.05'
23	980.97'	15°10'15"	130.64'	259.74'
24	3280.84'	3°40'38"	105.32'	210.56'
25	26187.66'	0°20'29"	78.00'	155.99'
31	3280.00'	12°58'34"	373.02'	742.84'
32	754.50'	41°24'59"	285.22'	545.39'
33	876.00'	6°46'12"	51.81'	103.51'
34	785.78'	49°26'57"	361.83'	678.17'
51	5000.00'	1°44'57"	76.32'	152.63'
52	5000.00'	2°52'44"	125.65'	251.24'



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LAYOUT
 SCALE: 1" = 50'

L-16

LAST REVISION: DATE PLOTTED => 7/29/2020 03-19-20 TIME PLOTTED => 5:33:42 PM

NOT FOR CONSTRUCTION

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
14	3609.00'	5°04'01"	159.68'	319.16'
15	4265.00'	7°48'18"	290.95'	580.99'
16	1640.50'	20°15'58"	293.19'	580.26'
41	987.53'	24°13'48"	211.98'	417.62'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

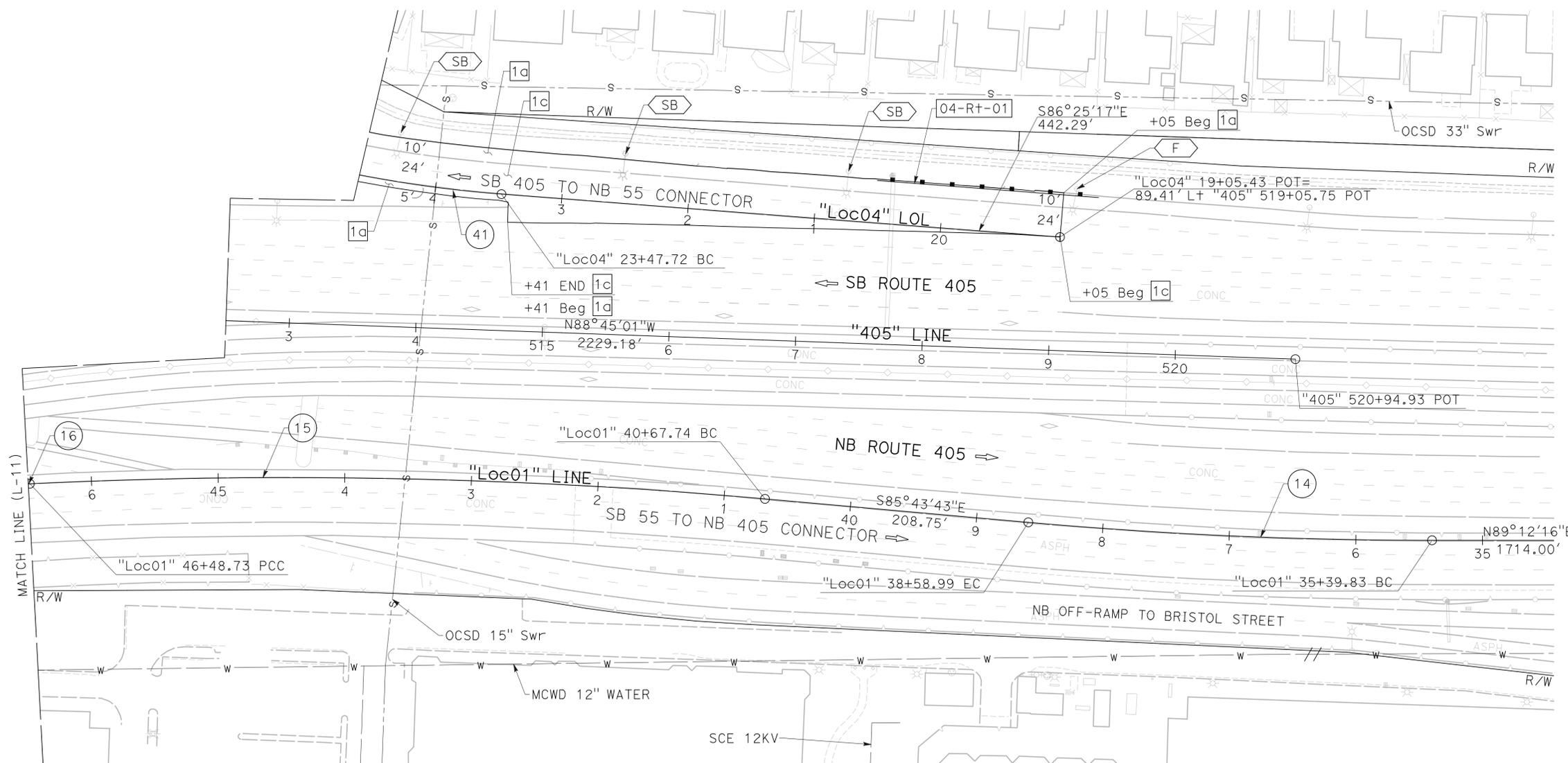
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAYOUT
SCALE: 1" = 50'

L-17

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LAST REVISION DATE PLOTTED => 7/14/2020 03-19-20 TIME PLOTTED => 3:44:14 PM

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
5	4000.00'	16°30'03"	580.00'	1151.98'
161	956.00'	9°08'21"	76.41'	152.49'
162	810.00'	9°52'29"	69.97'	139.60'
163	3800.00'	10°45'12"	357.64'	713.19'
171	699.00'	58°50'30"	394.20'	717.86'
172	650.00'	17°33'17"	100.36'	199.15'
173	700.00'	11°59'23"	73.51'	146.48'
174	700.00'	11°40'40"	71.58'	142.67'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE

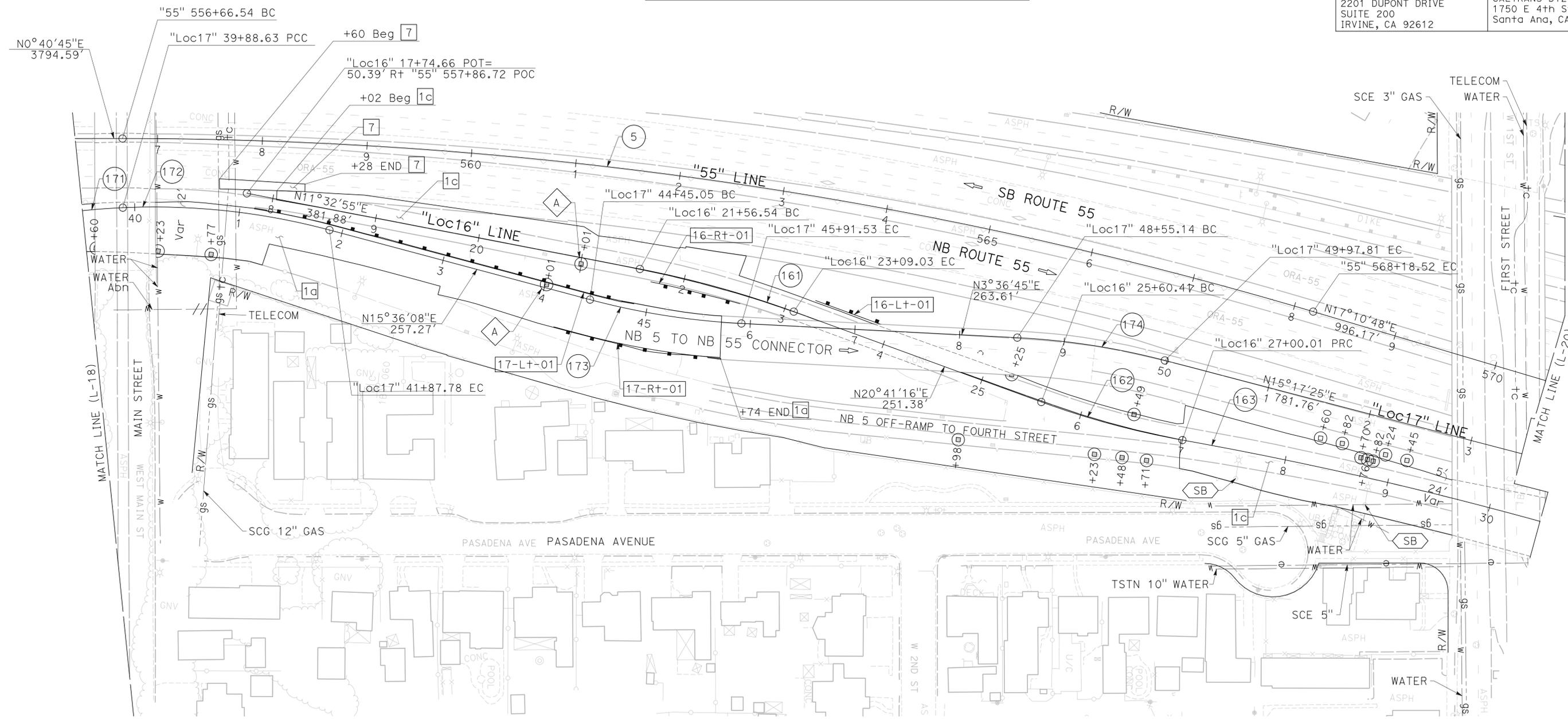
PLANS APPROVAL DATE

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

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

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LAYOUT
SCALE: 1" = 50'

L-19

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LAST REVISION DATE PLOTTED => 7/14/2020 03-19-20 TIME PLOTTED => 3:45:04 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
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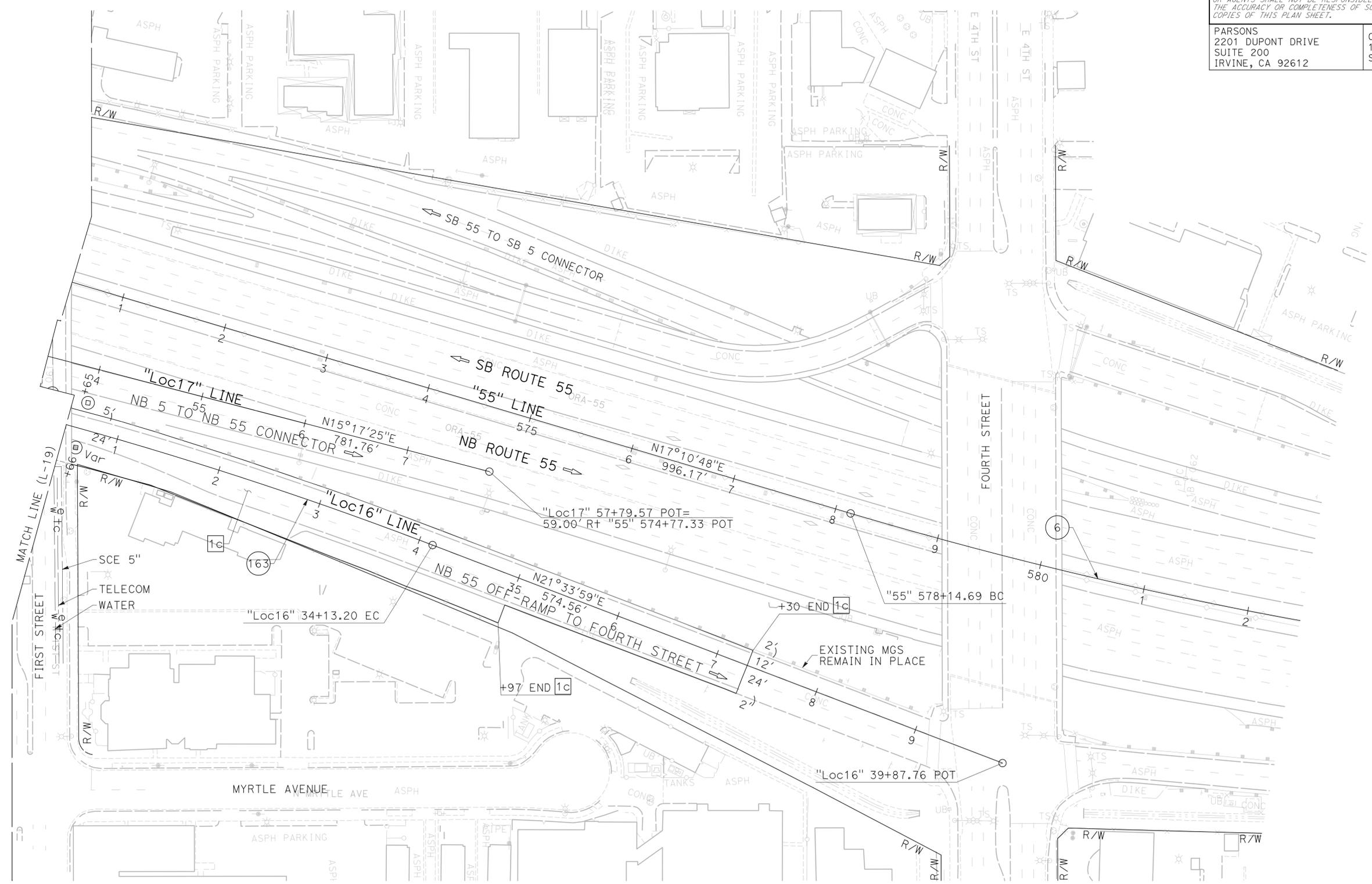
PARSONS
 2201 DUPONT DRIVE
 SUITE 200
 IRVINE, CA 92612

CALTRANS D12
 1750 E 4th St
 Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
6	4000.00'	12°15'38"	429.61'	855.95'
163	3800.00'	10°45'12"	357.64'	713.19'



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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:46:30 PM

LAYOUT
 SCALE: 1" = 50'

L-20

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

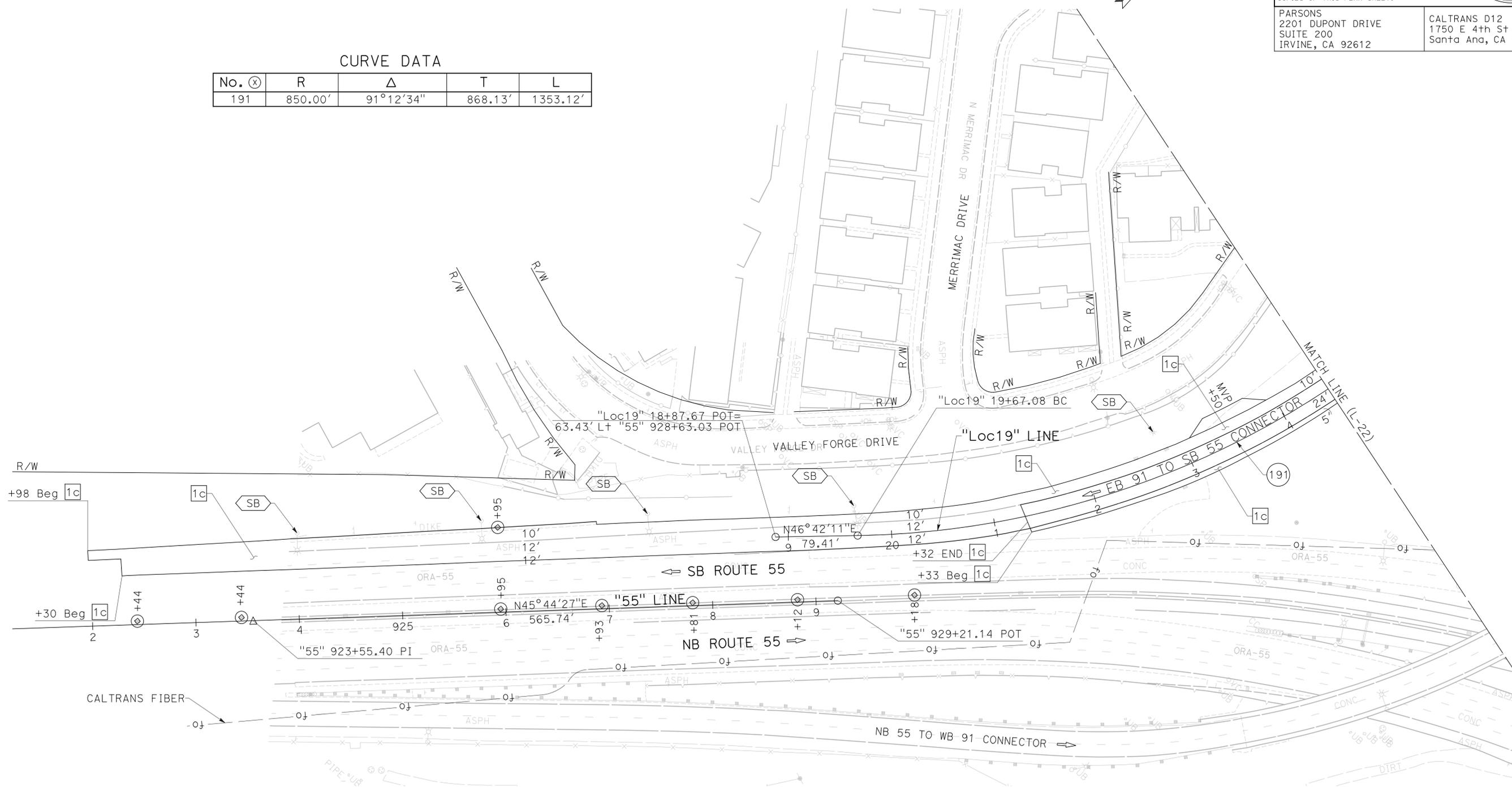
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PARSONS
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SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

CURVE DATA

No. (X)	R	Δ	T	L
191	850.00'	91°12'34"	868.13'	1353.12'



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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:45:59 PM

LAYOUT
SCALE: 1" = 50'

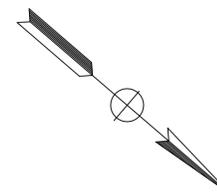
L-21

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

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

CURVE DATA

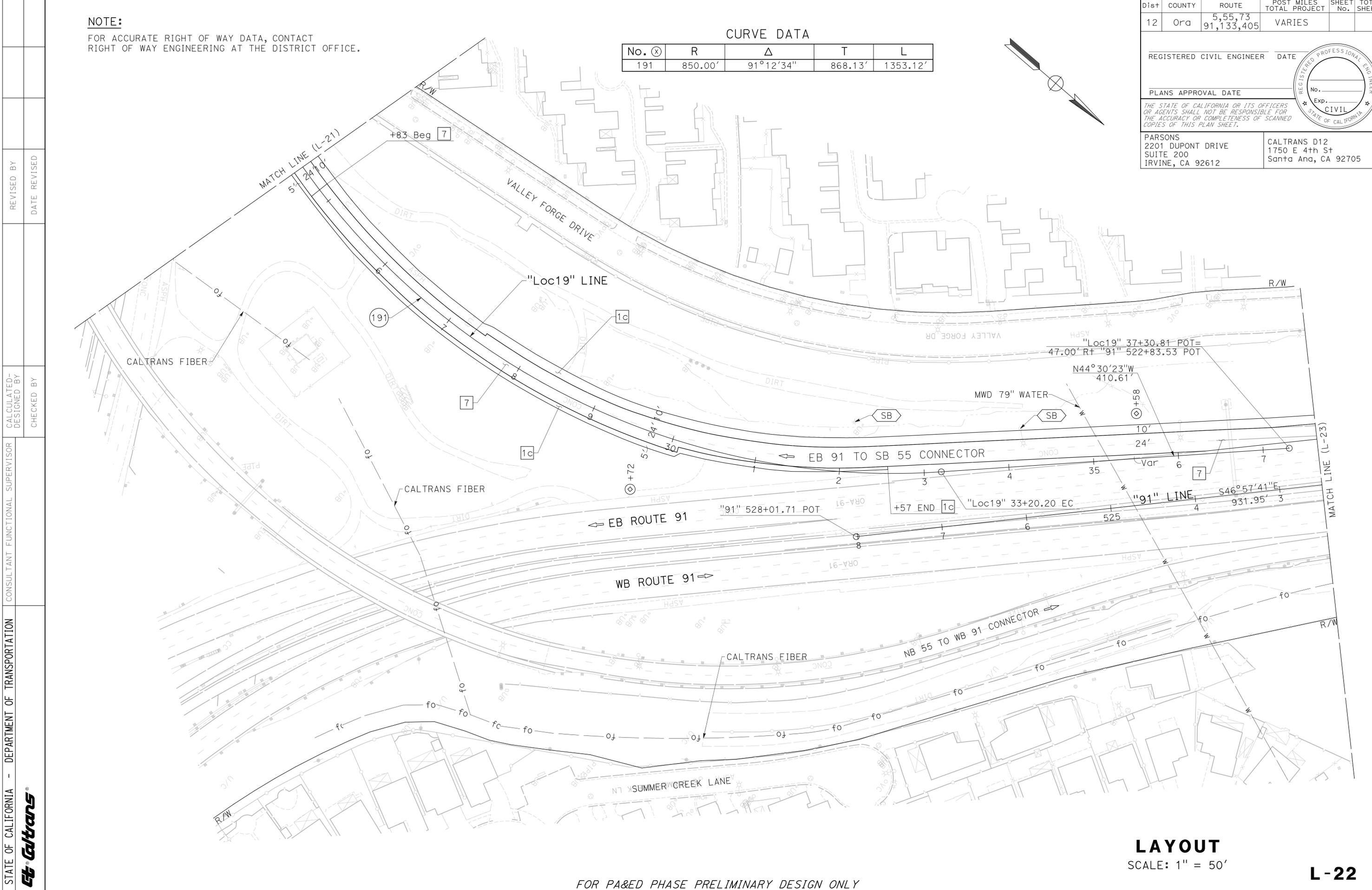
No. (X)	R	Δ	T	L
191	850.00'	91°12'34"	868.13'	1353.12'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER DATE _____
PLANS APPROVAL DATE _____
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612
CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705



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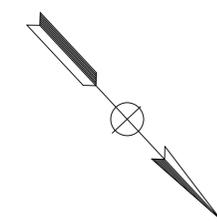
LAYOUT
SCALE: 1" = 50'

L-22

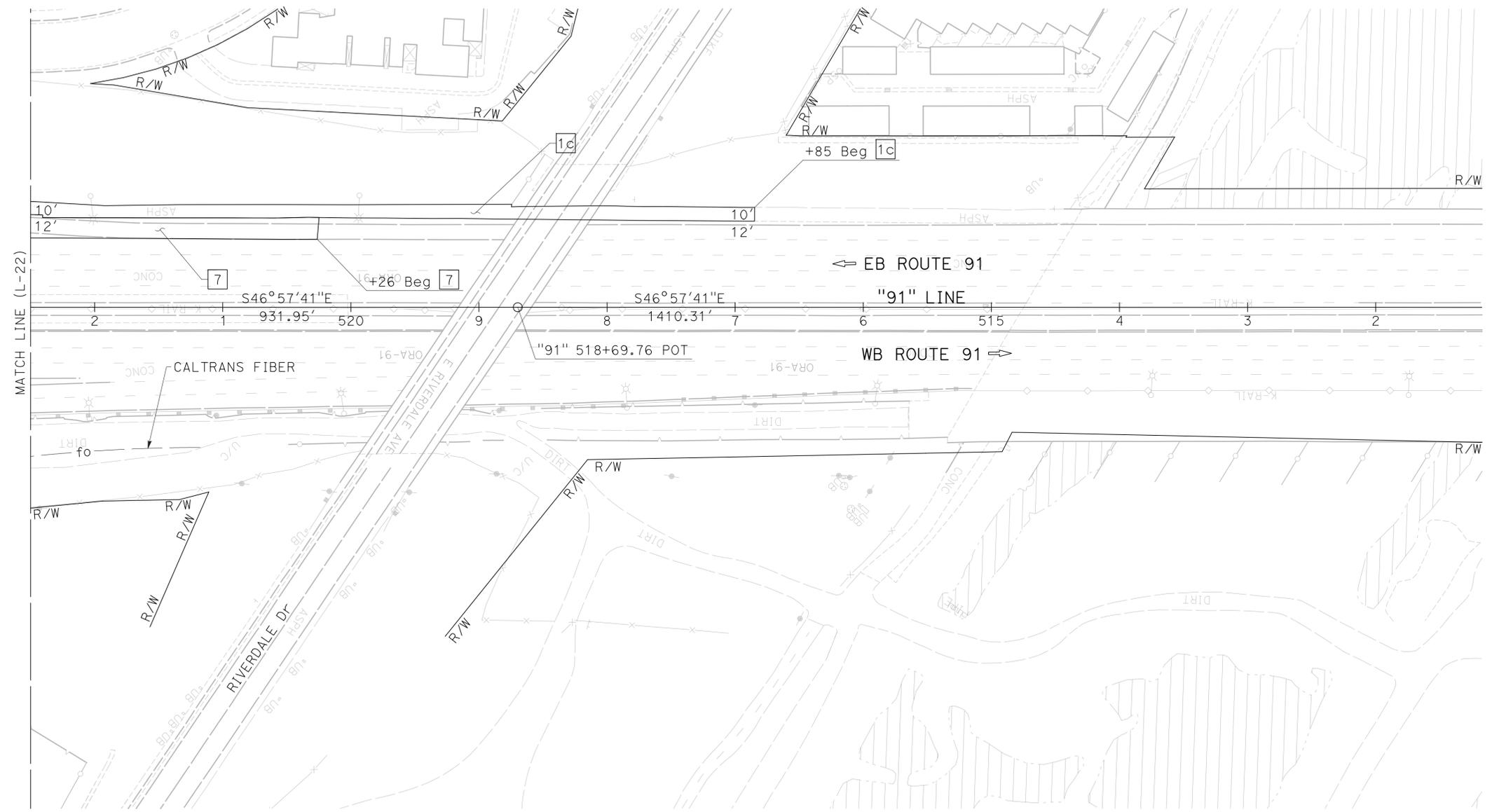
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LAST REVISION DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:46:24 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



NOTE:
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 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



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LAYOUT
 SCALE: 1" = 50'

L-23

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.

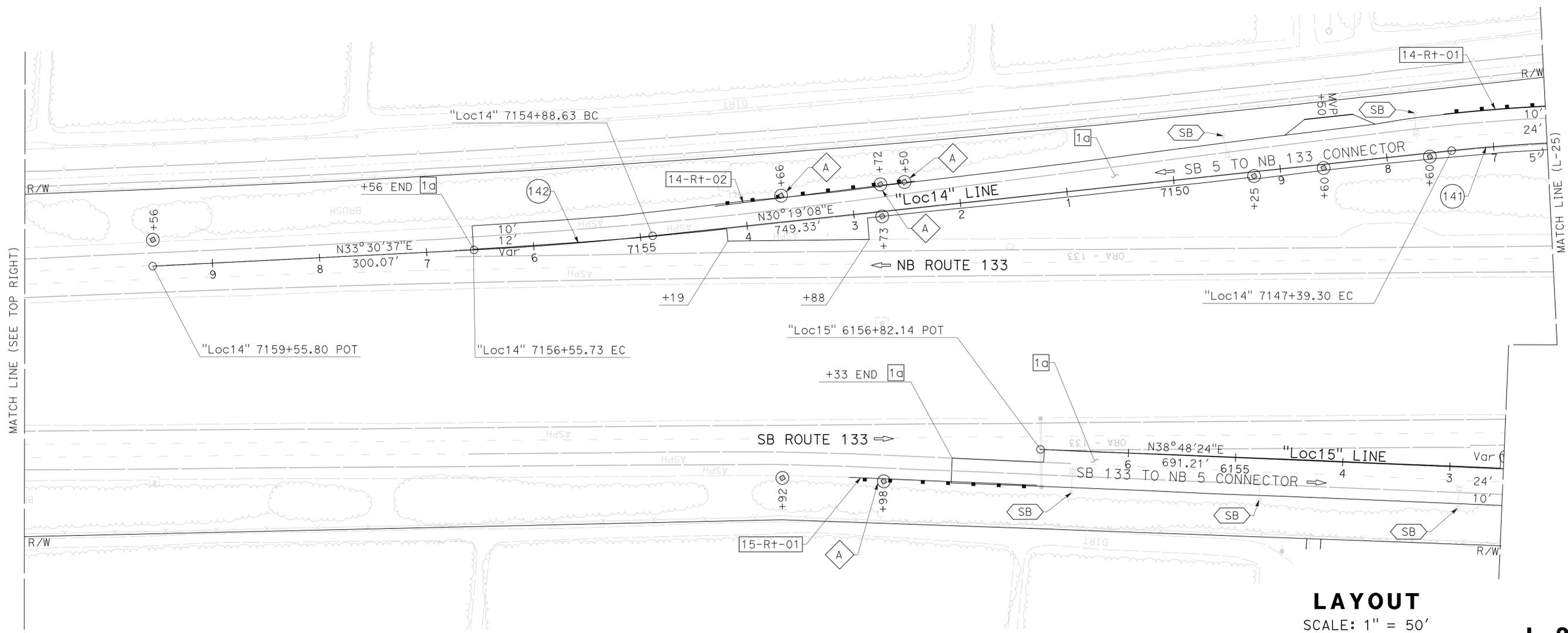
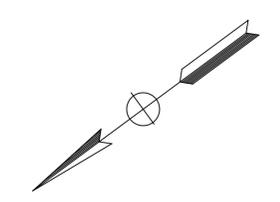
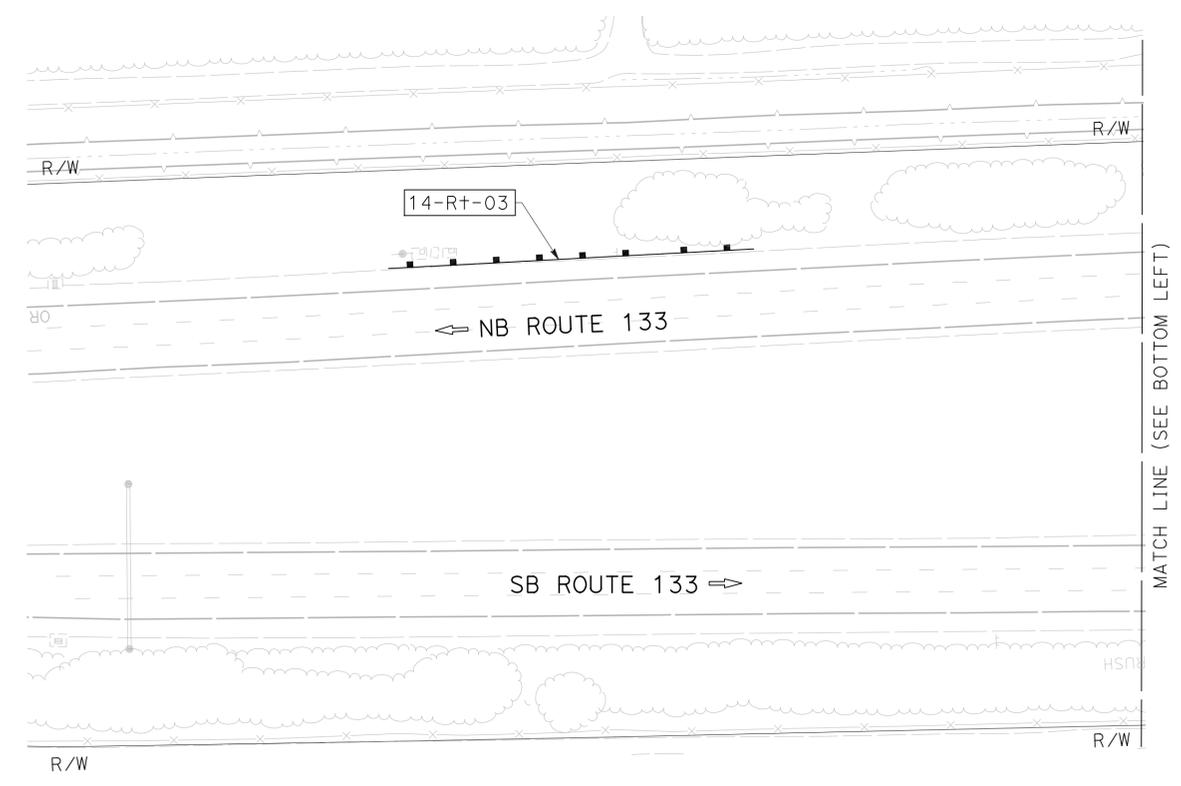
PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

CALTRANS D12
1750 E 4th St
Santa Ana, CA 92705

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

CURVE DATA

No. (X)	R	Δ	T	L
141	1600.00'	110°20'21"	2299.49'	3081.25'
142	3000.00'	3°11'29"	83.57'	167.10'



LAYOUT
SCALE: 1" = 50'

L-24

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

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Caltrans

USERNAME => p002752D
DGN FILE => 1218000117ea024.dgn

RELATIVE BORDER SCALE
15" IN INCHES

UNIT 2994

PROJECT NUMBER & PHASE

12180001171

NOT FOR CONSTRUCTION

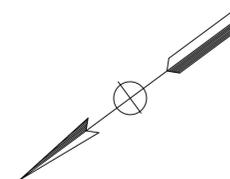
LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 3:47:14 PM

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
141	1600.00'	110°20'21"	2299.49'	3081.25'
154	1100.00'	95°46'43"	1216.94'	1838.82'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

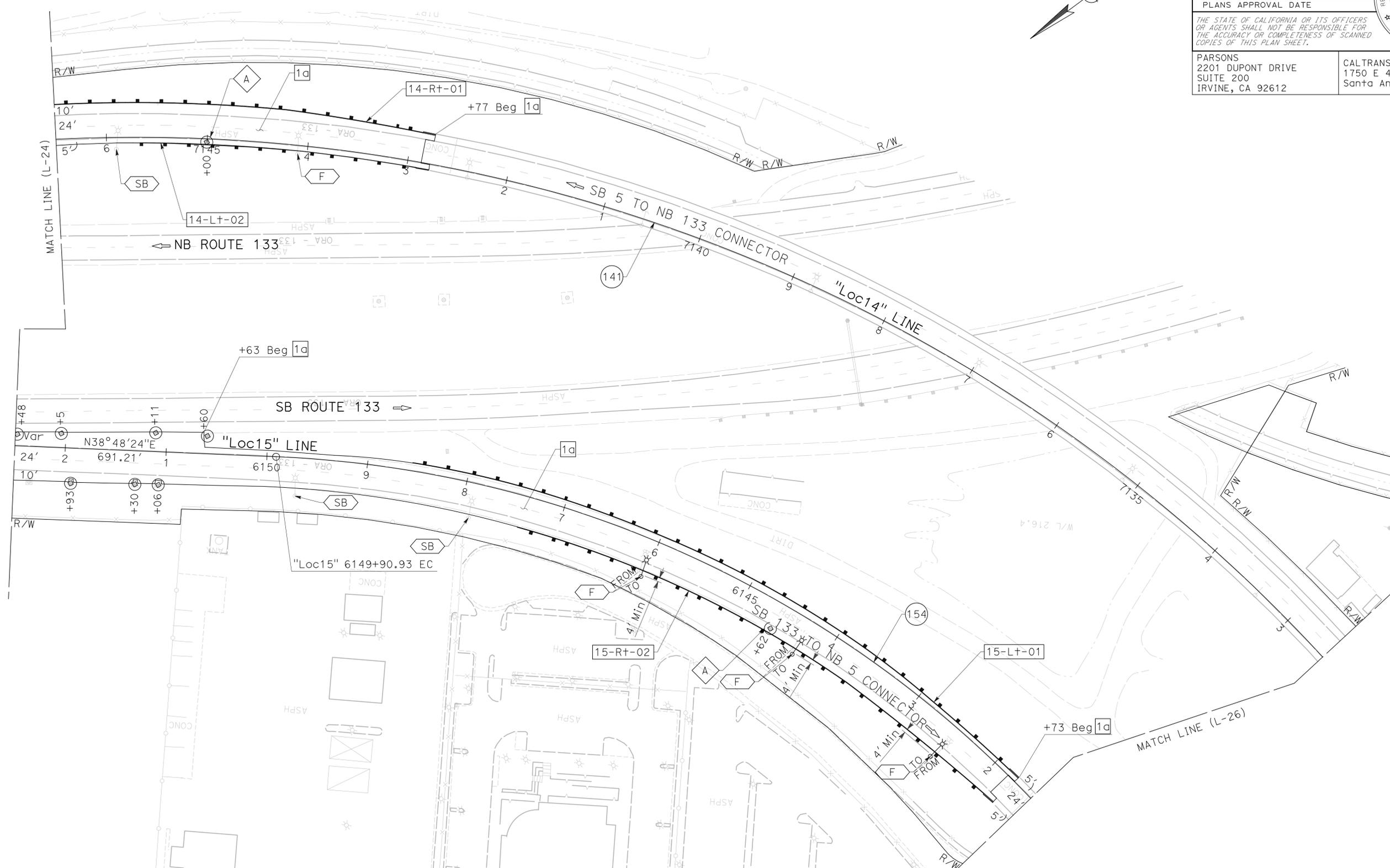
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

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1750 E 4th St
Santa Ana, CA 92705



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 DATE REVISED

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LAYOUT
SCALE: 1" = 50'

L-25

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 3:47:36 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.	
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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--

CURVE DATA

No. (X)	R	Δ	T	L
10	3142.00'	33°42'00"	951.62'	1848.05'
141	1600.00'	110°20'21"	2299.49'	3081.25'
154	1100.00'	95°46'43"	1216.94'	1838.82'

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



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LAST REVISION DATE PLOTTED => 7/14/2020
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

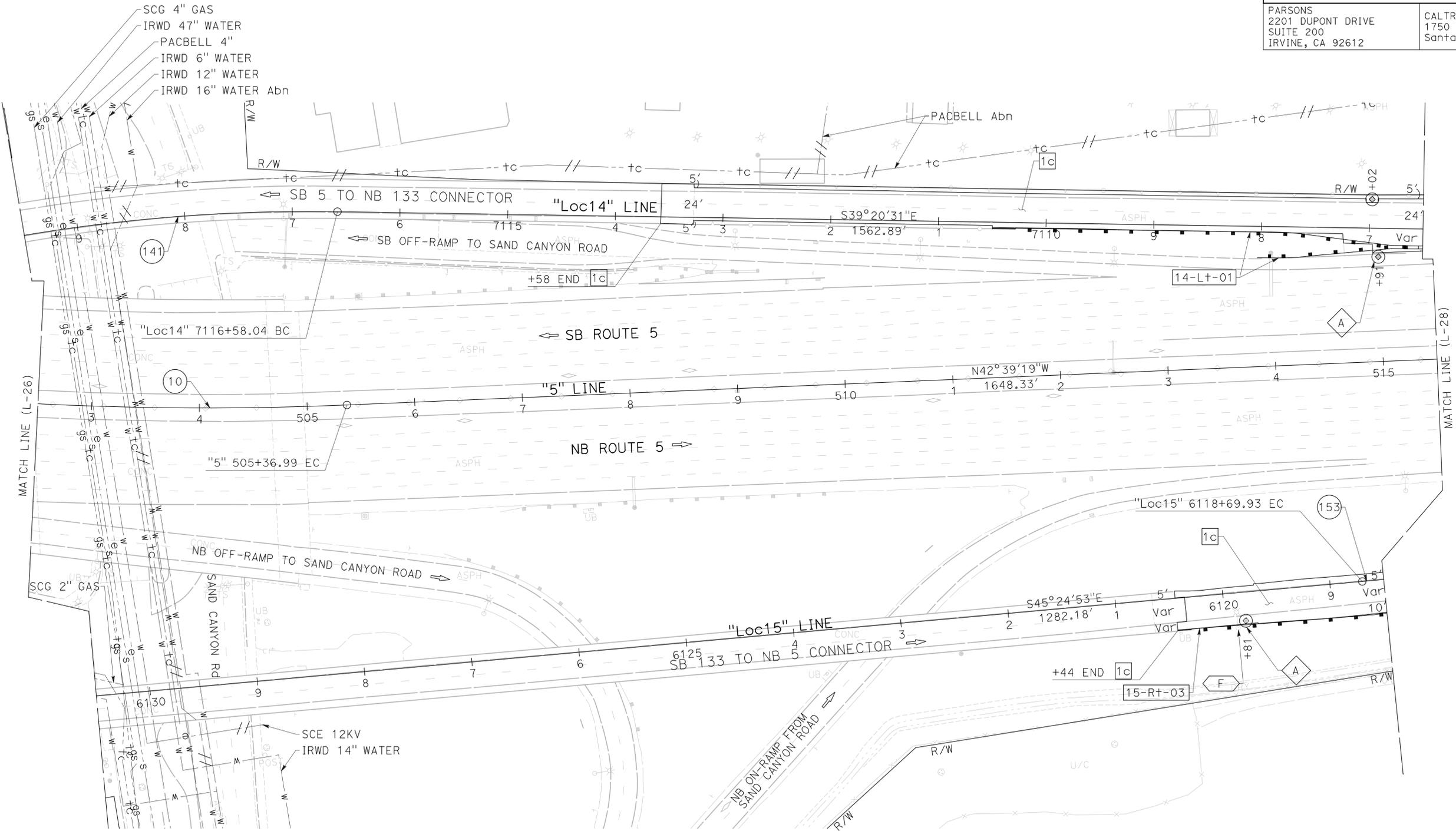
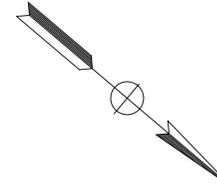
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--

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

CURVE DATA

No. (X)	R	Δ	T	L
10	3142.00'	33°42'00"	951.62'	1848.05'
141	1600.00'	110°20'21"	2299.49'	3081.25'
153	2000.00'	7°20'22"	128.27'	256.20'



LAYOUT
 SCALE: 1" = 50'

L-27

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Caltrans		CHECKED BY	DATE REVISED

NOT FOR CONSTRUCTION

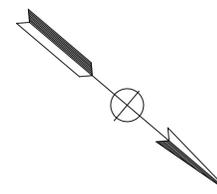
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 03-19-20 TIME PLOTTED => 3:48:21 PM

NOTE:

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

CURVE DATA

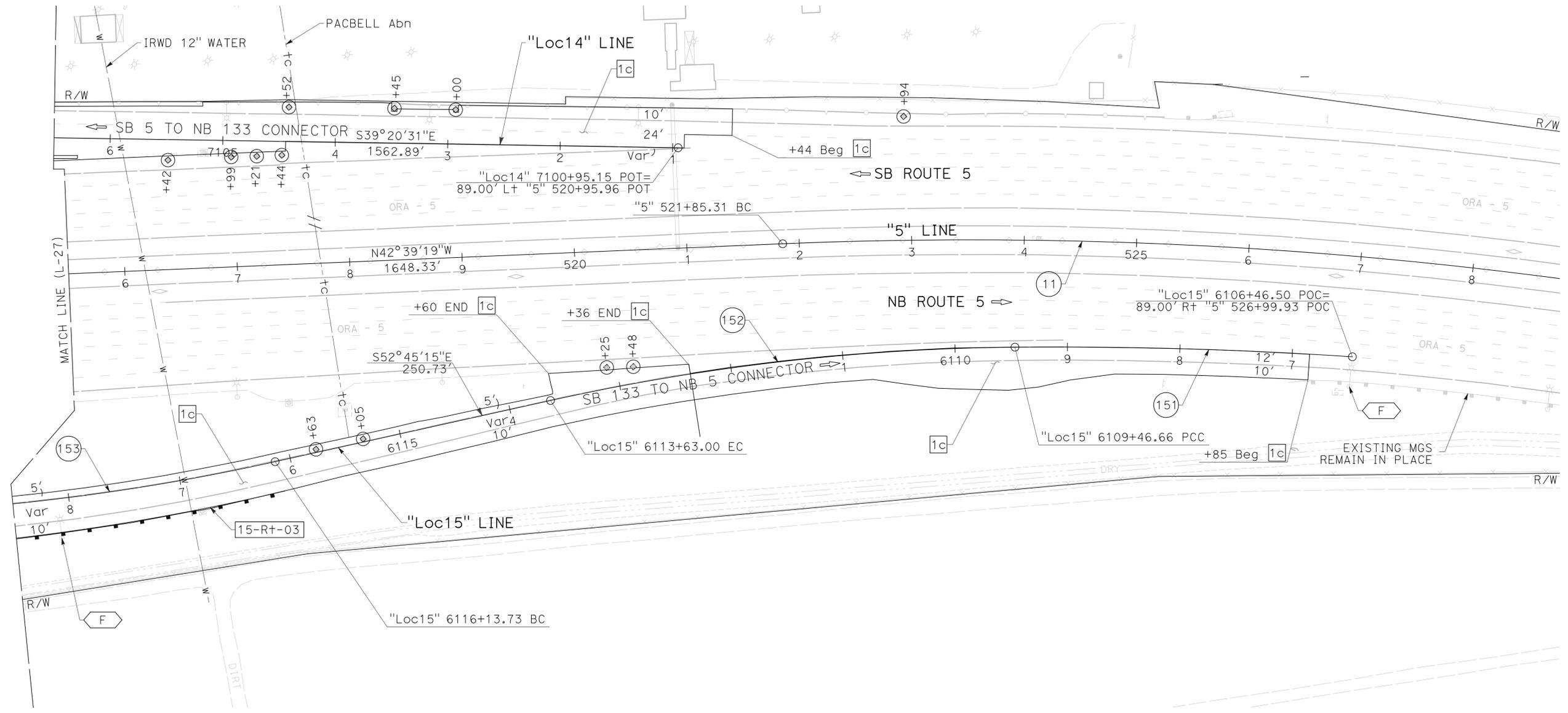
No. (X)	R	Δ	T	L
11	4000.00'	14°53'36"	522.82'	1039.75'
151	3910.00'	4°23'54"	150.15'	300.16'
152	2000.00'	11°55'38"	208.92'	416.34'
153	2000.00'	7°20'22"	128.27'	256.20'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



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 CALCULATED-DESIGNED BY
 CHECKED BY
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 DATE REVISED



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LAYOUT
SCALE: 1" = 50'

L-28

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

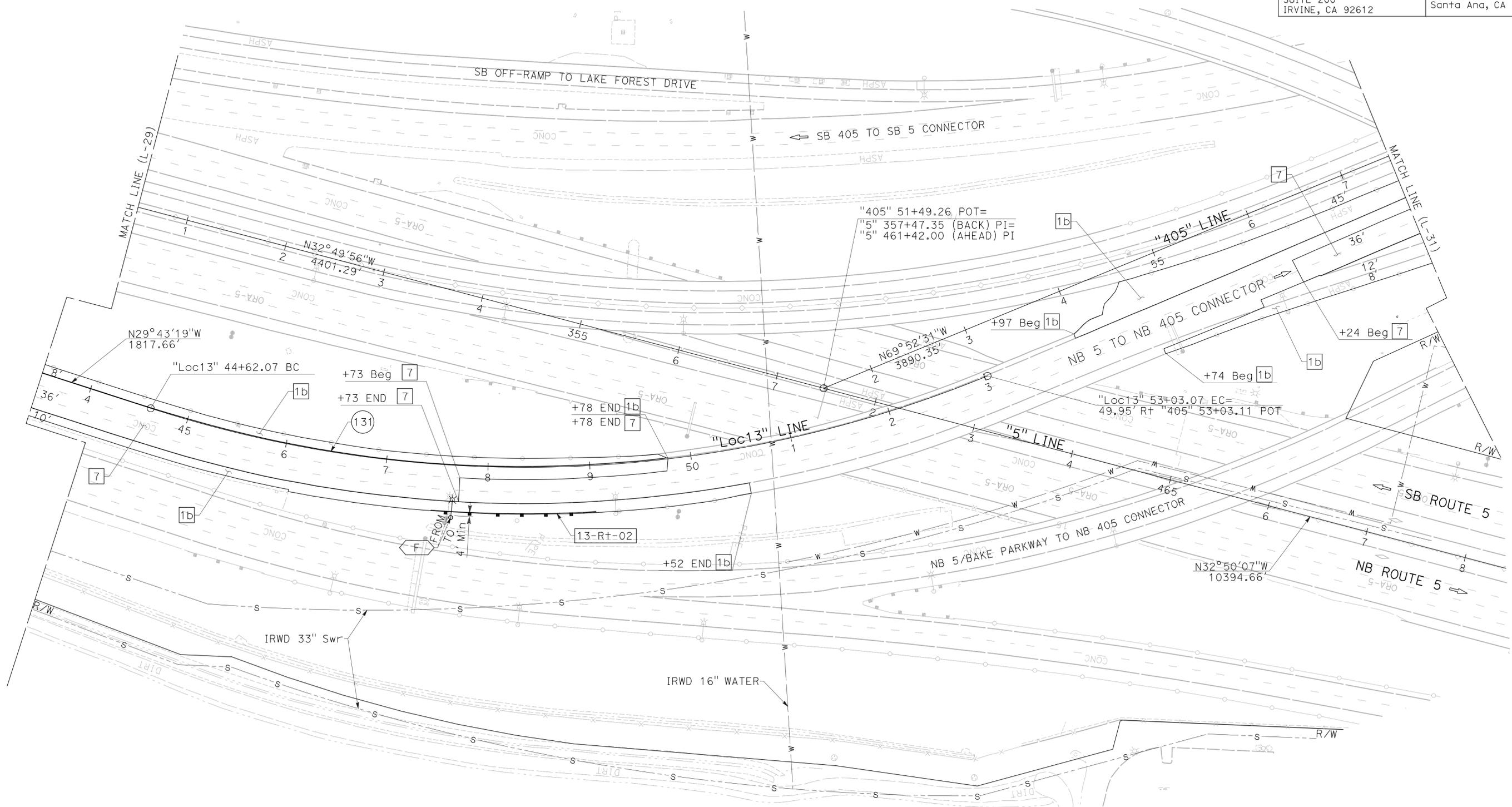
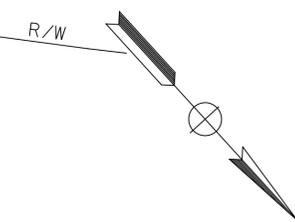
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--

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

CURVE DATA

No. (X)	R	Δ	T	L
131	1200.00'	40°09'17"	438.60'	841.00'



REVISIONS: (Grid with X marks)
 REVISOR: (Grid with X marks)
 DATE: (Grid with X marks)
 CALCULATED/DESIGNED BY: (Grid with X marks)
 CHECKED BY: (Grid with X marks)
 CONSULTANT FUNCTIONAL SUPERVISOR: (Grid with X marks)
 DEPARTMENT OF TRANSPORTATION: (Grid with X marks)
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION: (Grid with X marks)
 DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 3:49:30 PM

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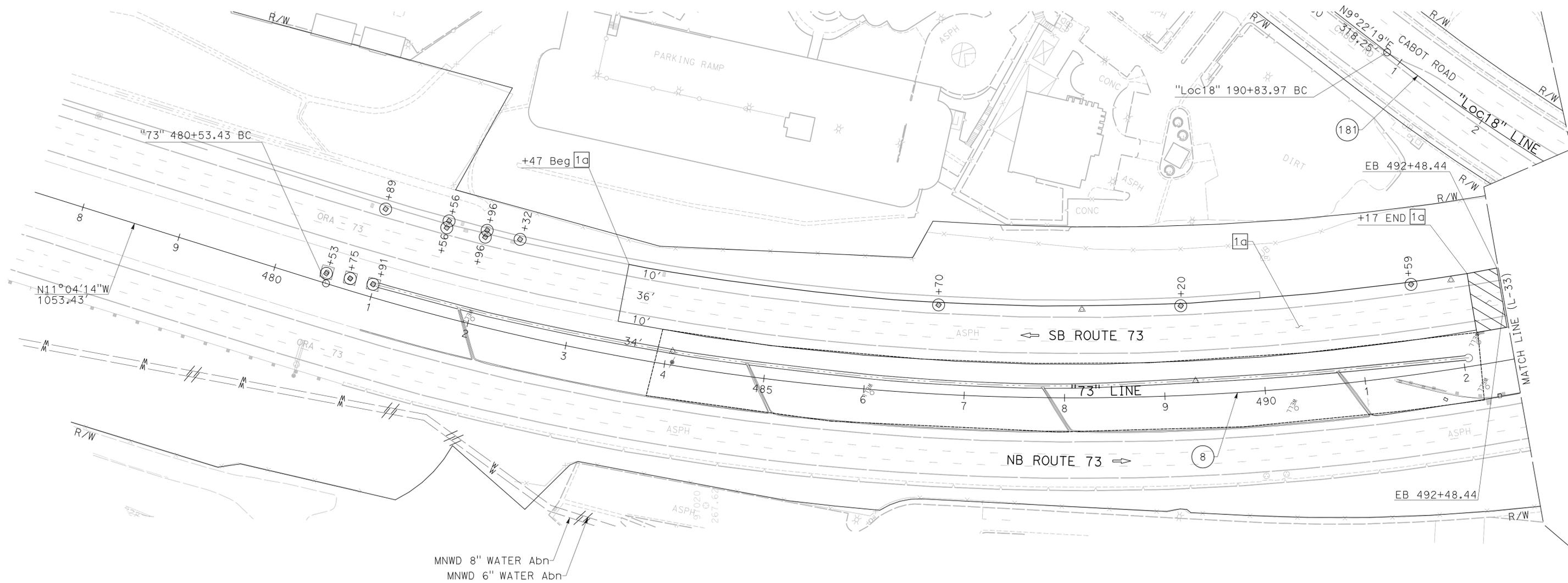
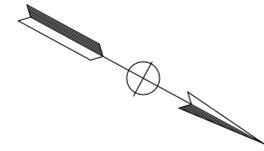
LAYOUT
 SCALE: 1" = 50'
L-30

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
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NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

CURVE DATA

No. (X)	R	Δ	T	L
8	2500.00'	67°00'58"	1655.22'	2924.13'
181	1800.00'	21°20'58"	339.29'	670.71'



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LAST REVISION | DATE PLOTTED => 7/14/2020
 03-19-20 | TIME PLOTTED => 3:50:32 PM

LAYOUT
SCALE: 1" = 50'

L-32

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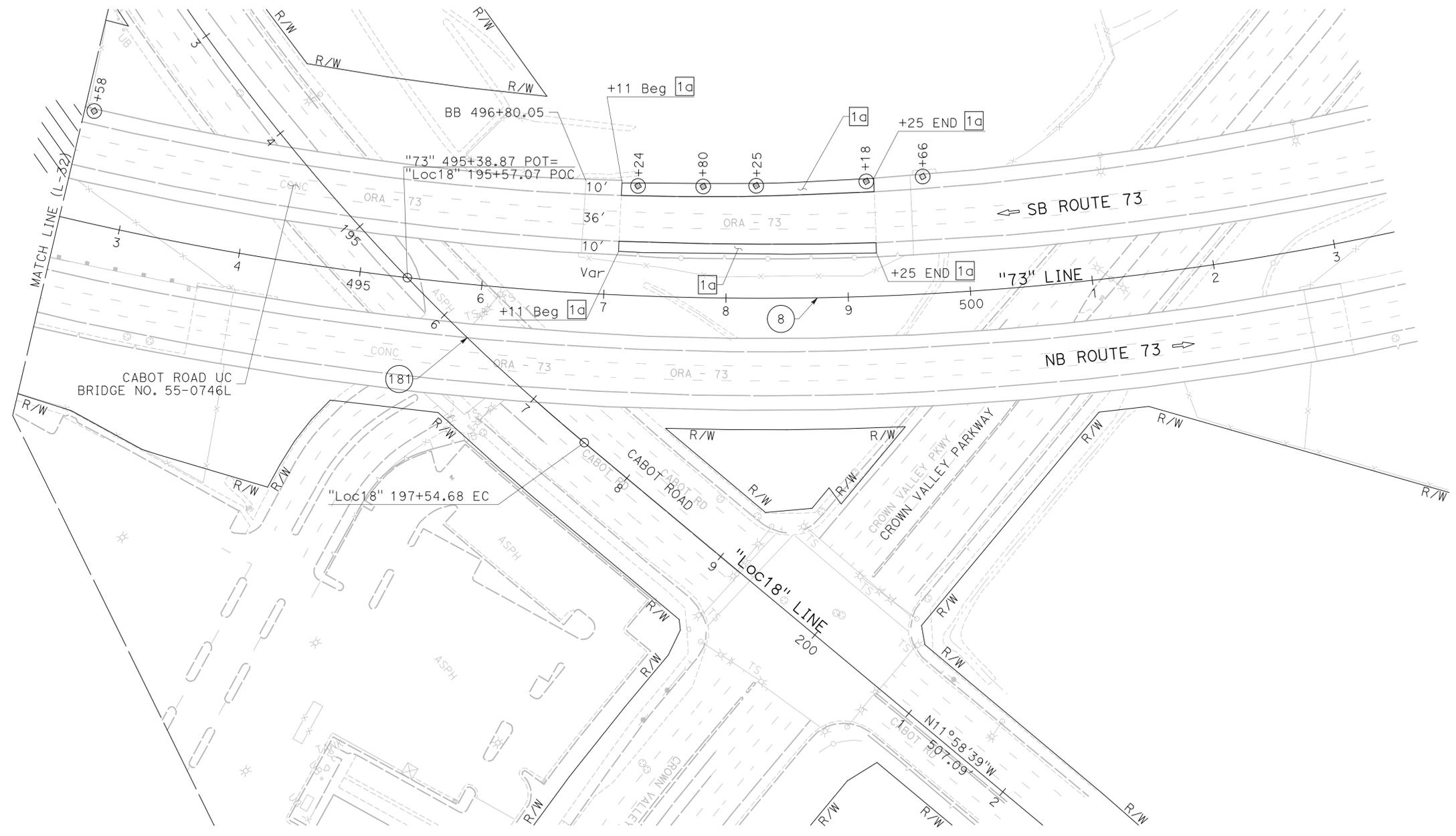
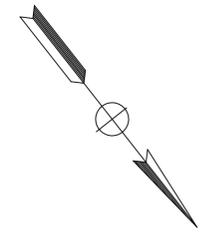
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		

NOTE:

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

CURVE DATA

No. (X)	R	Δ	T	L
8	2500.00'	67°00'58"	1655.22'	2924.13'
181	1800.00'	21°20'58"	339.29'	670.71'



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LAST REVISION DATE PLOTTED => 7/14/2020
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LAYOUT
SCALE: 1" = 50'

L-33

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

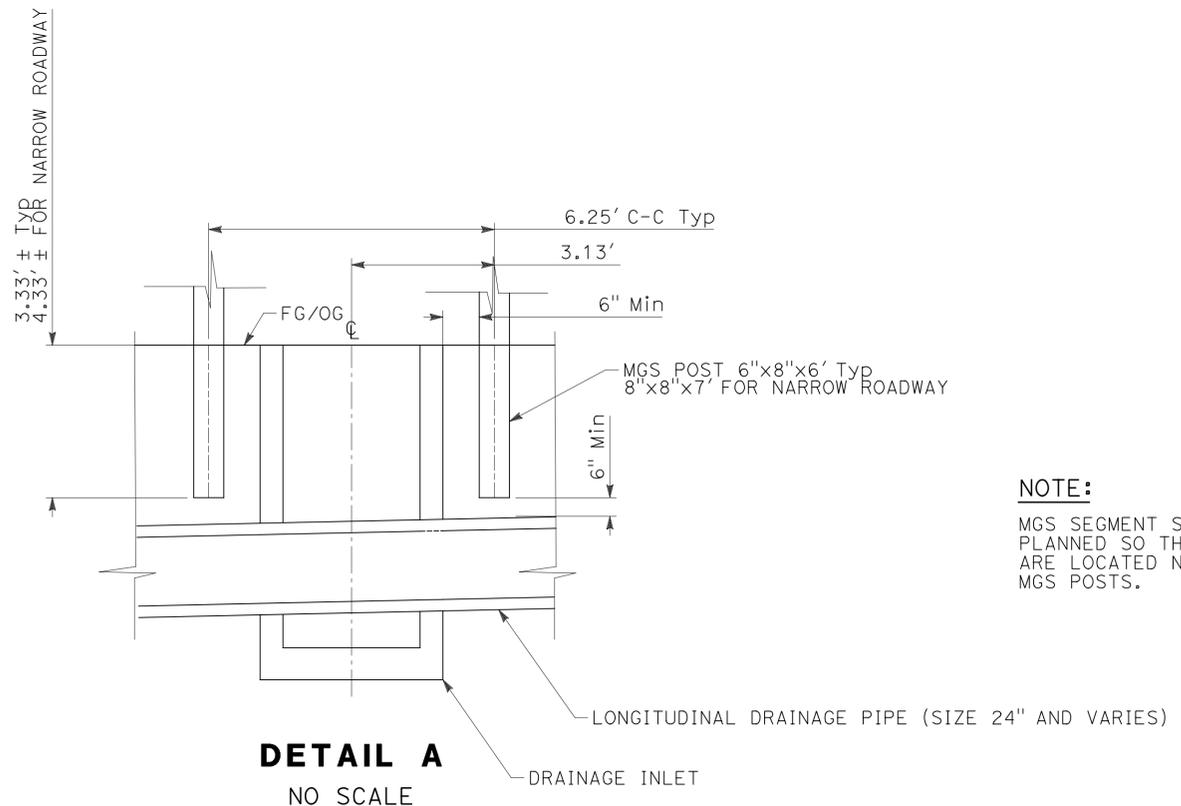
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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PARSONS
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NOTE:
 MGS SEGMENT SPANNING DRAINAGE INLET MUST BE PLANNED SO THAT THE DRAINAGE INLETS CENTER ARE LOCATED NEAR THE MIDDLE OF THE TWO MGS POSTS.

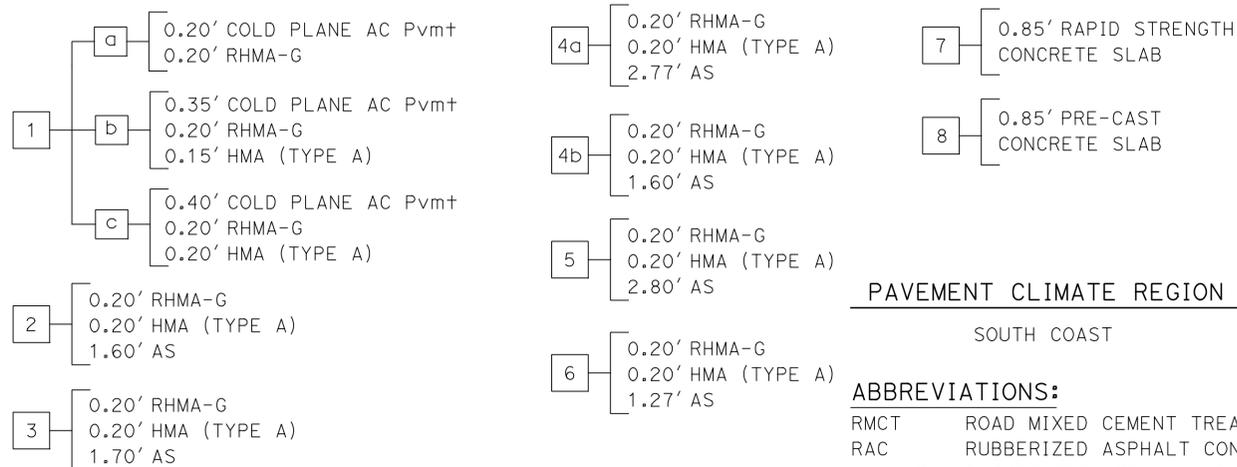
FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

ATTACHMENT D
Typical Sections

NOTES:

- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- ALTERNATIVE PAVEMENT STRUCTURAL SECTIONS MAY BE REQUIRED AT SELECT LOCATIONS, AS DIRECTED BY THE ENGINEER.
- BROKEN SLABS WILL BE REPLACED WITH SAME THICKNESS AS EXISTING, BASED ON AS-BUILT THICKNESS AND WILL HAVE A MINIMUM THICKNESS OF 0.65'.
- SEE LAYOUT SHEETS FOR SAFETY BARRIER SYSTEM AND HMA DIKE LOCATIONS.

TYPICAL PAVEMENT STRUCTURE SECTIONS



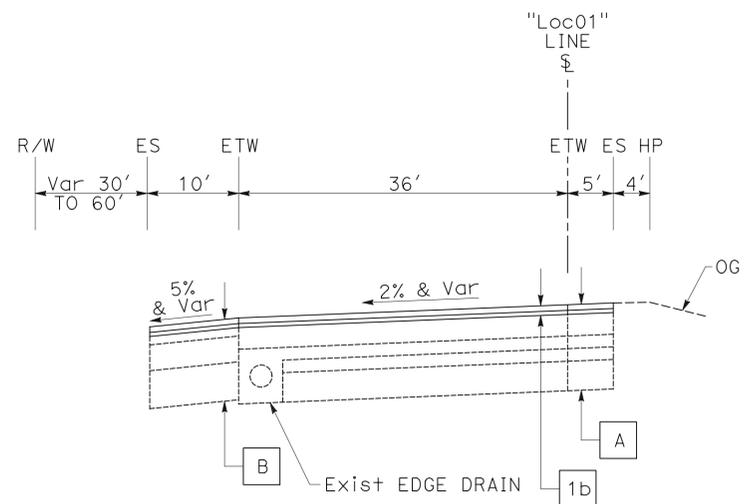
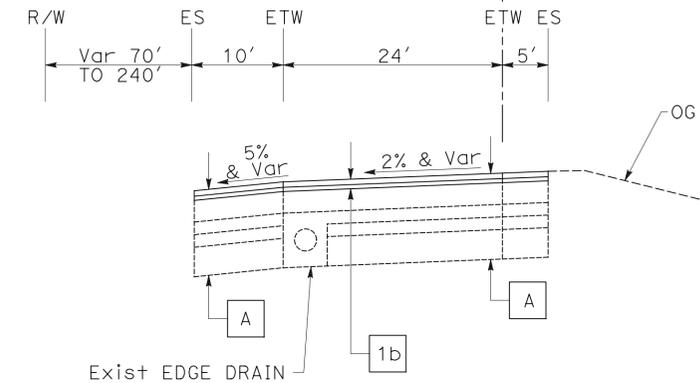
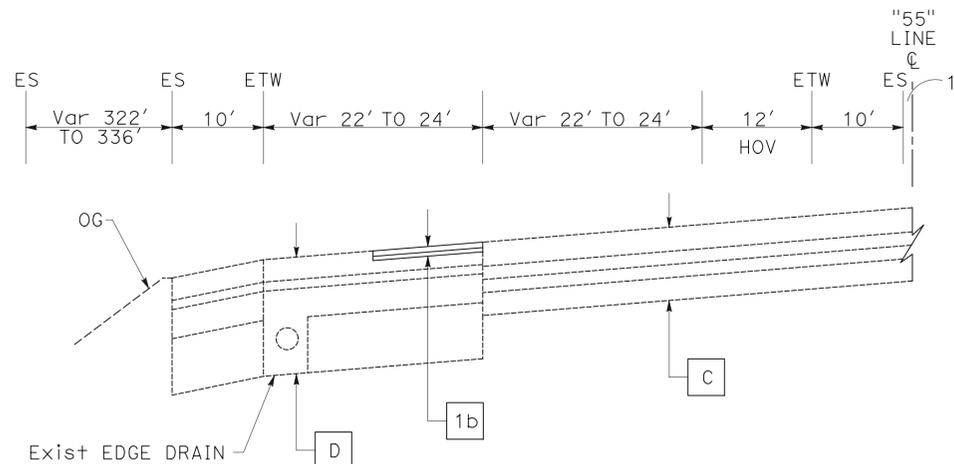
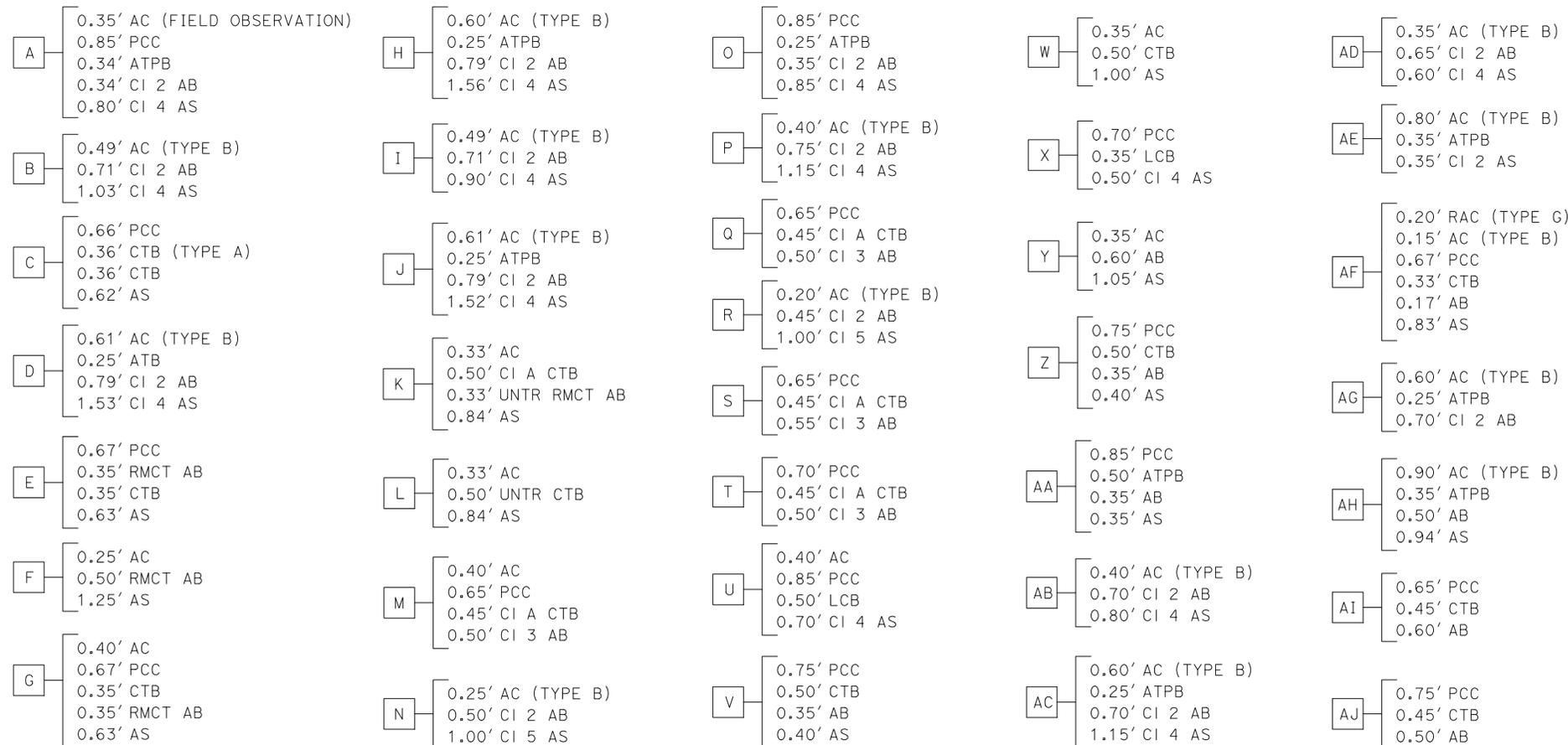
PAVEMENT CLIMATE REGION

SOUTH COAST

ABBREVIATIONS:

- | | |
|--------|---|
| RMCT | ROAD MIXED CEMENT TREATED AB |
| RAC | RUBBERIZED ASPHALT CONCRETE |
| RHMA-G | RUBBERIZED HOT MIX ASPHALT (GAP GRADED) |
| UNTR | UNTREATED |

EXISTING PAVEMENT STRUCTURAL SECTIONS



TYPICAL CROSS SECTIONS

NO SCALE

X-1

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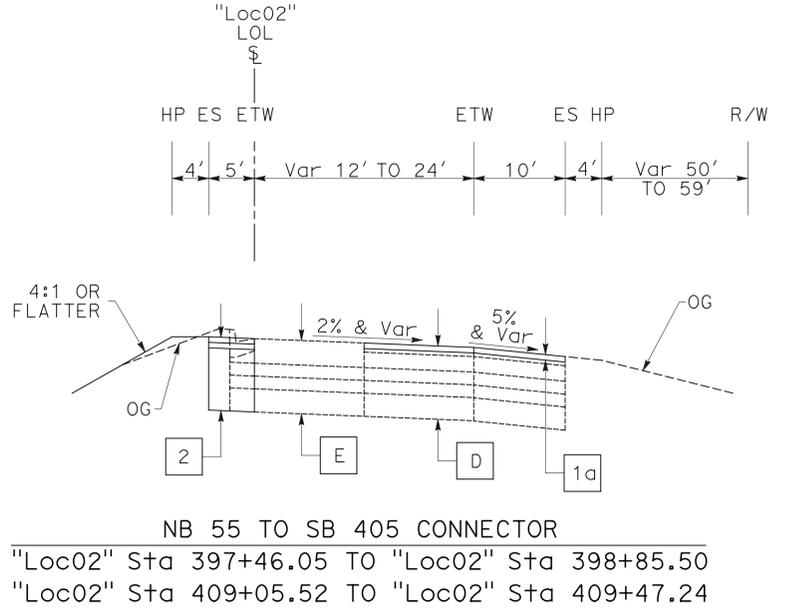
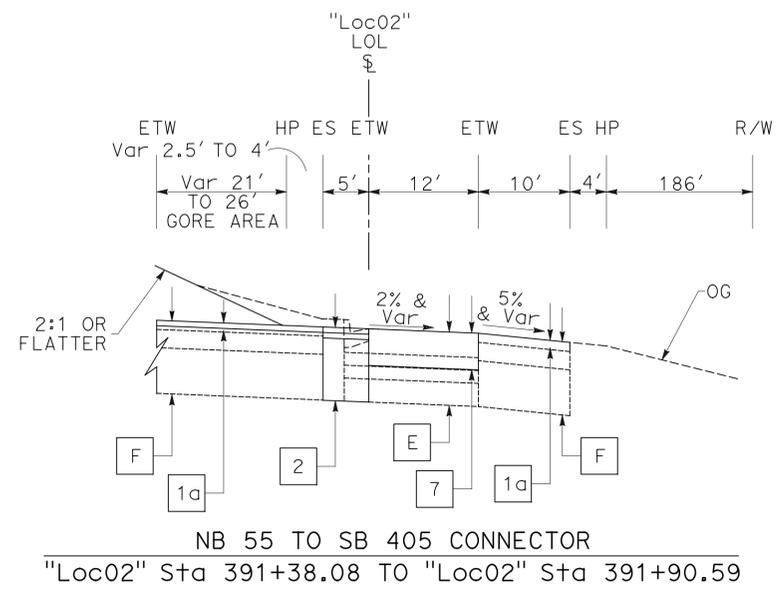
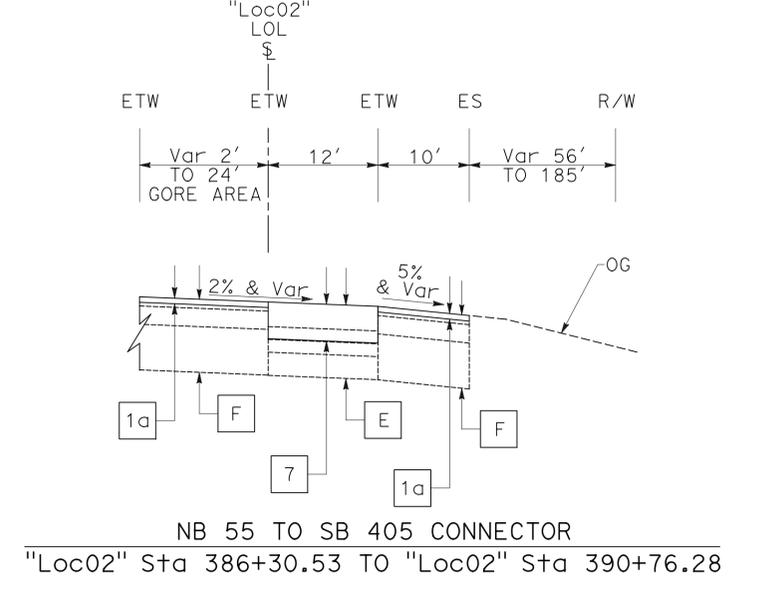
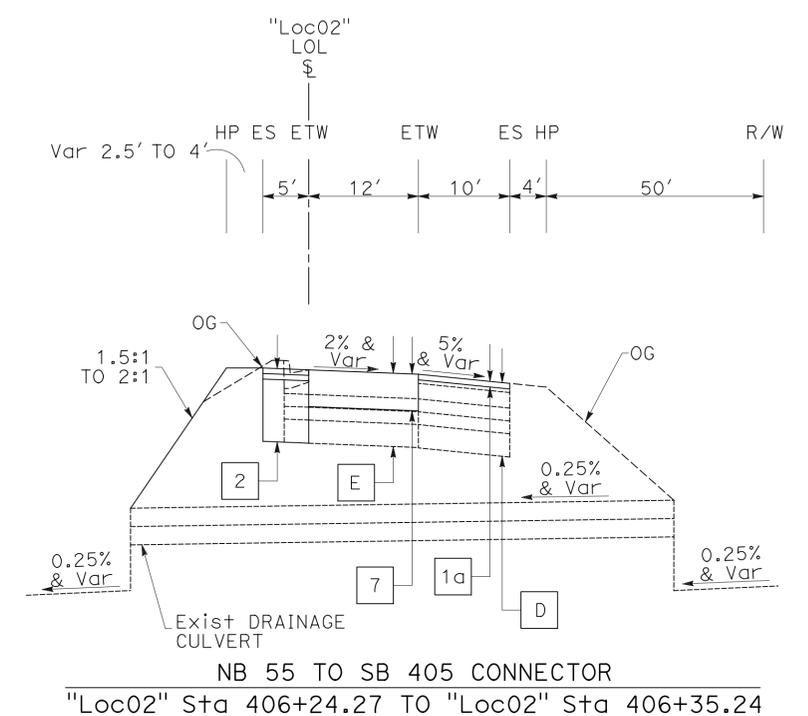
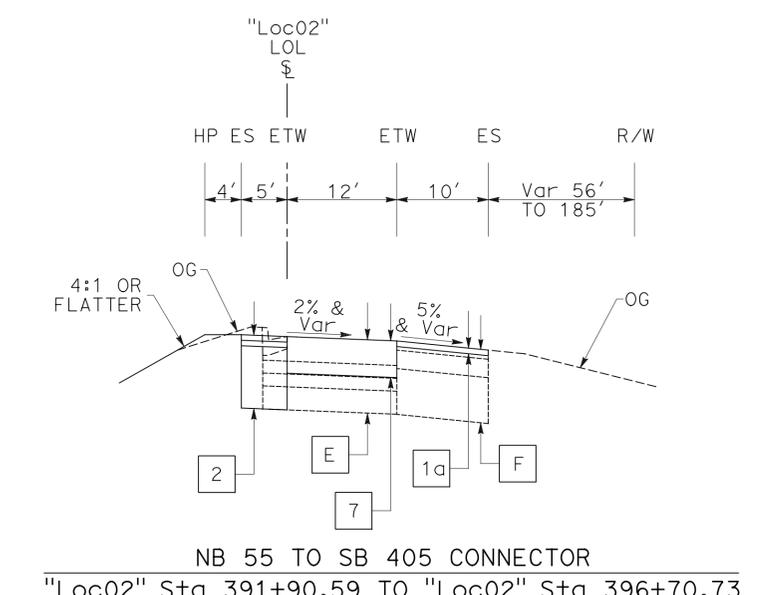
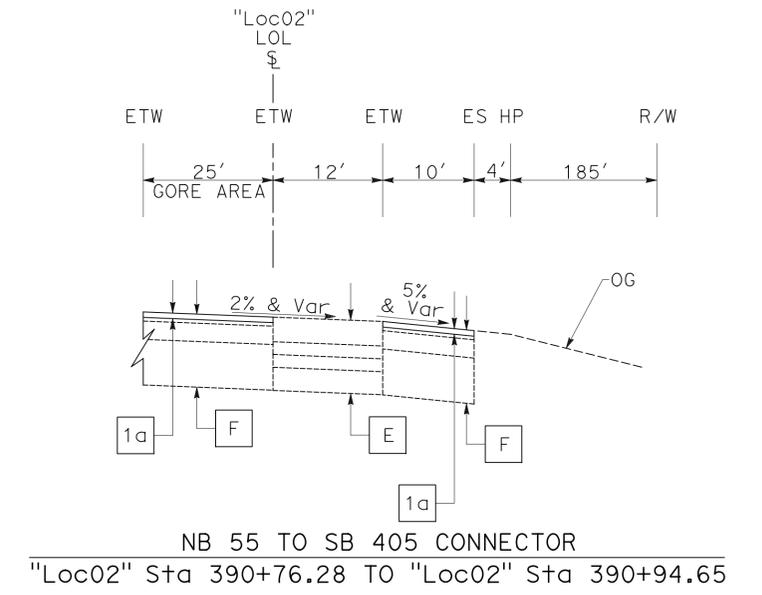
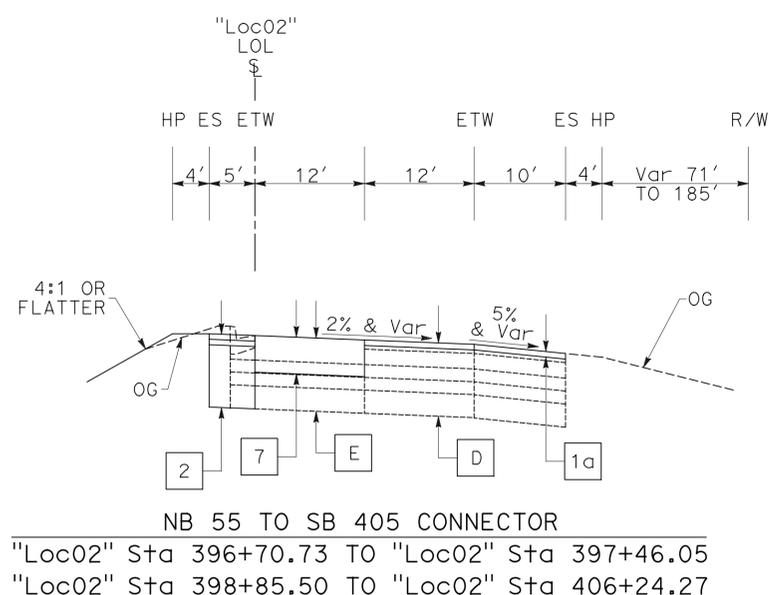
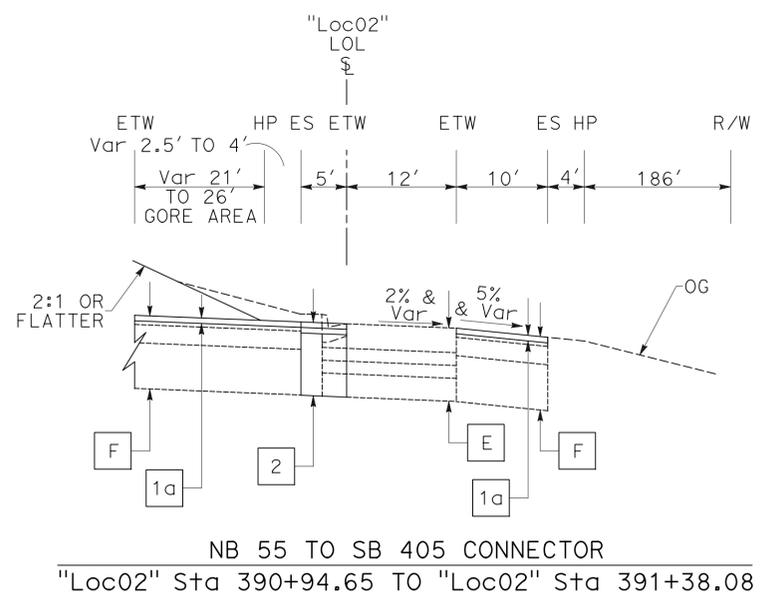
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans

NOT FOR CONSTRUCTION
 LAST REVISION: DATE PLOTTED => 7/14/2020
 03-19-20 TIME PLOTTED => 7:54:04 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--



TYPICAL CROSS SECTIONS
NO SCALE
X-2

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Et Caltrans®

USERNAME => p003576F
DGN FILE => 1218000117ca002.dgn

RELATIVE BORDER SCALE
1" = 10' INCHES

UNIT 2994

PROJECT NUMBER & PHASE

12180001171

NOT FOR CONSTRUCTION

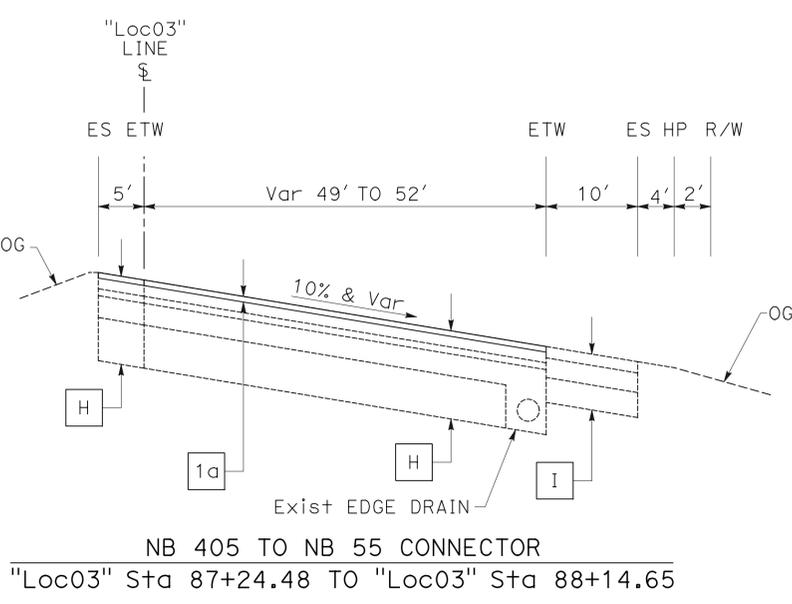
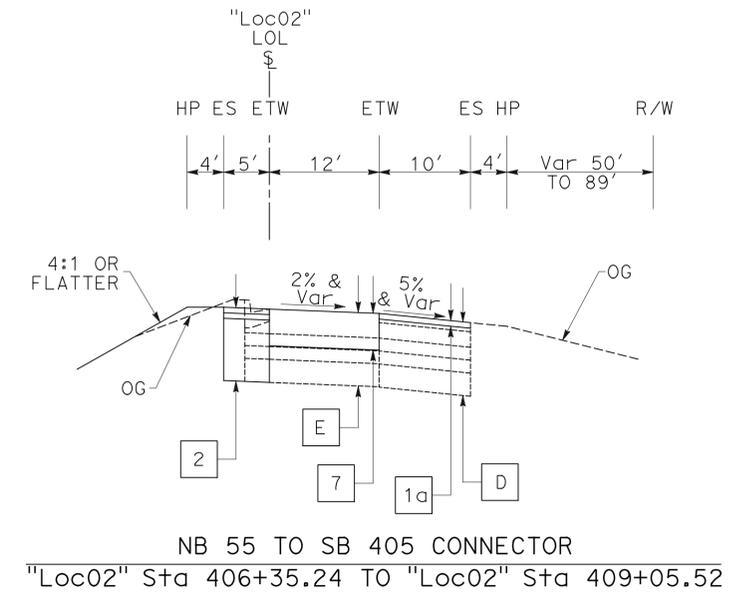
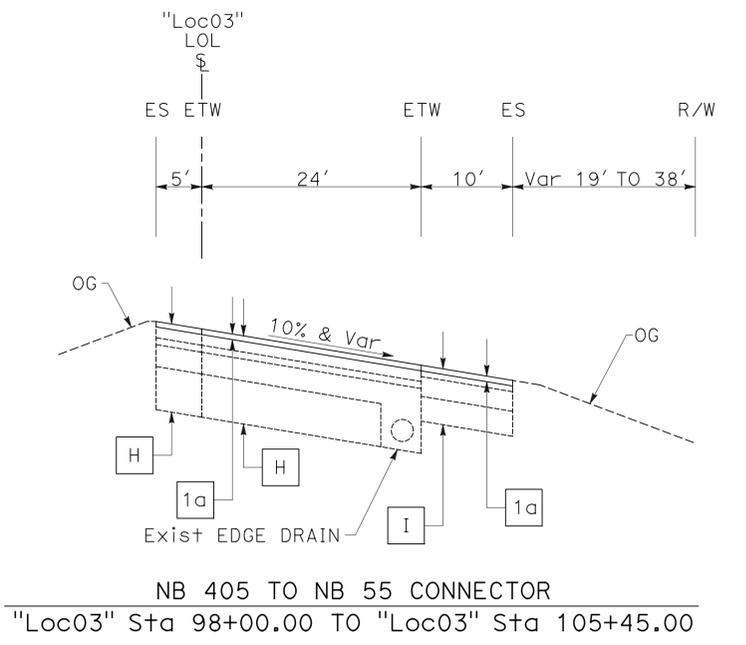
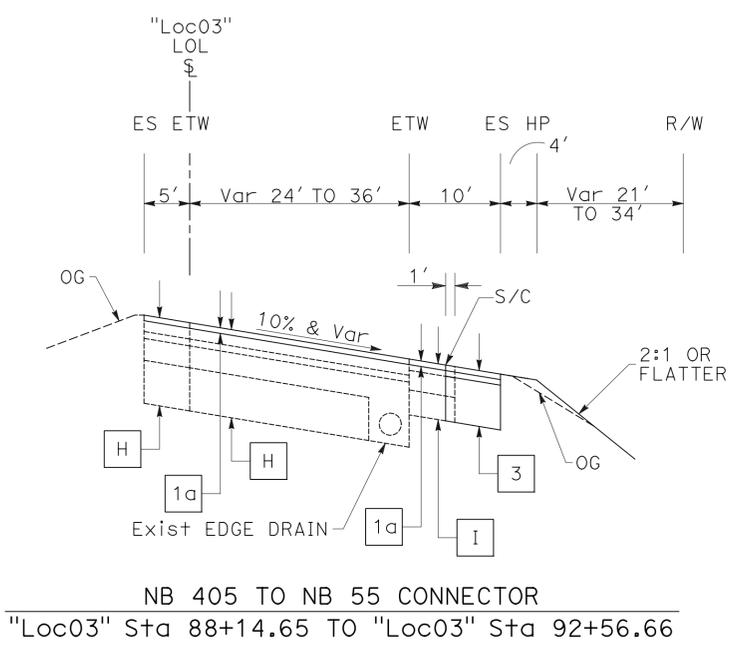
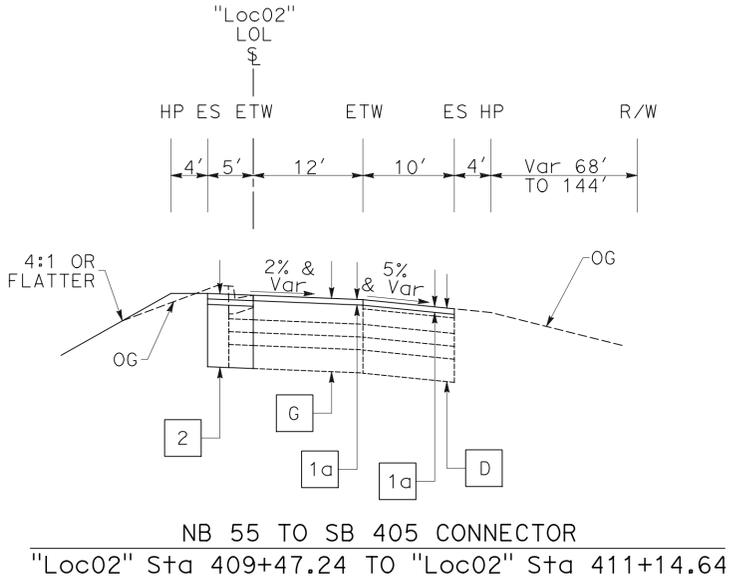
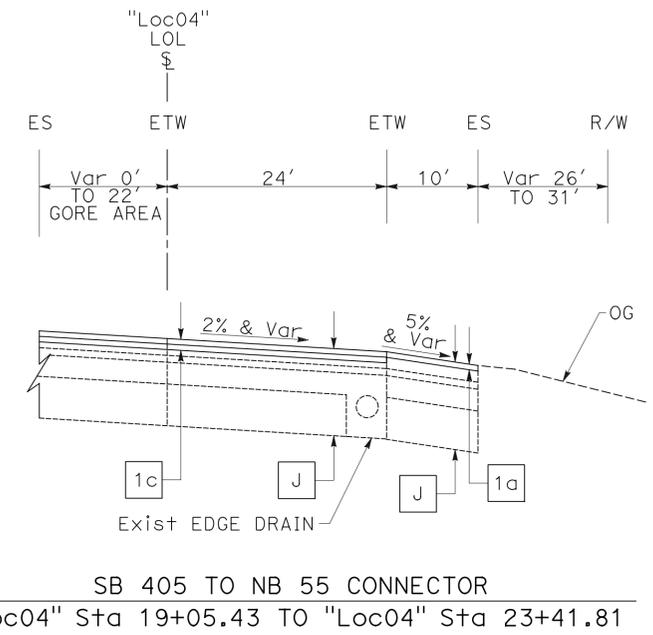
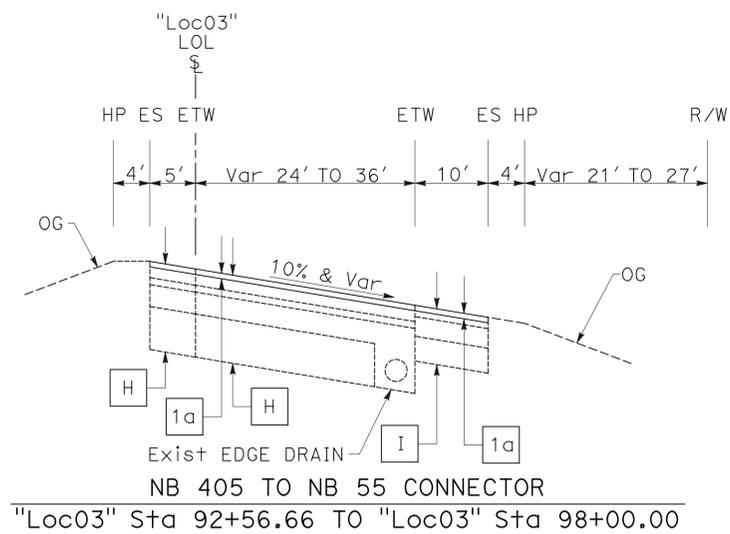
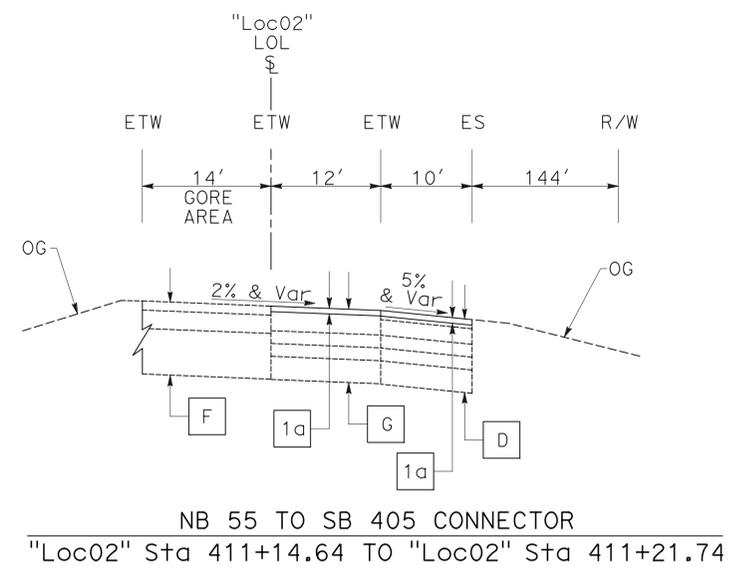
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03-19-20 TIME PLOTTED => 7:54:21 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
---	--



TYPICAL CROSS SECTIONS
 NO SCALE
X-3

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans
 CONSULTANT - FUNCTIONAL SUPERVISOR
 CALCULATED - DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

USERNAME => p003576F
 DGN FILE => 1218000117ca003.dgn



UNIT 2994

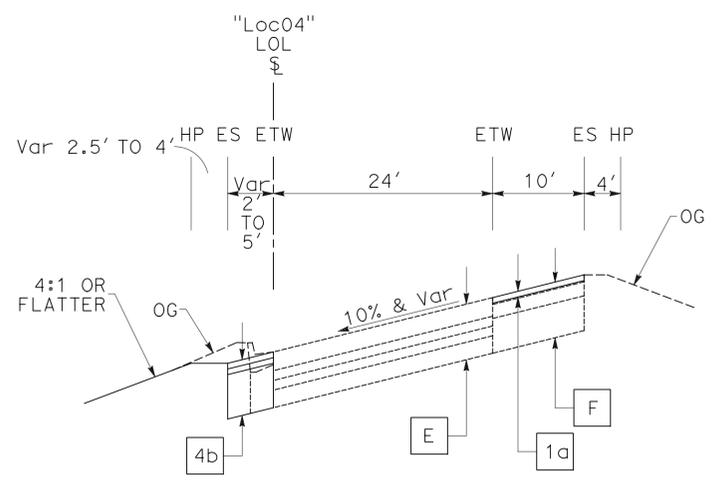
PROJECT NUMBER & PHASE

12180001171

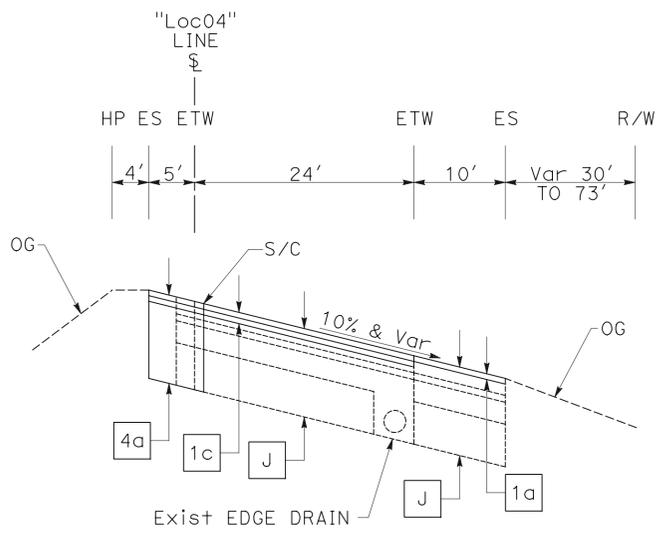
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 03-19-20 TIME PLOTTED => 7:54:38 AM

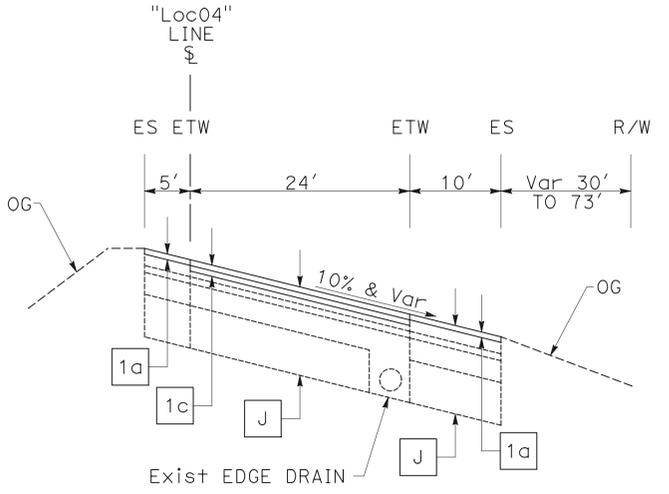
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



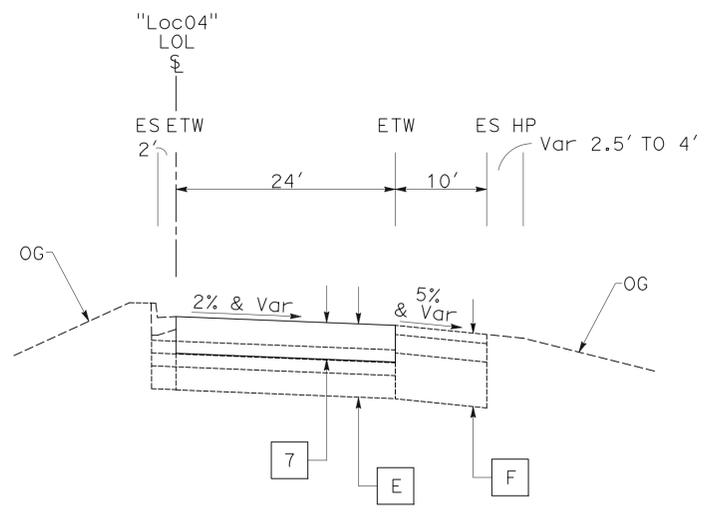
SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 29+06.77 TO "Loc04" Sta 36+60.16
 "Loc04" Sta 37+81.81 TO "Loc04" Sta 39+44.25
 "Loc04" Sta 41+28.91 TO "Loc04" Sta 41+70.56



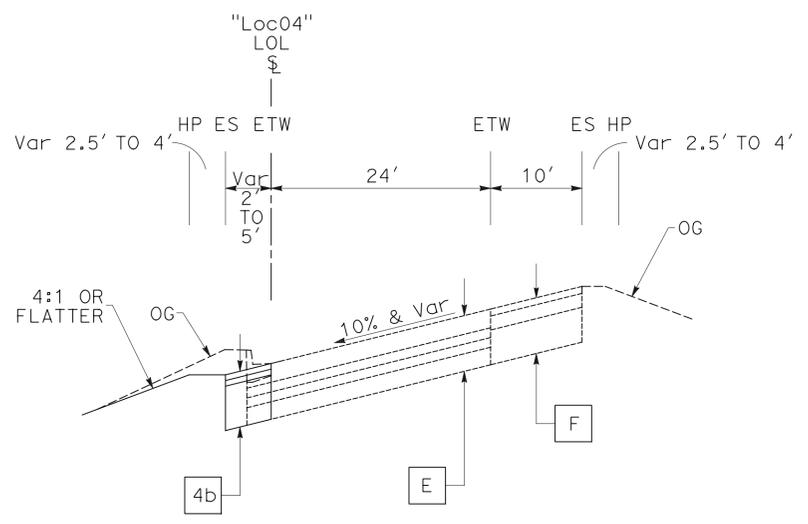
SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 28+89.56 TO "Loc04" Sta 29+06.77



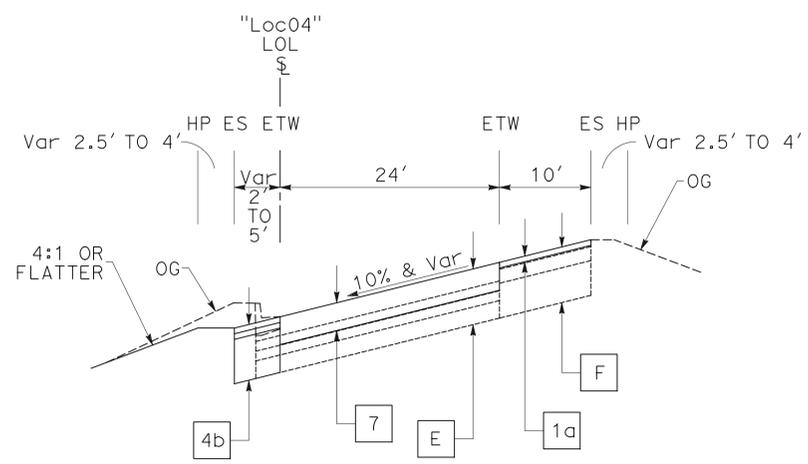
SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 23+41.81 TO "Loc04" Sta 28+89.56



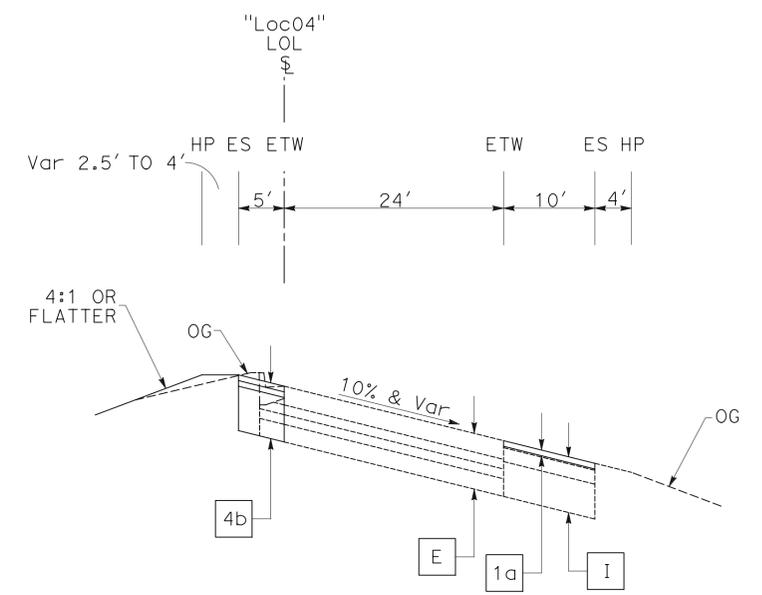
SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 46+07.30 TO "Loc04" Sta 46+55.91



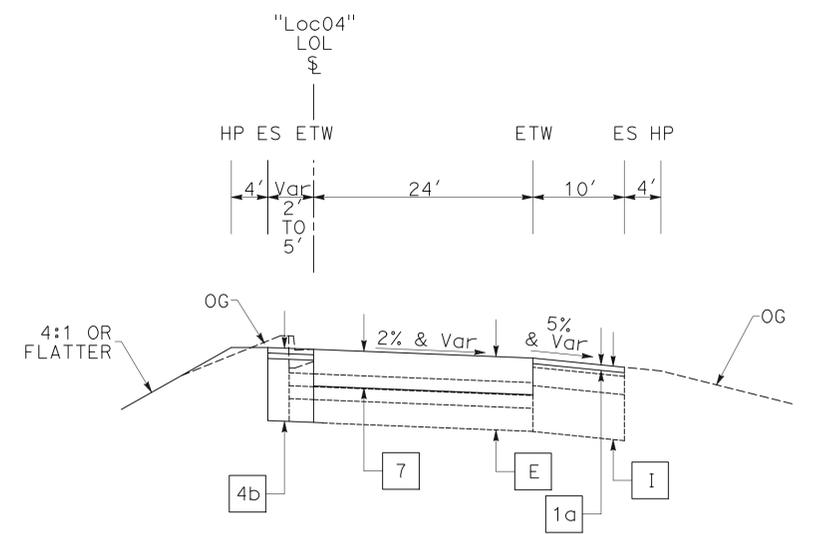
SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 41+70.56 TO "Loc04" Sta 42+00.10



SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 36+60.16 TO "Loc04" Sta 37+81.81
 "Loc04" Sta 39+44.25 TO "Loc04" Sta 41+28.91



SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 48+31.61 TO "Loc04" Sta 49+83.06



SB 405 TO NB 55 CONNECTOR
 "Loc04" Sta 46+55.91 TO "Loc04" Sta 48+31.61

TYPICAL CROSS SECTIONS
 NO SCALE

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans

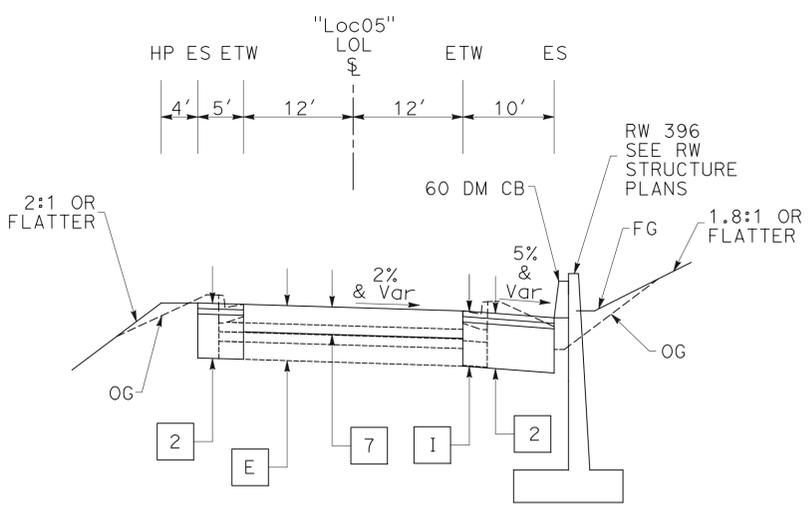
REVISOR BY DATE

CALCULATED-DESIGNED BY CHECKED BY

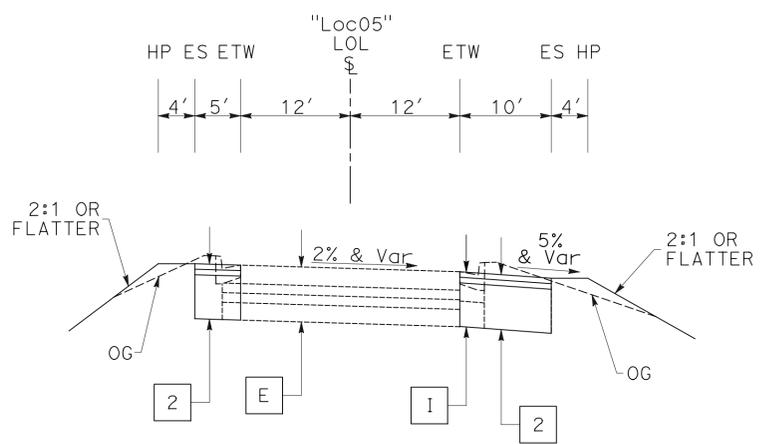
CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

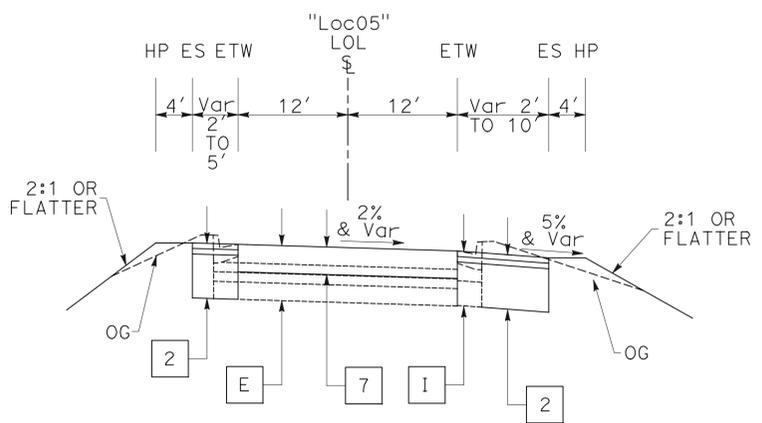
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



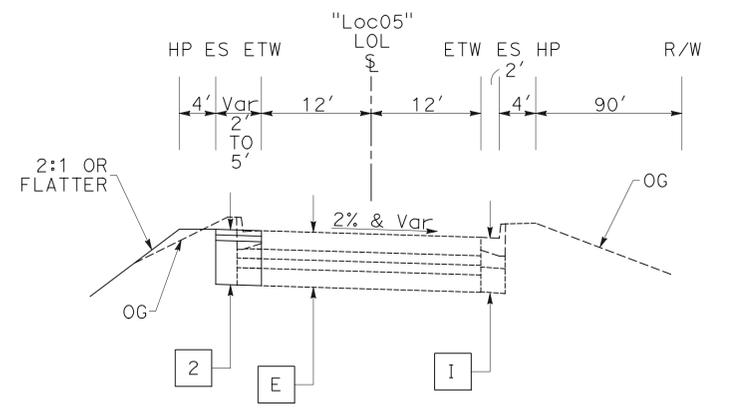
NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 395+70.00 TO "Loc05" Sta 396+60.00



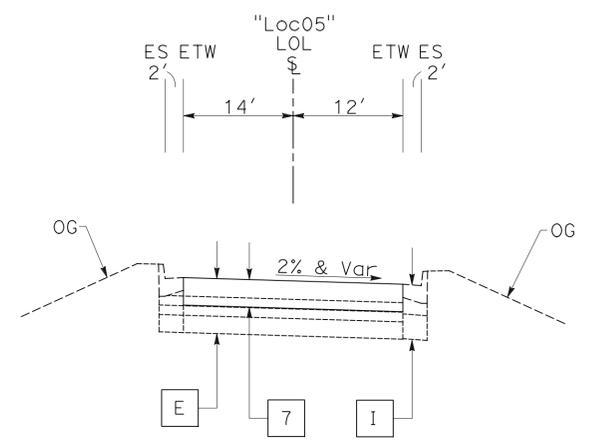
NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 394+79.66 TO "Loc05" Sta 395+70.00
"Loc05" Sta 398+68.28 TO "Loc05" Sta 400+35.15



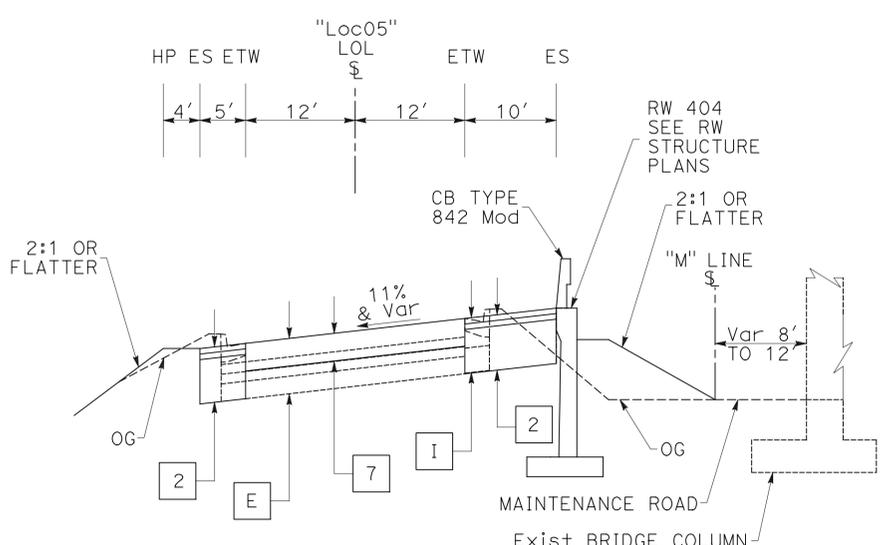
NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 394+57.48 TO "Loc05" Sta 394+79.66
"Loc05" Sta 396+60.00 TO "Loc05" Sta 398+68.28
"Loc05" Sta 400+35.15 TO "Loc05" Sta 404+16.78
"Loc05" Sta 405+91.96 TO "Loc05" Sta 406+92.00



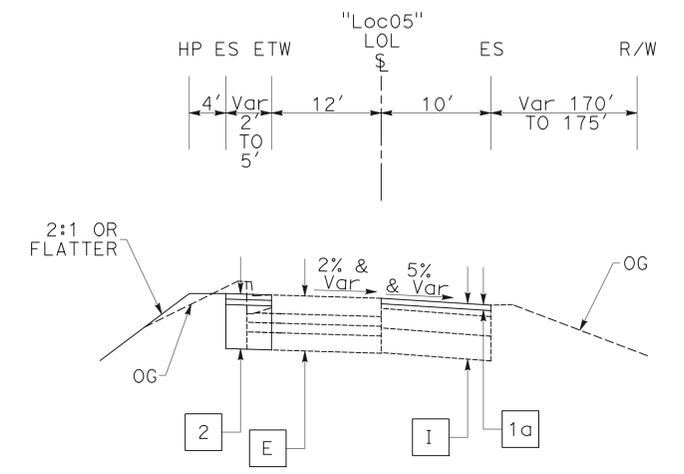
NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 412+89.19 TO "Loc05" Sta 413+56.13



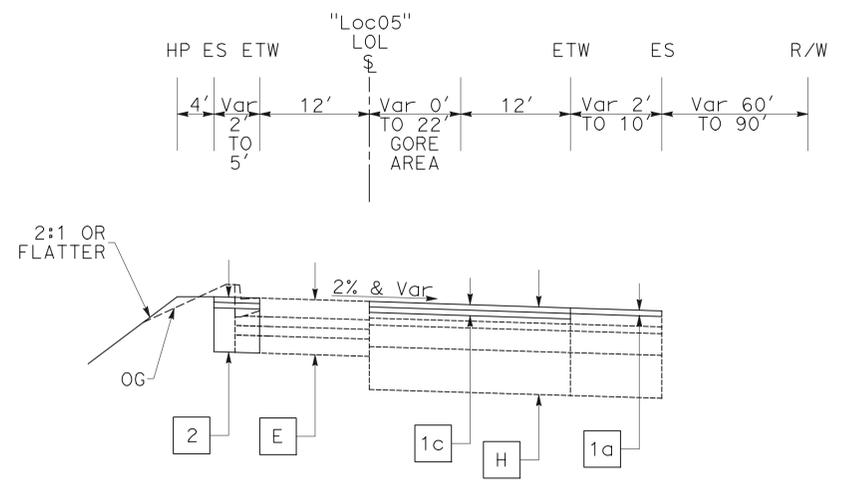
NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 412+71.66 TO "Loc05" Sta 412+89.19



NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 404+16.78 TO "Loc05" Sta 405+91.96



NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 419+94.59 TO "Loc05" Sta 420+30.70
"Loc05" Sta 420+46.89 TO "Loc05" Sta 422+13.87
"Loc05" Sta 422+31.27 TO "Loc05" Sta 422+93.02
"Loc05" Sta 423+08.69 TO "Loc05" Sta 423+54.78



NB 405 TO SB 55 CONNECTOR
"Loc05" Sta 413+56.13 TO "Loc05" Sta 417+67.16

TYPICAL CROSS SECTIONS
NO SCALE
X-6

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®

USERNAME => p003576F
DGN FILE => 1218000117ca006.dgn

RELATIVE BORDER SCALE
1" = 10' INCHES

UNIT 2994

PROJECT NUMBER & PHASE

12180001171

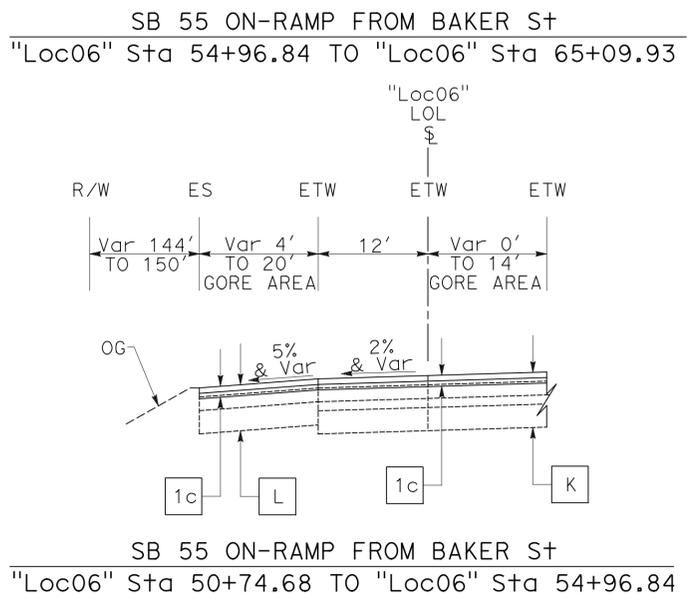
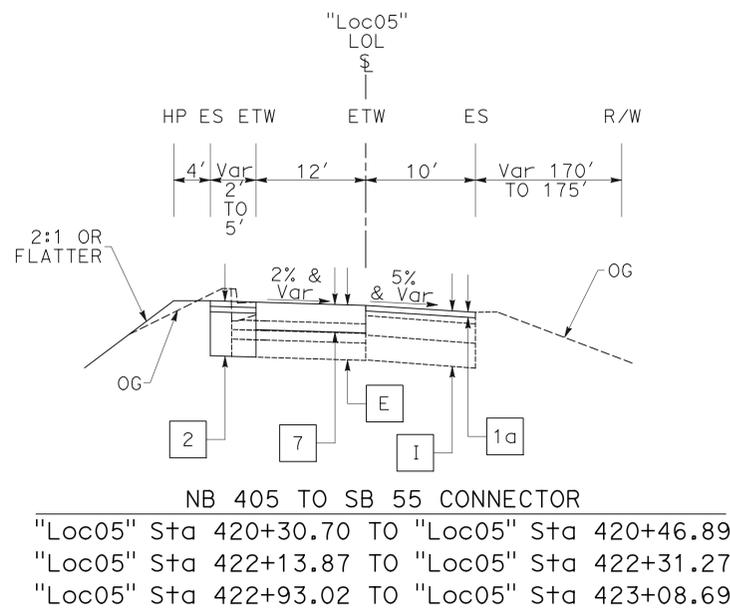
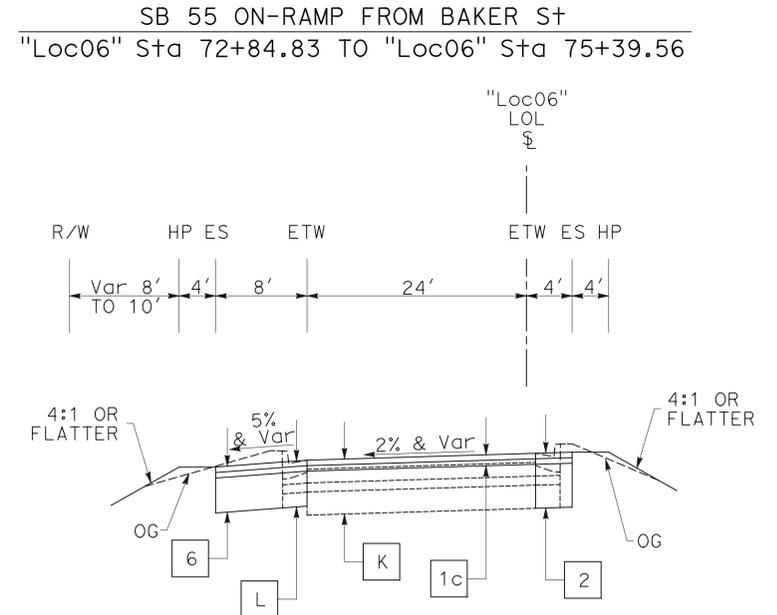
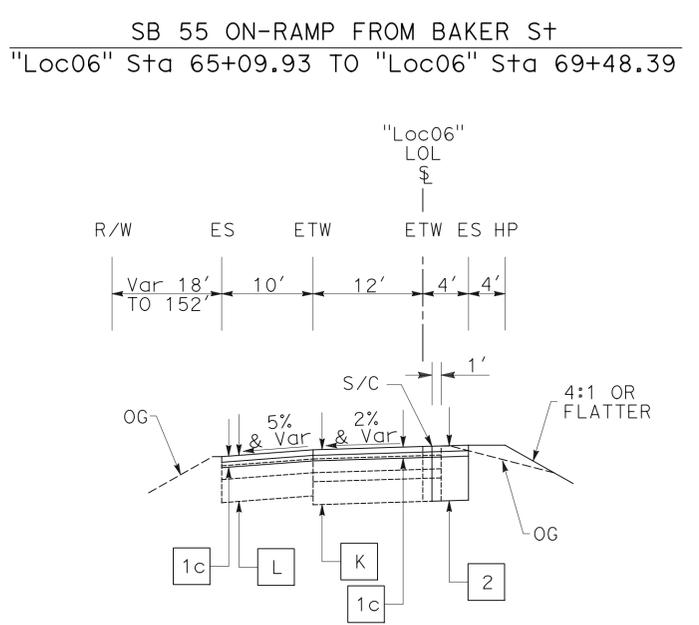
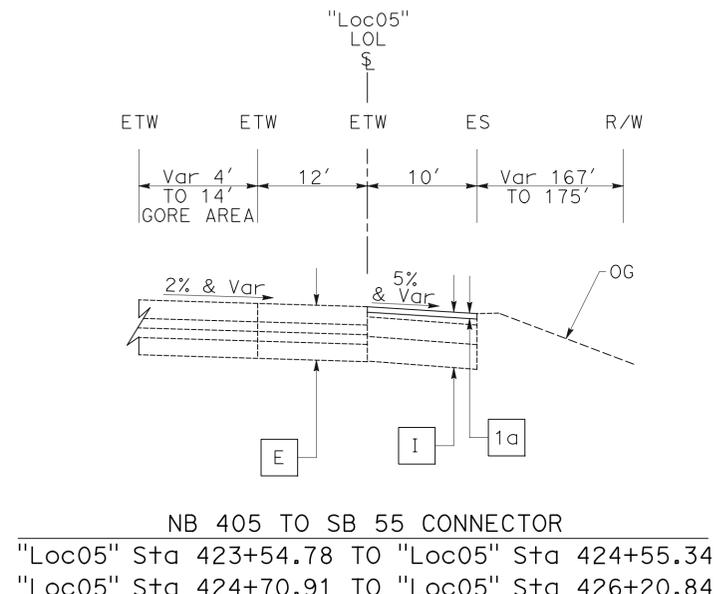
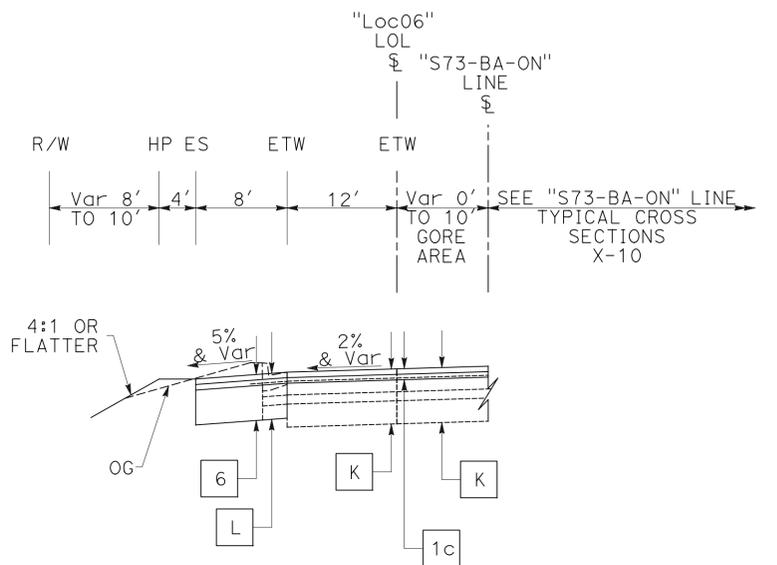
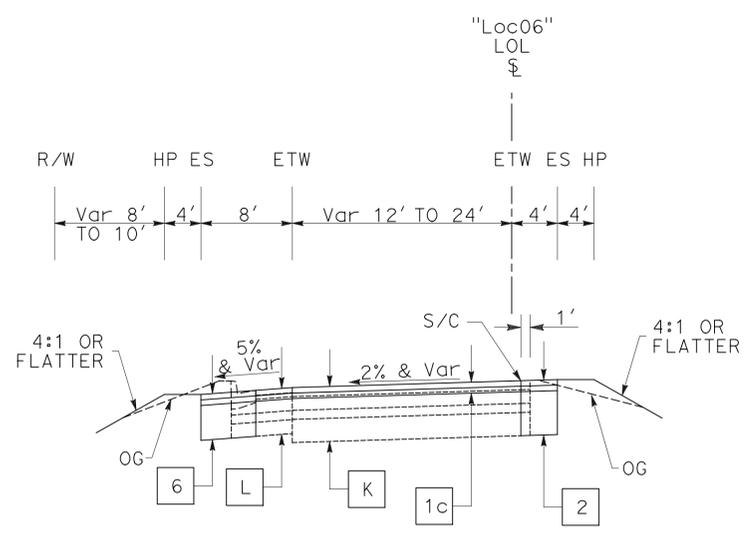
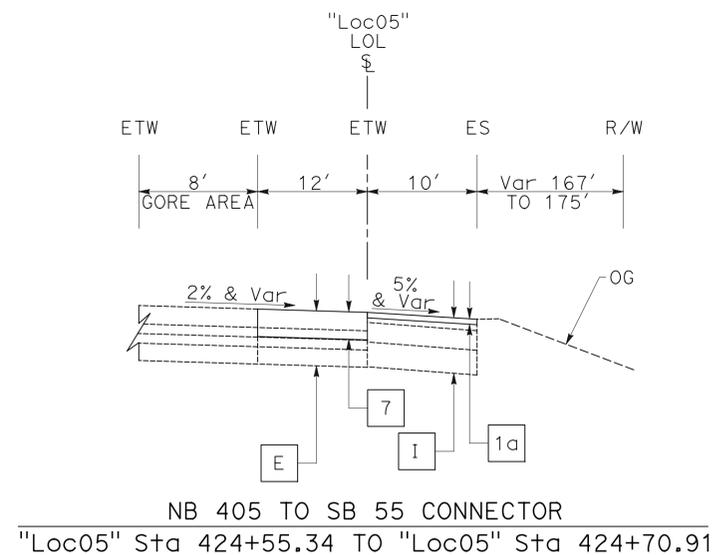
LAST REVISION DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 7:55:30 AM

NOT FOR CONSTRUCTION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

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 SCANNED COPIES OF THIS PLAN SHEET.	
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705



TYPICAL CROSS SECTIONS
 NO SCALE
X-7

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans

USERNAME => p003576F
 DGN FILE => 1218000117ca007.dgn

RELATIVE BORDER SCALE
 1" = 10' INCHES

UNIT 2994

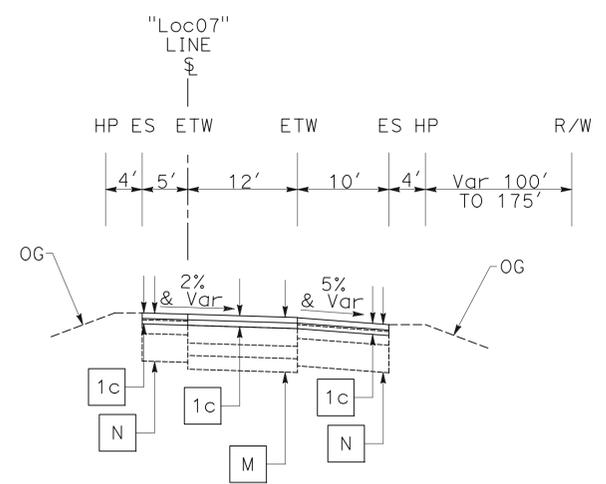
PROJECT NUMBER & PHASE

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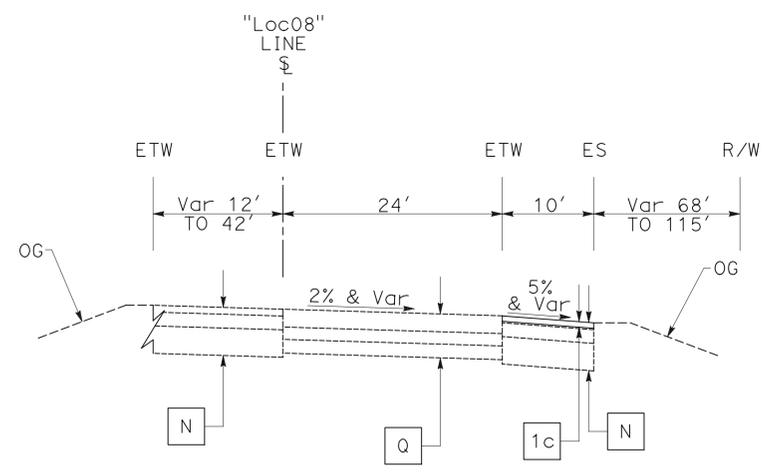
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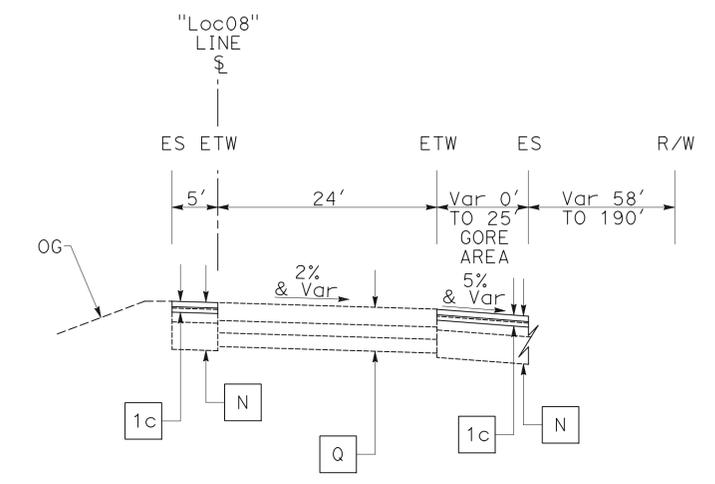
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



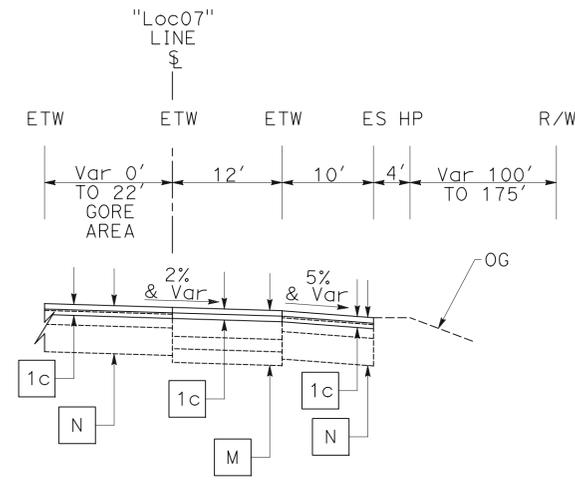
NB 55 TO SB 73 CONNECTOR
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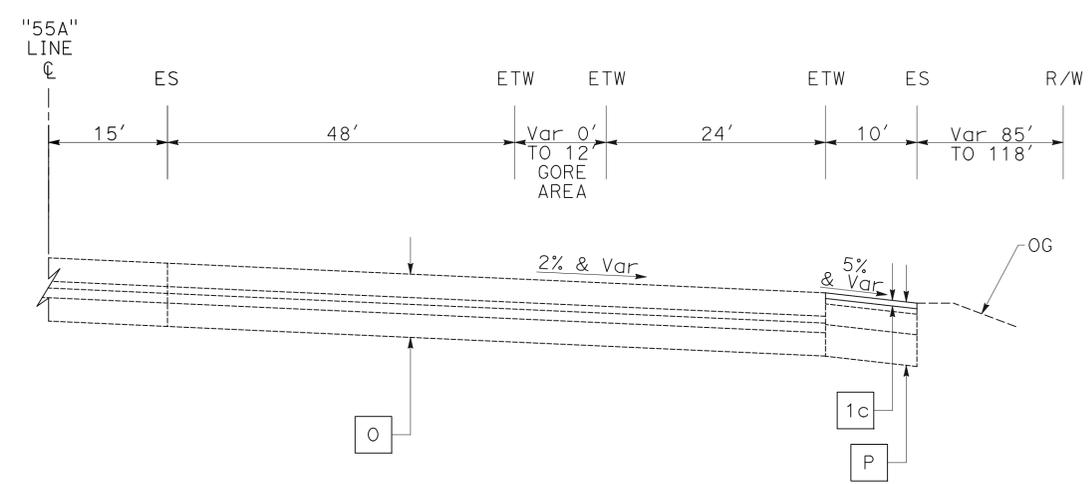
NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 83+15.23 TO "Loc08" Sta 89+16.51



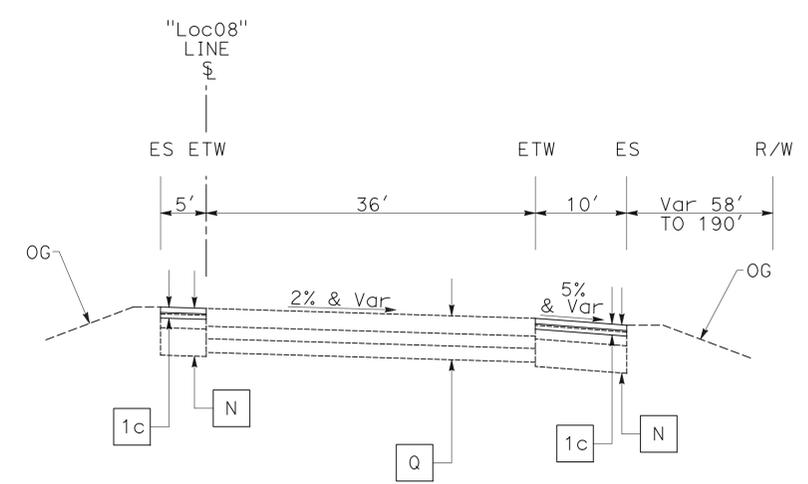
NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 91+66.97 TO "Loc08" Sta 93+13.07
"Loc08" Sta 94+13.61 TO "Loc08" Sta 95+34.50



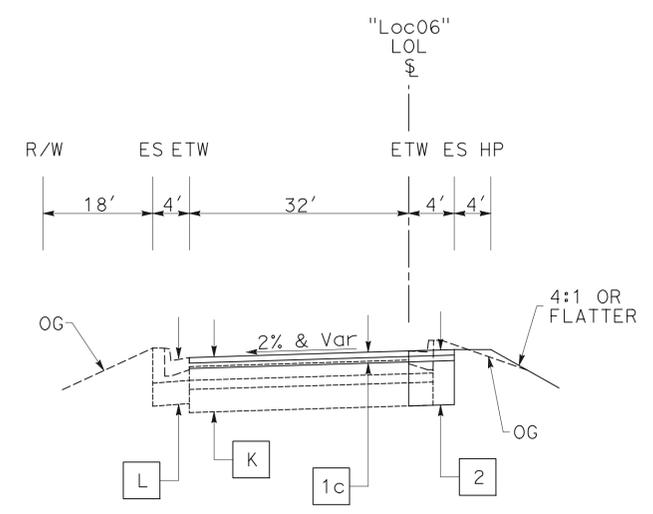
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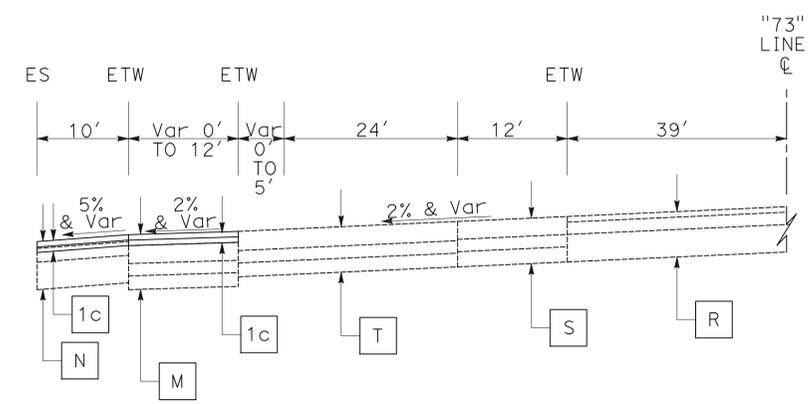
NB 55 TO NB 73 CONNECTOR
"55A" Sta 226+05.74 TO "55A" Sta 229+45.86



NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 89+16.51 TO "Loc08" Sta 91+66.97



SB 55 ON-RAMP FROM BAKER ST
"Loc06" Sta 78+42.47 TO "Loc06" Sta 79+47.49



NB 55 TO SB 73 CONNECTOR
"73" Sta 285+54.00 TO "73" Sta 291+01.96

TYPICAL CROSS SECTIONS
NO SCALE
X-8

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®

USERNAME => p003576F
DGN FILE => 1218000117ca008.dgn



UNIT 2994

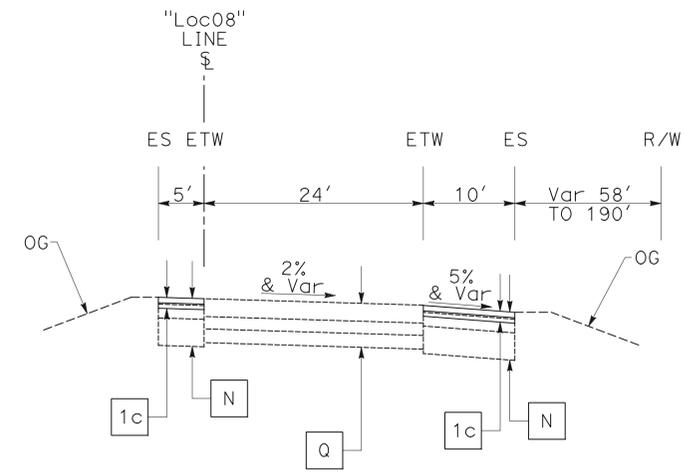
PROJECT NUMBER & PHASE

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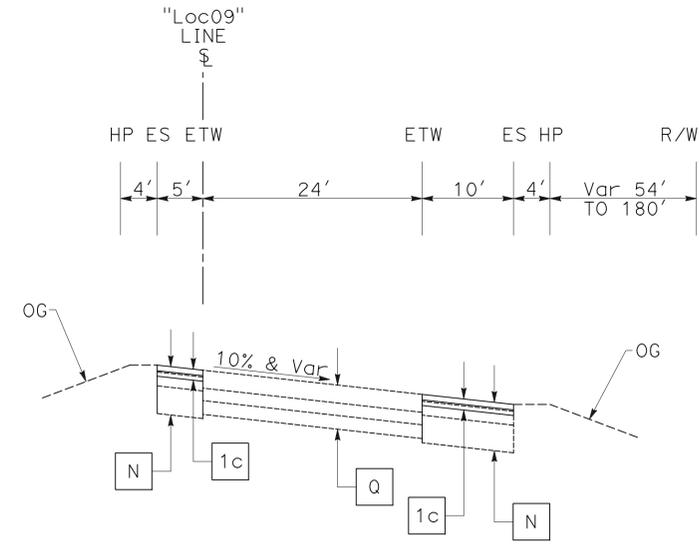
NOT FOR CONSTRUCTION

LAST REVISION | DATE PLOTTED => 7/14/2020
03-19-20 | TIME PLOTTED => 7:56:05 AM

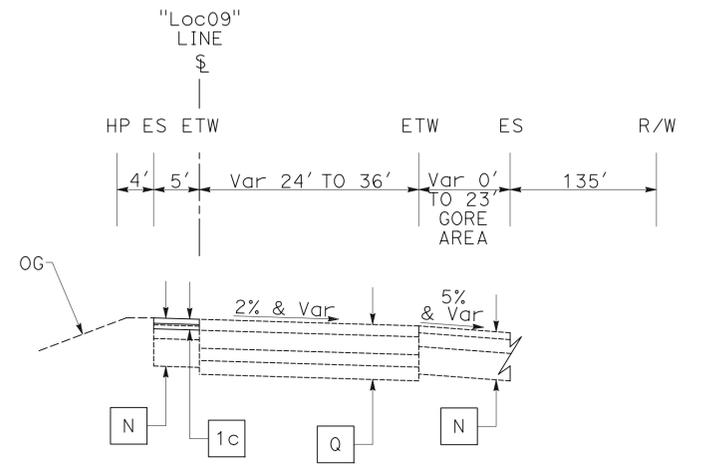
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



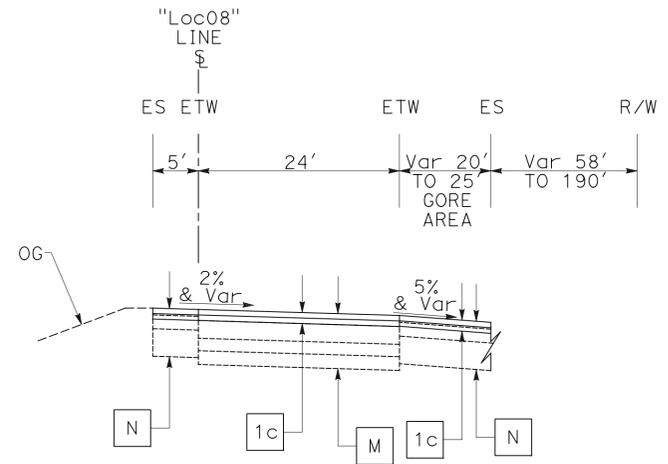
NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 109+60.85 TO "Loc08" Sta 115+21.59



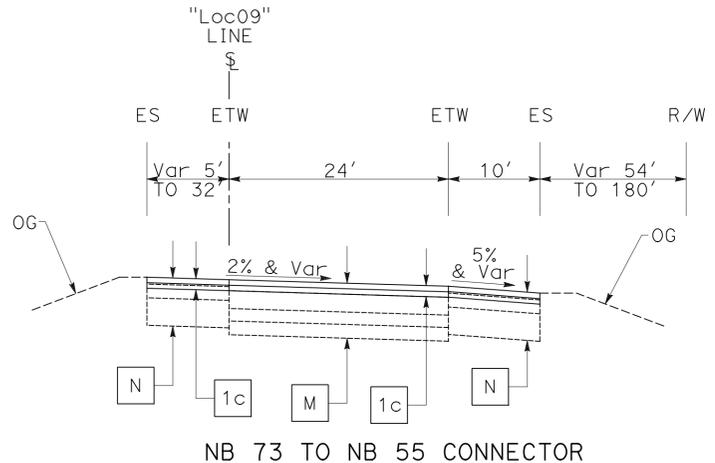
NB 73 TO NB 55 CONNECTOR
"Loc09" Sta 101+11.10 TO "Loc09" Sta 104+53.87
"Loc09" Sta 107+54.40 TO "Loc09" Sta 110+07.08



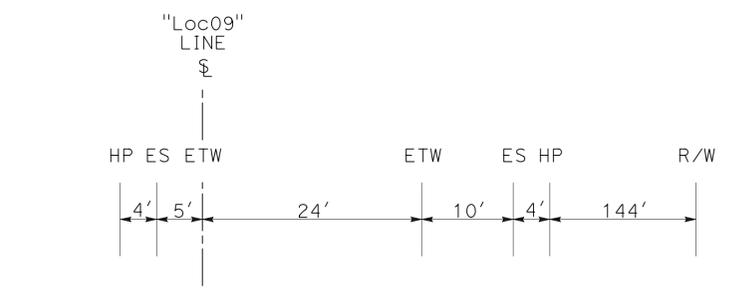
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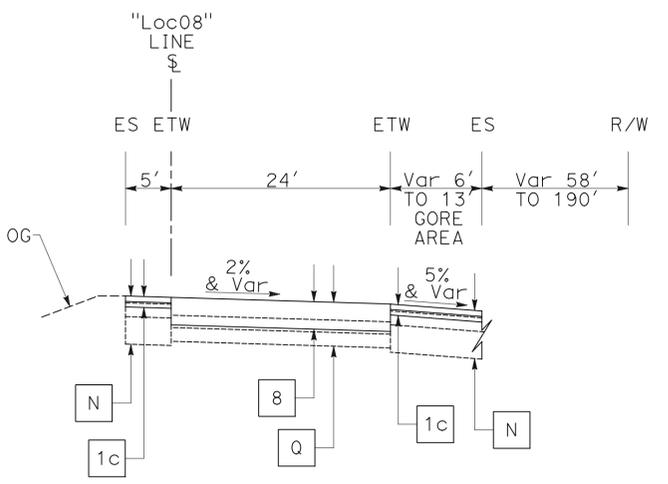
NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 95+34.50 TO "Loc08" Sta 96+01.67



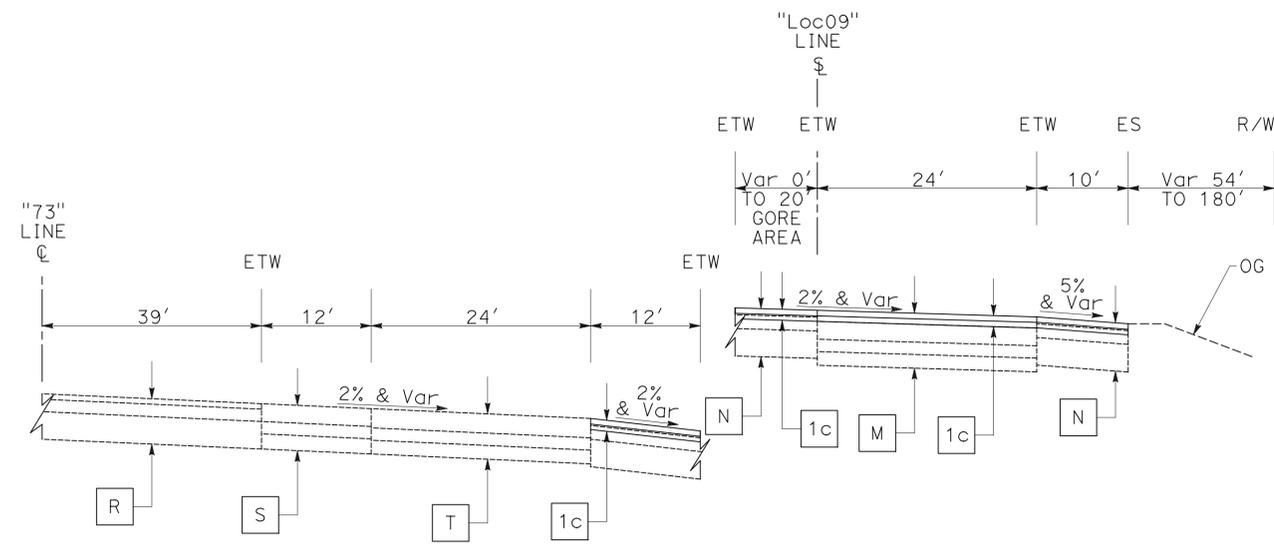
NB 73 TO NB 55 CONNECTOR
"Loc09" Sta 87+36.02 TO "Loc09" Sta 101+11.10



NB 73 TO NB 55 CONNECTOR
"Loc09" Sta 104+53.87 TO "Loc09" Sta 104+86.24



NB 55 TO NB 73 CONNECTOR
"Loc08" Sta 93+13.07 TO "Loc08" Sta 94+13.61



NB 73 TO NB 55 CONNECTOR
"Loc09" Sta 82+34.56 TO "Loc09" Sta 87+36.02

TYPICAL CROSS SECTIONS
NO SCALE

X-9

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

x
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REVISOR BY DATE
CALCULATED-DESIGNED BY
CHECKED BY

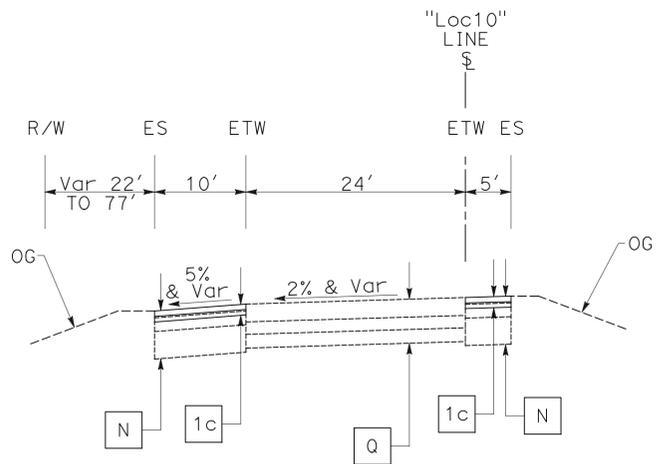
CONSULTANT FUNCTIONAL SUPERVISOR

DEPARTMENT OF TRANSPORTATION

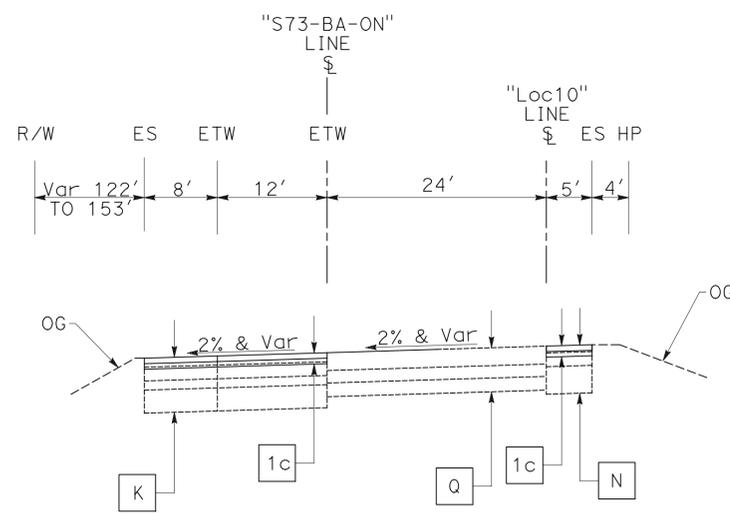
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

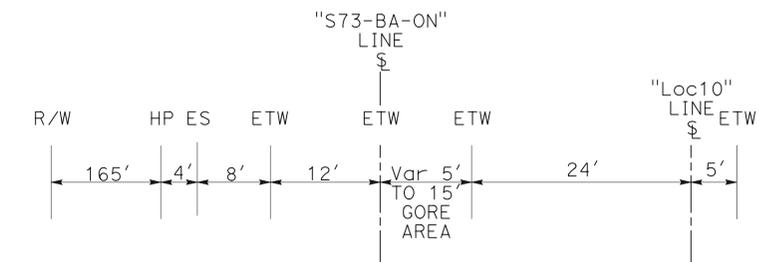
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	CALTRANS D12 1750 E 4th St Santa Ana, CA 92705
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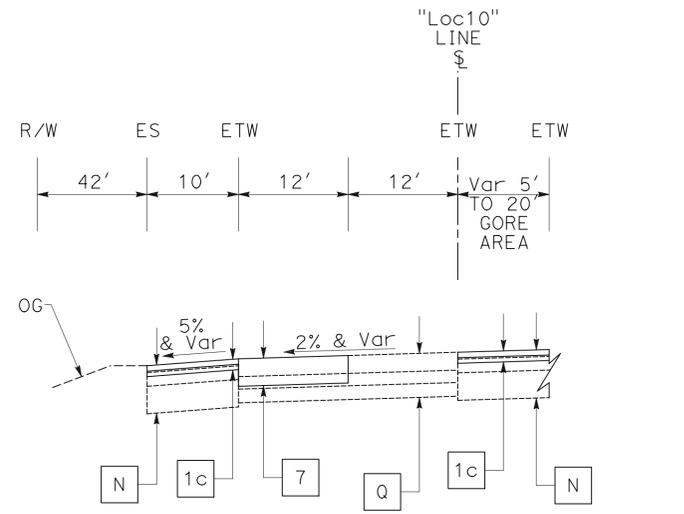
SB 55 TO SB 73 CONNECTOR
"Loc10" Sta 85+83.22 TO "Loc10" Sta 93+53.10



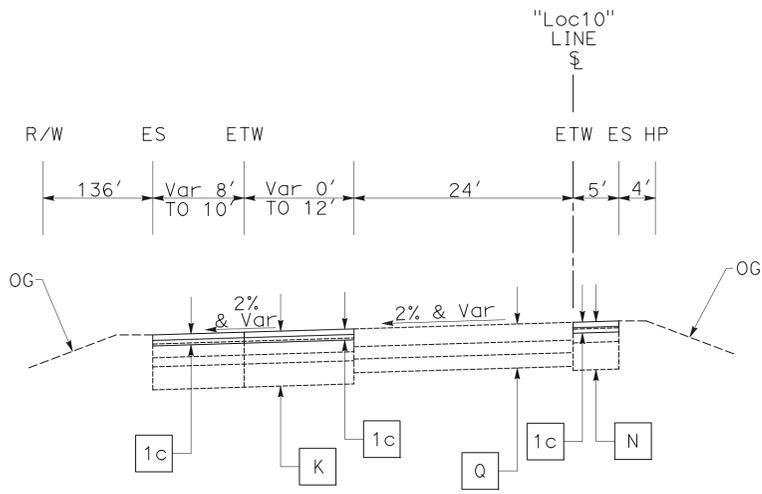
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"Loc10" Sta 117+85.82 TO "Loc10" Sta 118+89.56



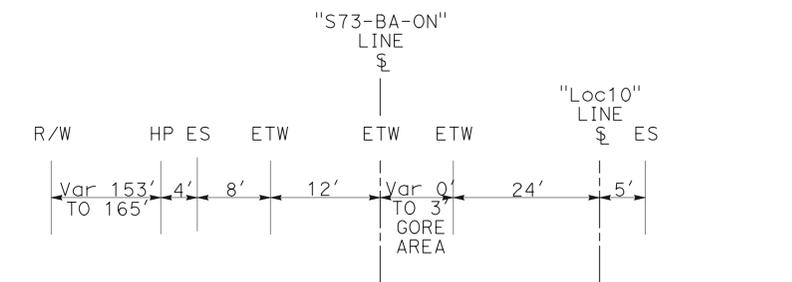
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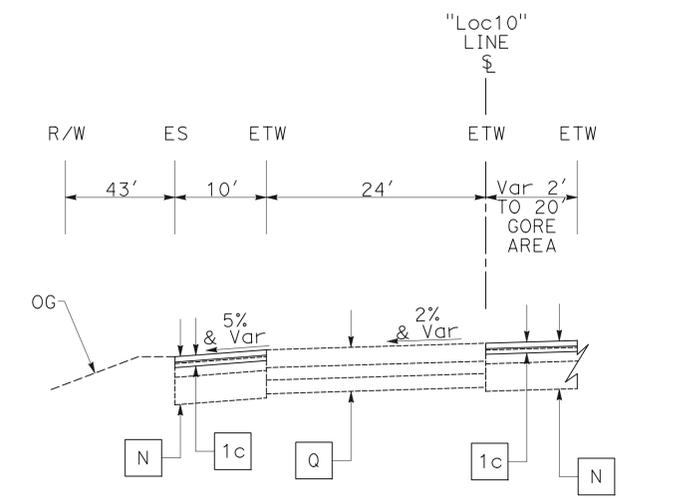
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"Loc10" Sta 84+23.85 TO "Loc10" Sta 85+83.22



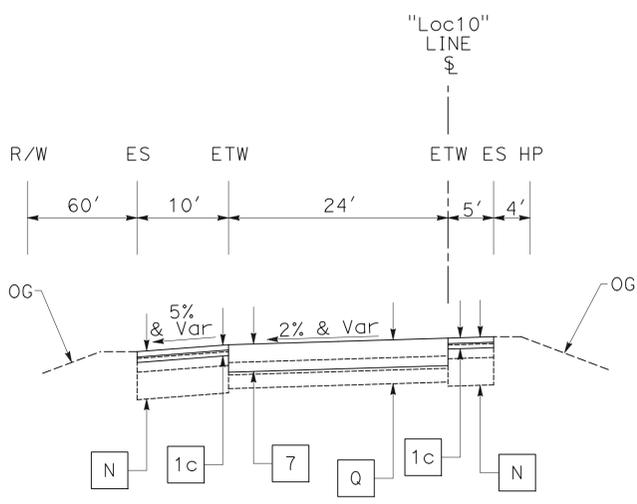
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"Loc10" Sta 116+40.28 TO "Loc10" Sta 117+85.82



SB 55 TO SB 73 CONNECTOR
"Loc10" Sta 118+89.56 TO "Loc10" Sta 119+92.02



SB 55 TO SB 73 CONNECTOR
"Loc10" Sta 79+85.46 TO "Loc10" Sta 84+23.82



SB 55 TO SB 73 CONNECTOR
"Loc10" Sta 93+53.10 TO "Loc10" Sta 93+55.60

TYPICAL CROSS SECTIONS

NO SCALE

X-10

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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RELATIVE BORDER SCALE
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UNIT 2994

PROJECT NUMBER & PHASE

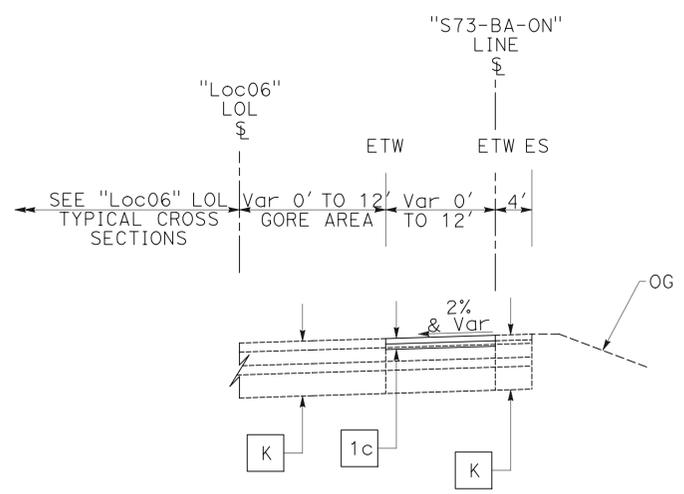
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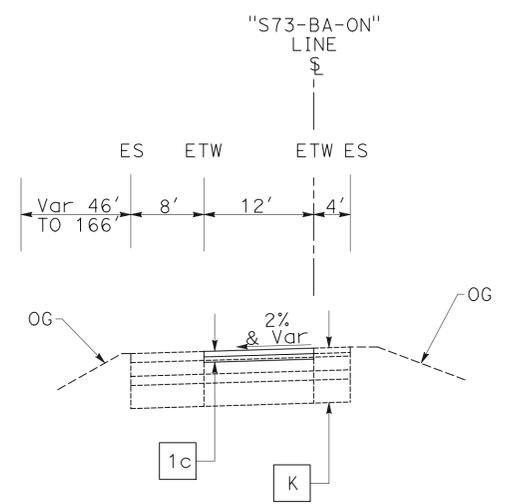
NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

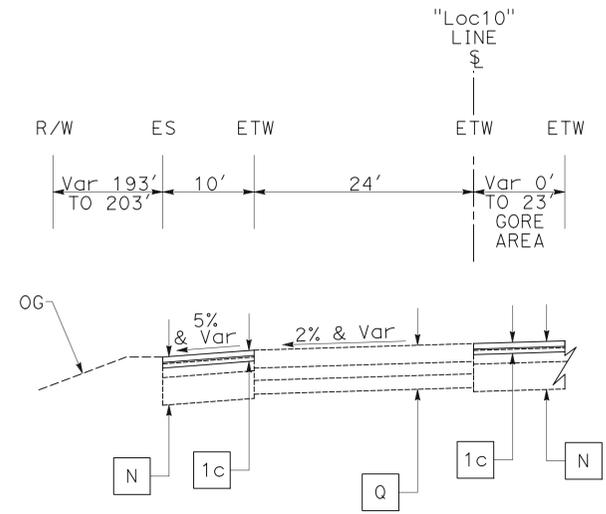
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12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



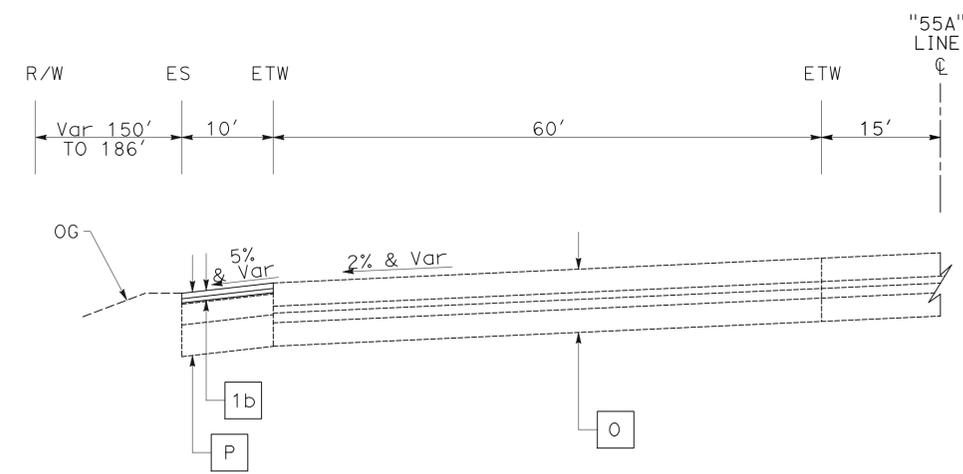
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 "S73-BA-ON" Sta 128+96.63 TO "S73-BA-ON" Sta 131+50.97



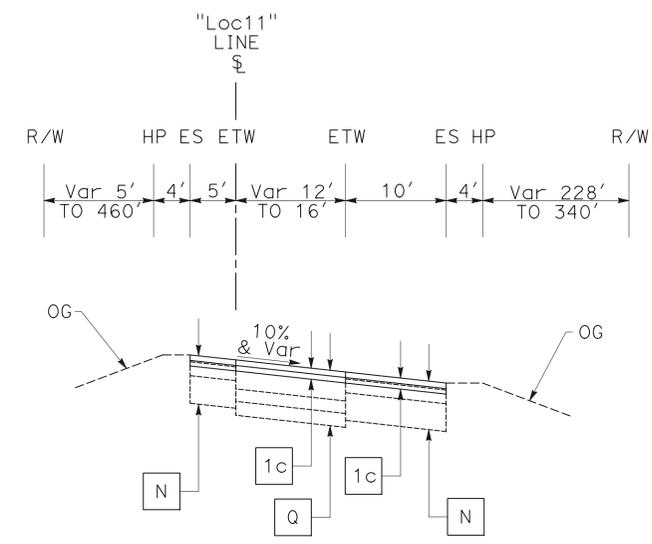
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 "S73-BA-ON" Sta 122+76.37 TO "S73-BA-ON" Sta 128+96.63



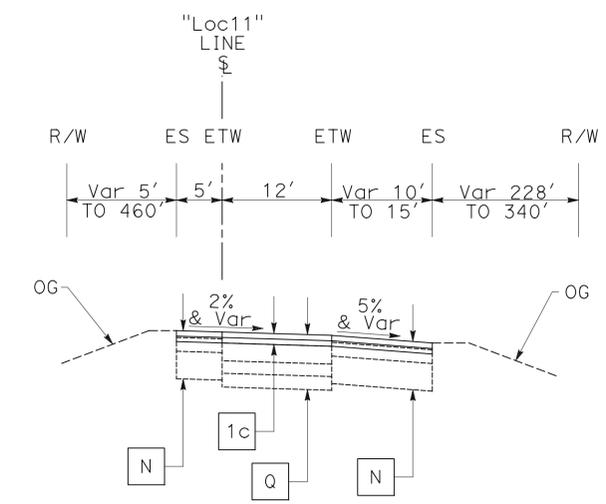
SB 55 TO SB 73 CONNECTOR
 "Loc10" Sta 122+80.48 TO "Loc10" Sta 127+17.15



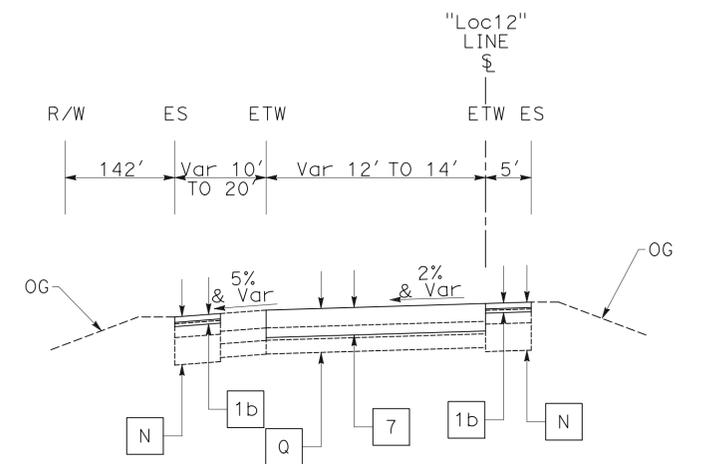
SB 73 TO SB 55 CONNECTOR
 "55A" Sta 233+89.51 TO "55A" Sta 237+45.88



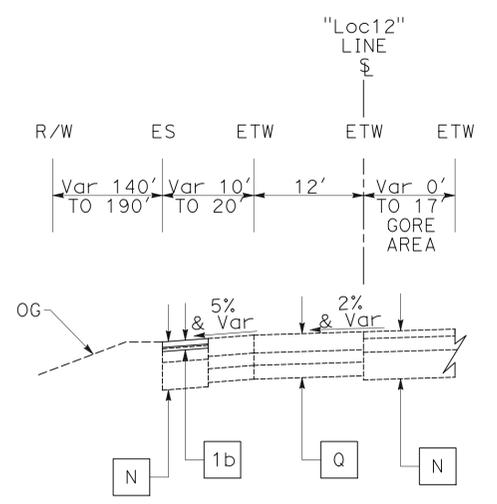
NB 73 TO SB 55 CONNECTOR
 "Loc11" Sta 23+12.95 TO "Loc11" Sta 26+18.97
 "Loc11" Sta 29+43.32 TO "Loc11" Sta 33+59.88



NB 73 TO SB 55 CONNECTOR
 "Loc11" Sta 10+67.03 TO "Loc11" Sta 19+15.85



SB 73 TO SB 55 CONNECTOR
 "Loc12" Sta 100+44.32 TO "Loc12" Sta 100+65.84



SB 73 TO SB 55 CONNECTOR
 "Loc12" Sta 95+63.84 TO "Loc12" Sta 100+44.32

TYPICAL CROSS SECTIONS
 NO SCALE
X-11

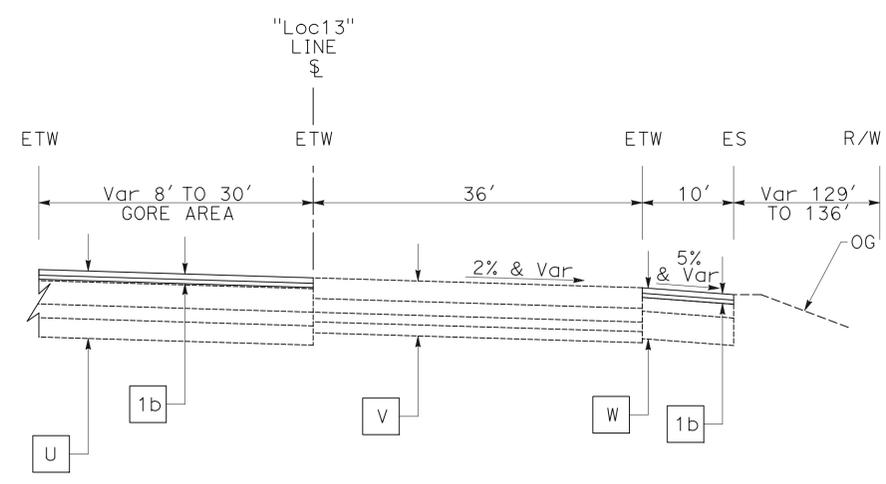
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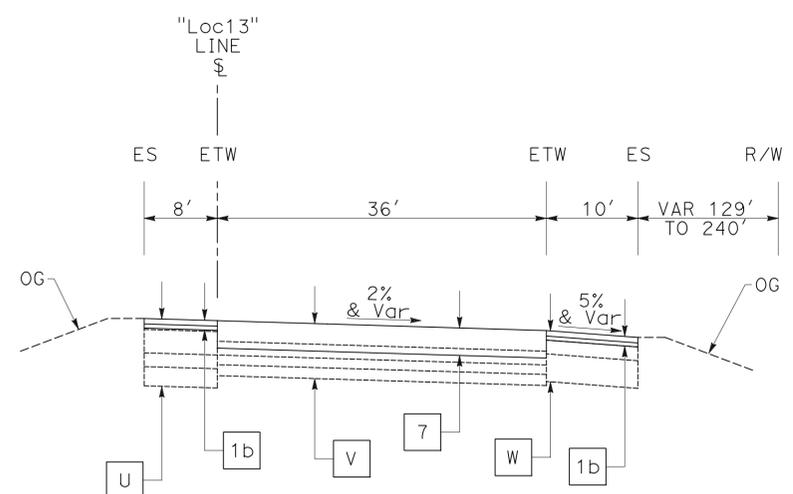
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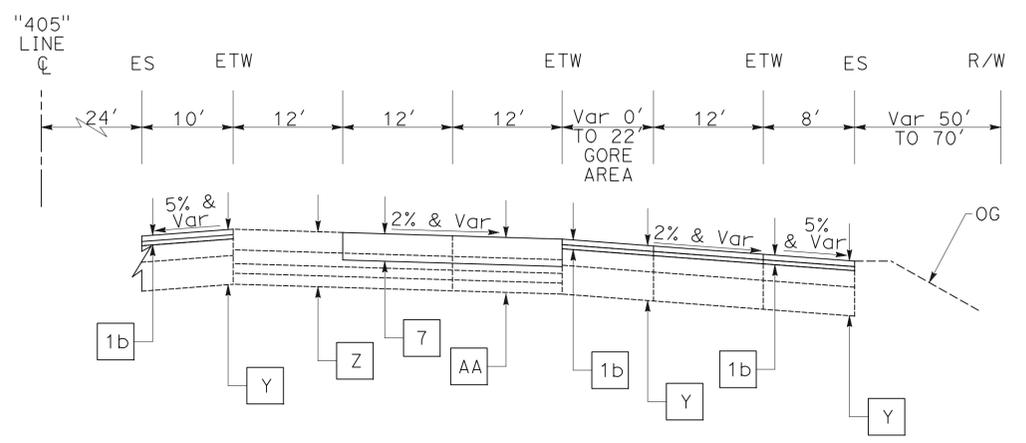
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



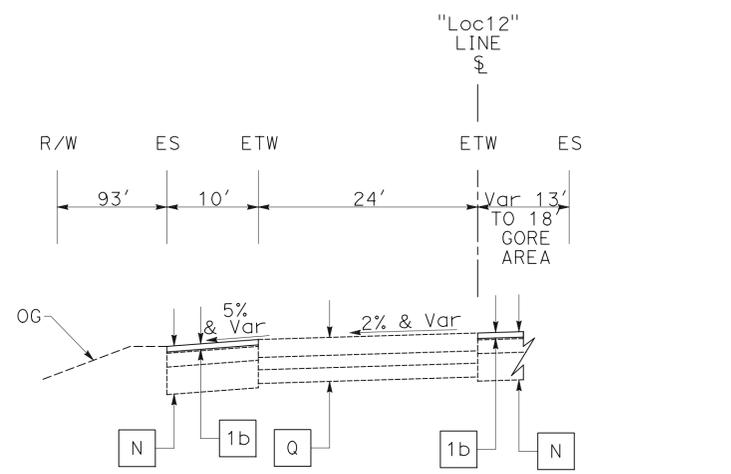
NB 5 TO NB 405 CONNECTOR
 "Loc13" Sta 31+92.66 TO "Loc13" Sta 32+34.34
 "Loc13" Sta 32+55.52 TO "Loc13" Sta 33+64.88
 "Loc13" Sta 34+62.83 TO "Loc13" Sta 36+57.09



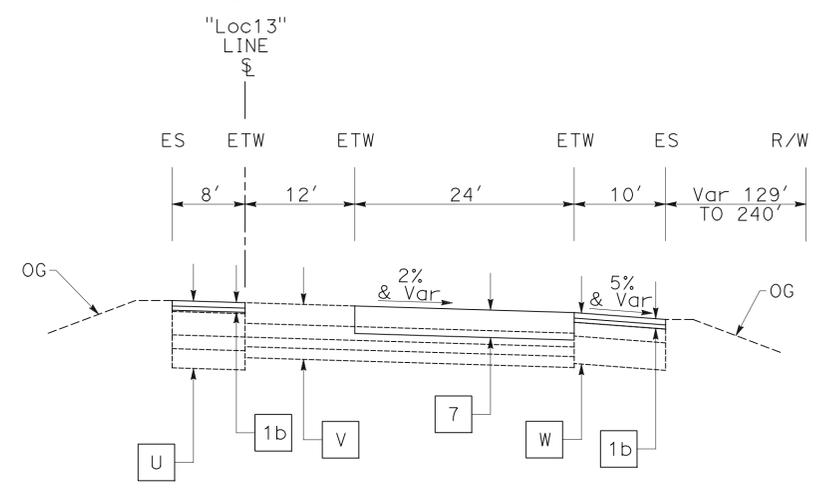
NB 5 TO NB 405 CONNECTOR
 "Loc13" Sta 40+40.81 TO "Loc13" Sta 47+72.88



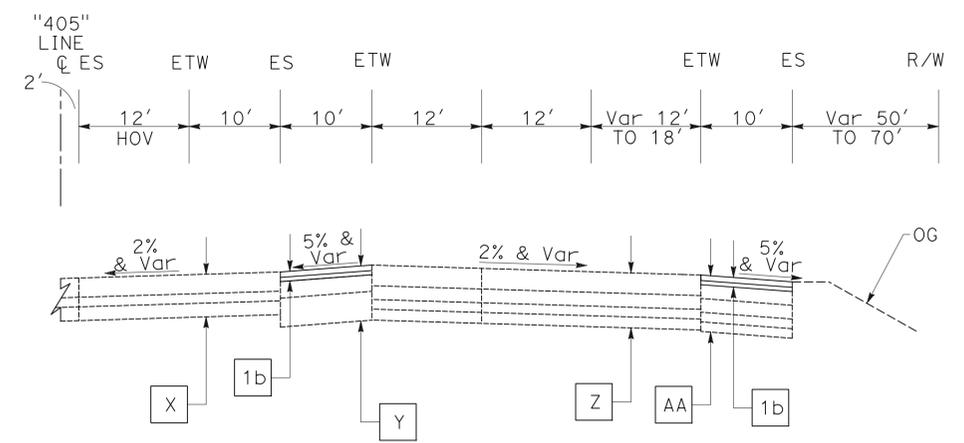
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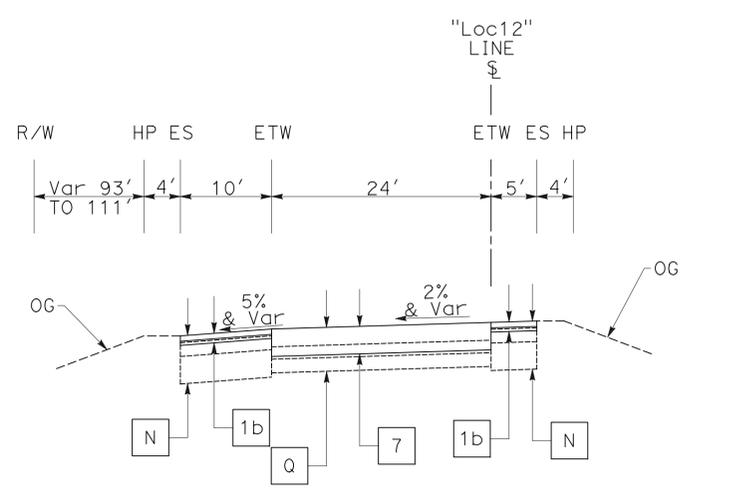
SB 73 TO SB 55 CONNECTOR
 "Loc12" Sta 113+71.65 TO "Loc12" Sta 114+68.47



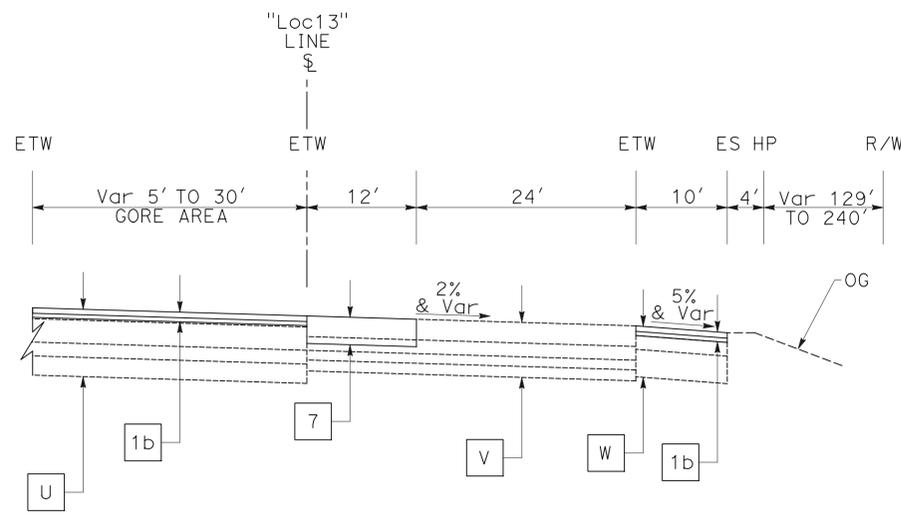
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 "Loc13" Sta 33+64.88 TO "Loc13" Sta 34+62.83
 "Loc13" Sta 36+57.09 TO "Loc13" Sta 40+40.81



NB 5 TO NB 405 CONNECTOR
 "405" Sta 53+97.38 TO "405" Sta 56+23.57



SB 73 TO SB 55 CONNECTOR
 "Loc12" Sta 103+12.68 TO "Loc12" Sta 113+71.65



NB 5 TO NB 405 CONNECTOR
 "Loc13" Sta 32+34.34 TO "Loc13" Sta 32+55.52
 "Loc13" Sta 47+72.88 TO "Loc13" Sta 50+52.00

TYPICAL CROSS SECTIONS
 NO SCALE
X-12

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans

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RELATIVE BORDER SCALE
 1" = 15' IN INCHES

UNIT 2994

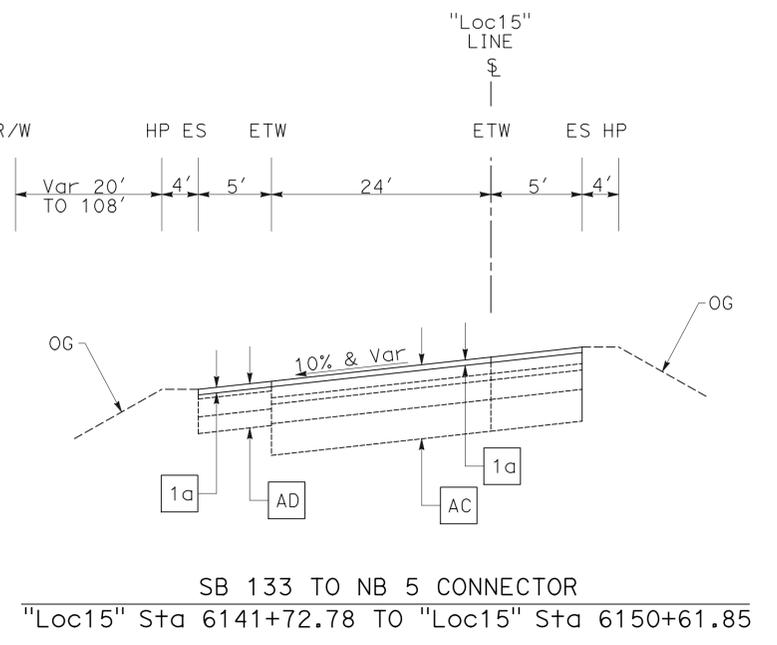
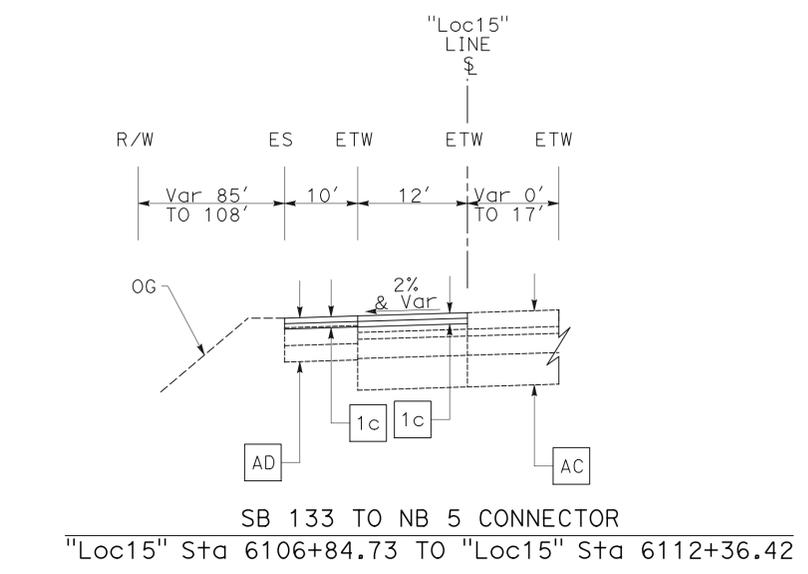
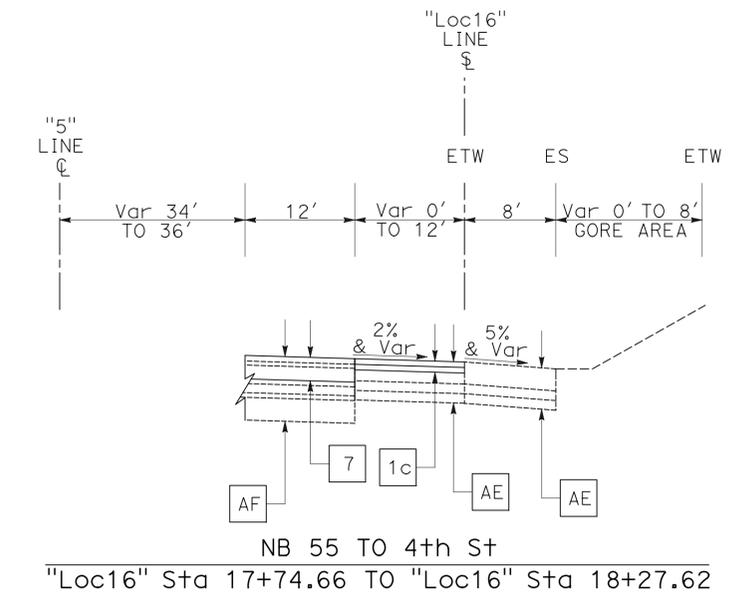
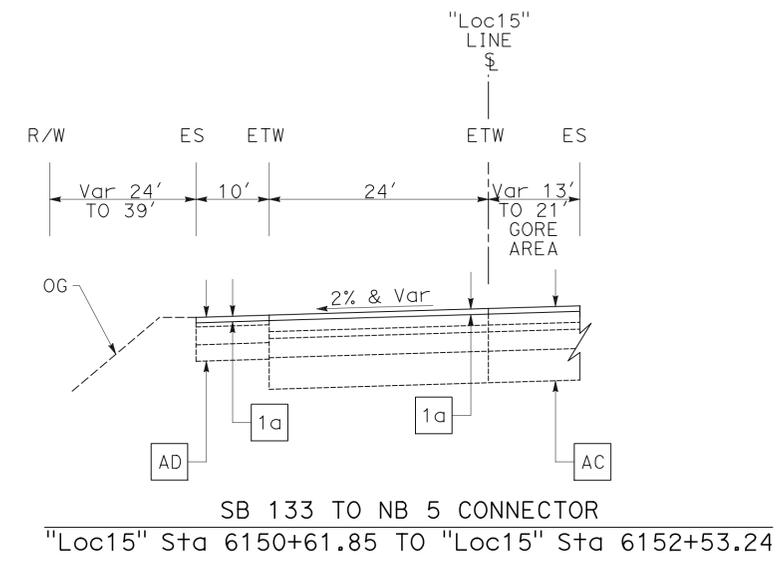
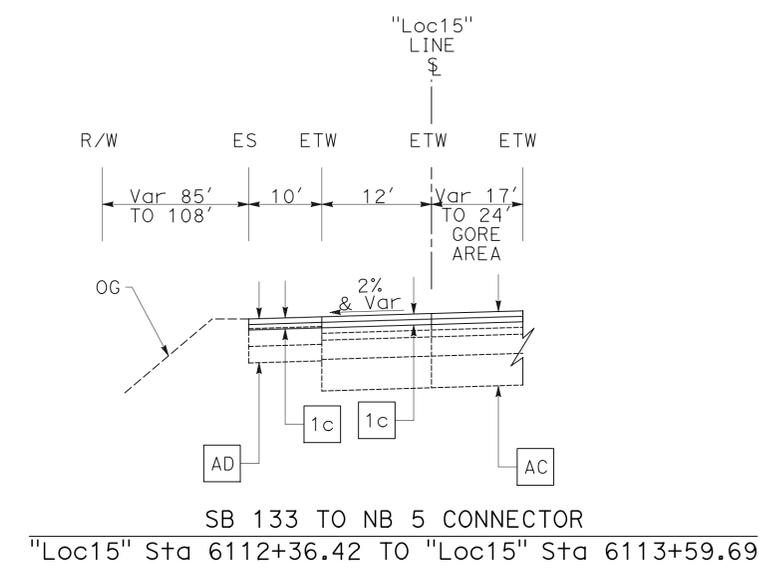
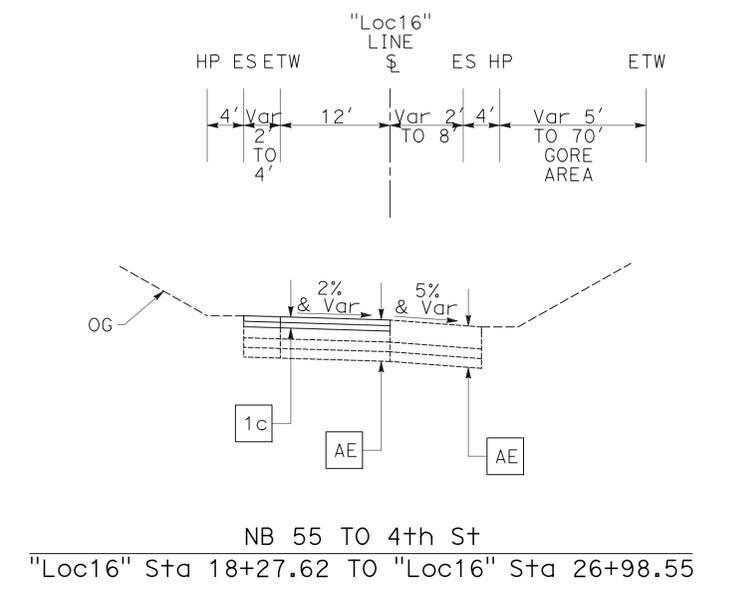
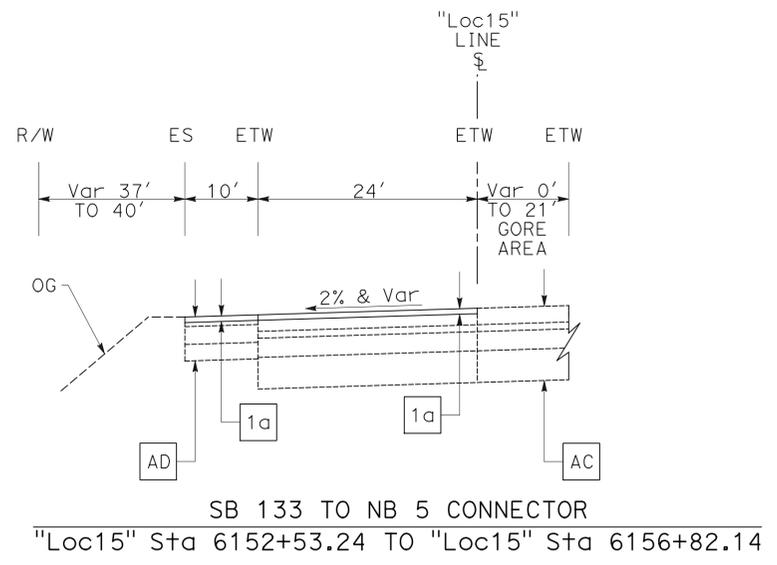
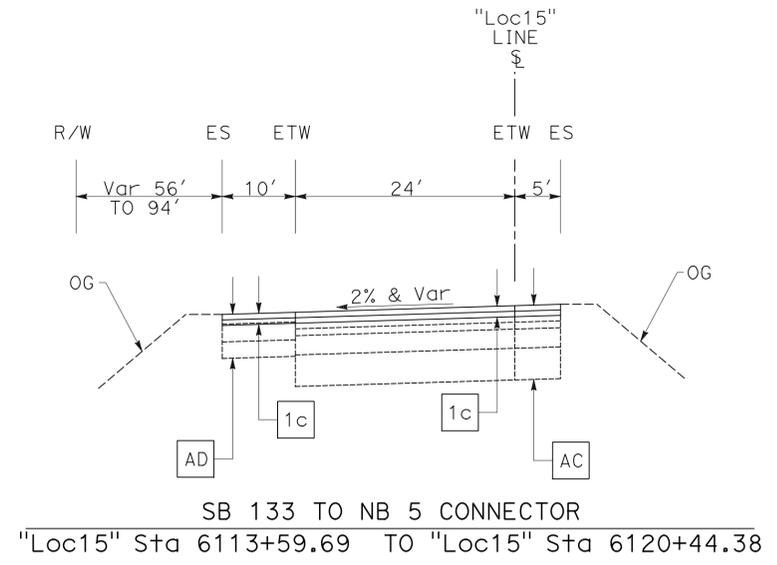
PROJECT NUMBER & PHASE

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NOT FOR CONSTRUCTION

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 03-19-20 TIME PLOTTED => 7:57:10 AM

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12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



TYPICAL CROSS SECTIONS
NO SCALE
X-14

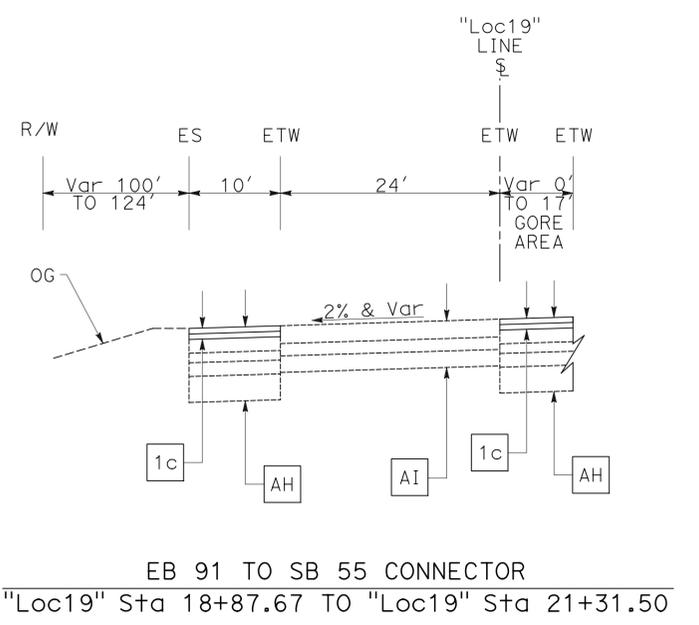
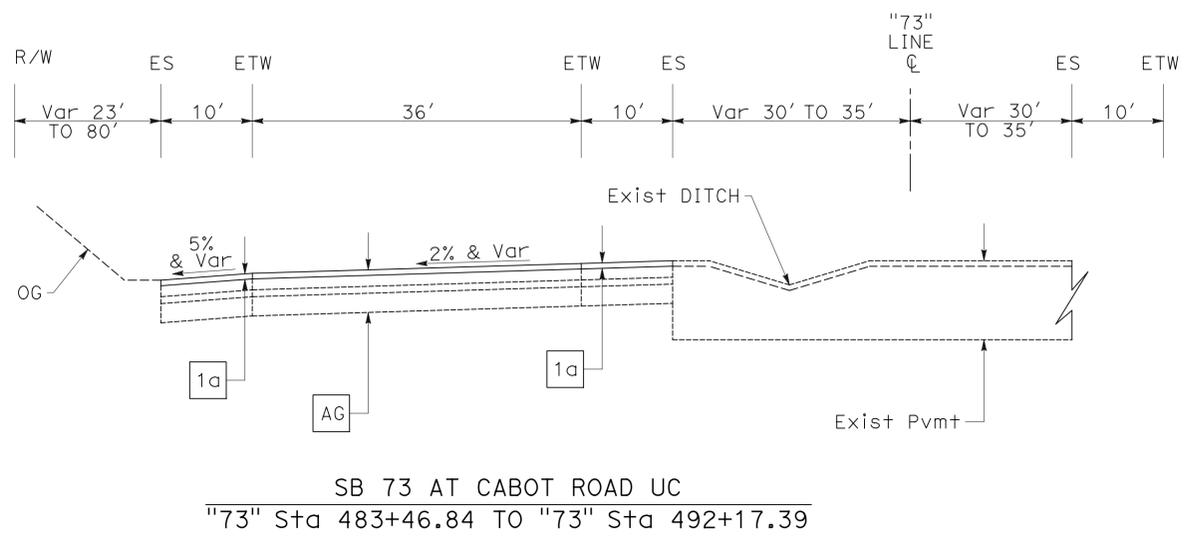
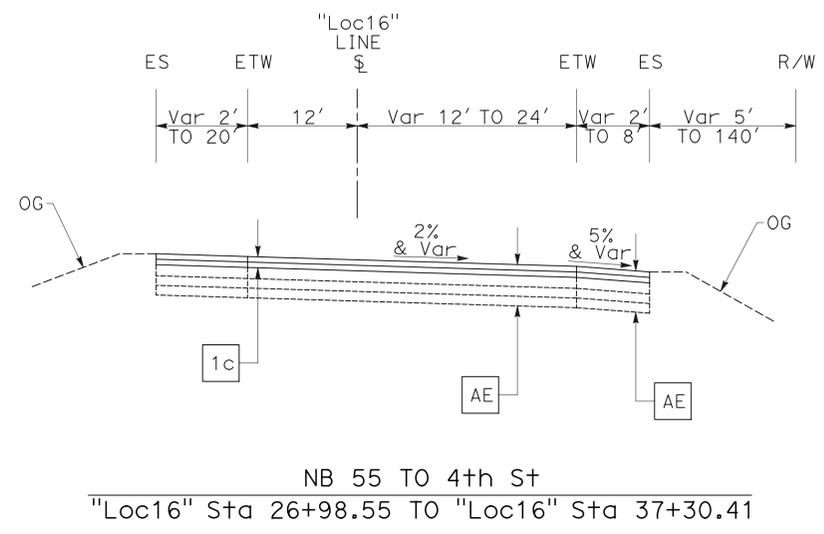
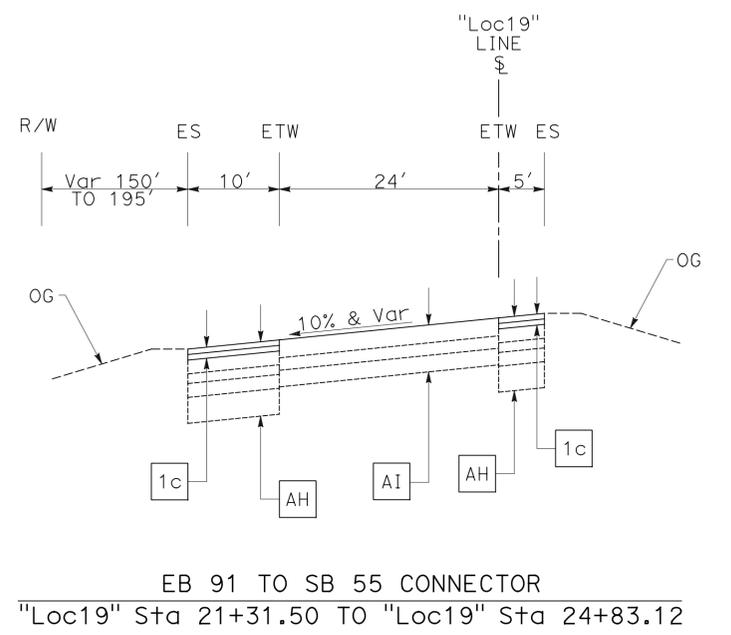
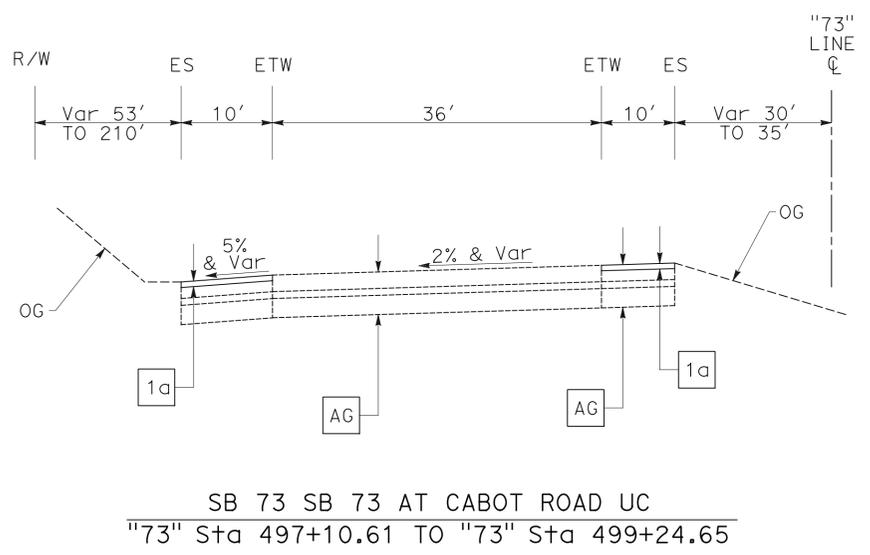
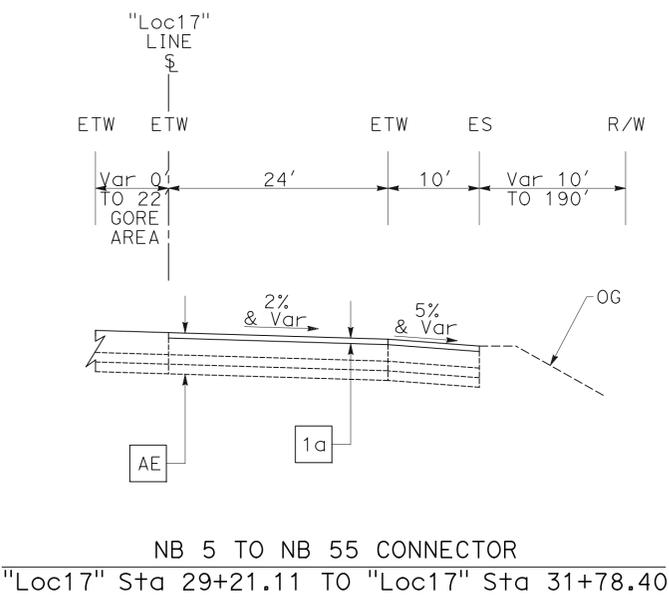
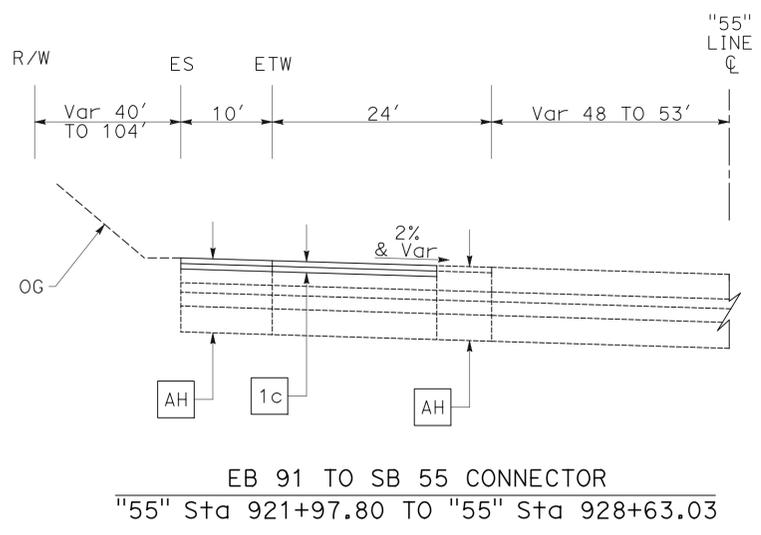
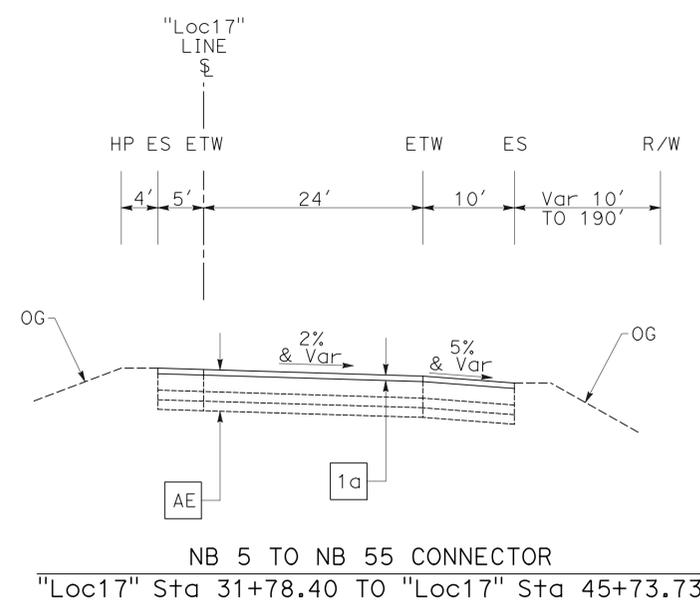
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

 CONSULTANT - FUNCTIONAL SUPERVISOR
 CALCULATED - DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

NOT FOR CONSTRUCTION

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PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
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TYPICAL CROSS SECTIONS
NO SCALE
X-15

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 CONSULTANT - FUNCTIONAL SUPERVISOR
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 REVISOR BY
 DATE REVISOR

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DGN FILE => \$REQUEST



UNIT 2994

PROJECT NUMBER & PHASE

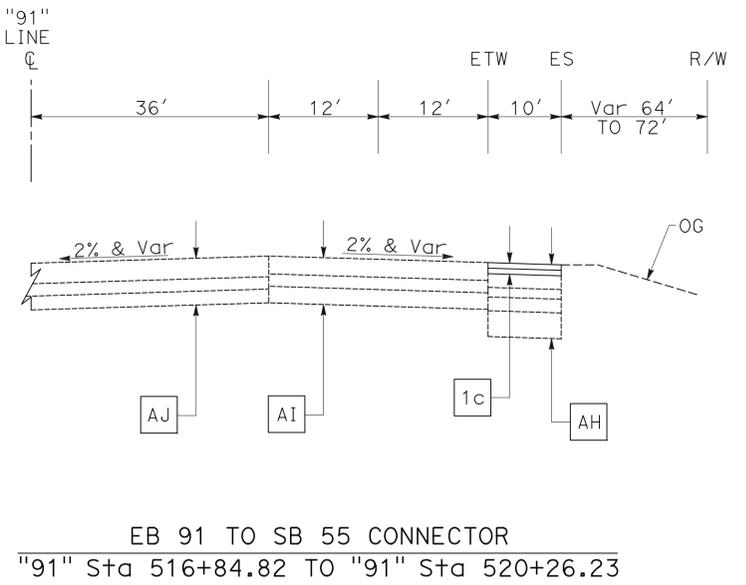
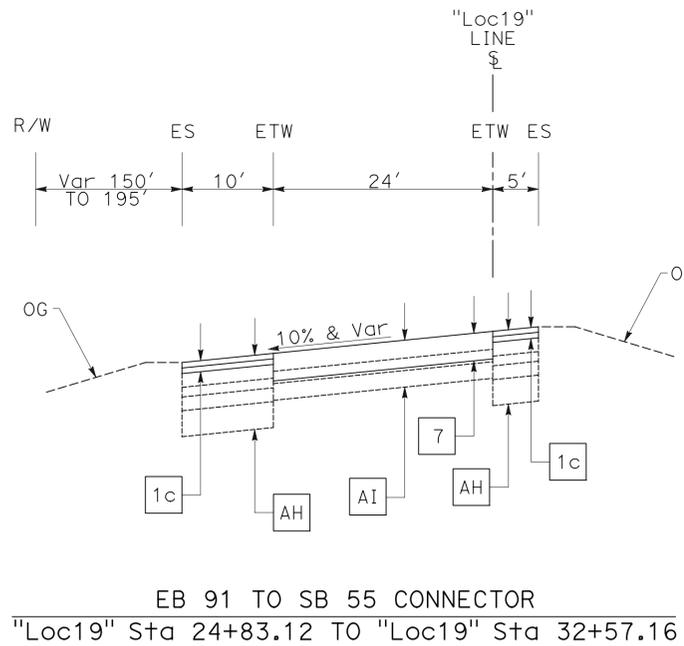
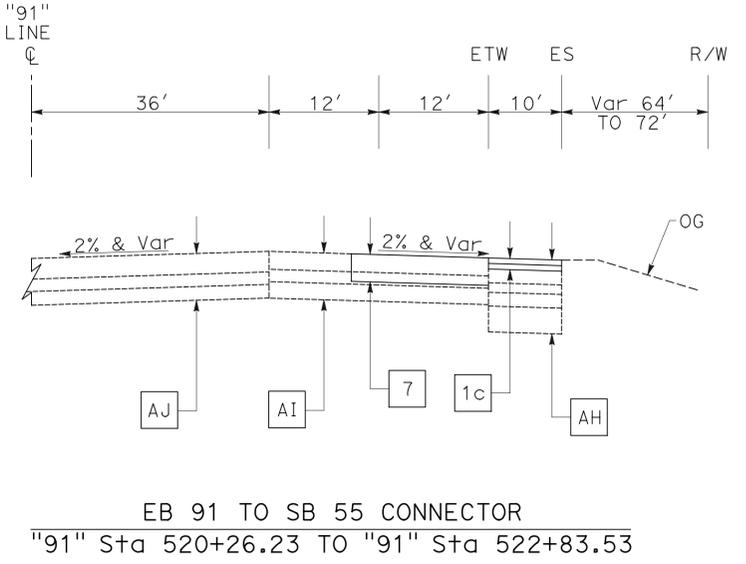
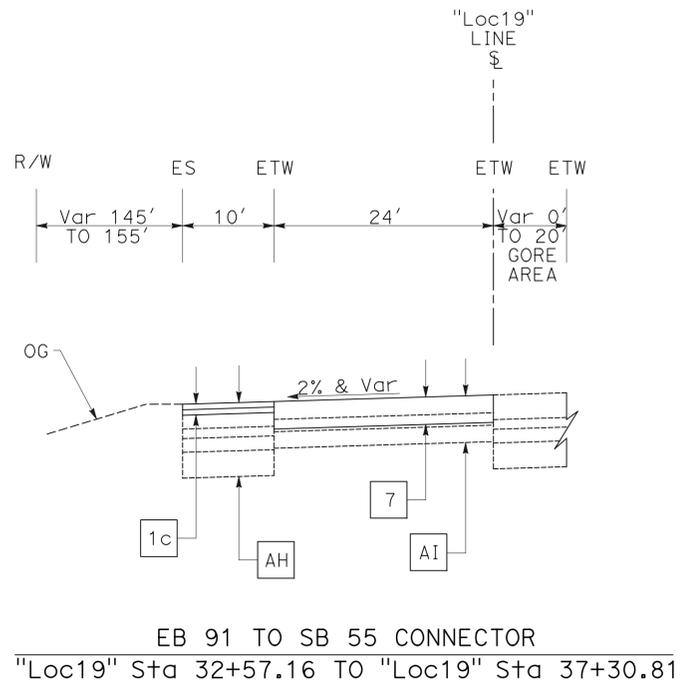
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NOT FOR CONSTRUCTION

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03-19-20 | TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans		CHECKED BY	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



TYPICAL CROSS SECTIONS
 NO SCALE
X-16

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LAST REVISION | DATE PLOTTED => 7/14/2020
03-19-20 TIME PLOTTED => 7:58:06 AM

ATTACHMENT E
Cost Estimate

PA&ED COST ESTIMATE

EA: 12-OR5600

District-County-Route: 12-Ora-Var

PID: 1218000117

PM: Var

Type of Estimate : Project Report

Program Code : 201.121 Pavement Reservation

Project Limits : On 55/405, 55/73, 55/5, 55/91, 5/405, 5/133 connectors and on SB55 to Baker off-ramp

Project Description: Repair broken concrete slabs; cold plane and replace asphalt pavement; install new and upgrade existing traffic safety devices; shoulder widening

Scope : Alternative proposes to rehabilitate existing pavement by repairing broken concrete slabs and removing/replacing existing asphalt concrete with new RHMA-G at seventeen connectors, one ramp, and one overcrossing.

Alternative : 1

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost		Escalated Cost
TOTAL ROADWAY COST	\$ 23,623,000	\$	26,171,865
TOTAL STRUCTURES COST	\$ 288,563	\$	319,698
SUBTOTAL CONSTRUCTION COST	\$ 23,911,563	\$	26,491,563
TOTAL RIGHT OF WAY COST			
TOTAL CAPITAL OUTLAY COSTS	\$ 23,920,000	\$	26,500,000
PA/ED SUPPORT	\$ 3,000,000	\$	3,000,000
PS&E SUPPORT	\$ 5,281,000	\$	5,400,000
RIGHT OF WAY SUPPORT	\$ -	\$	-
CONSTRUCTION SUPPORT	\$ 5,045,000	\$	5,500,000
TOTAL SUPPORT COST	\$ 13,326,000	\$	13,900,000

TOTAL PROJECT COST	\$ 37,250,000	\$	40,400,000
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If Project has been programmed enter Programmed Amount

Escalated factor 3.2%

Month / Year

Date of Estimate (Month/Year) 8 / 2020

Estimated Construction Start (Month/Year) 11 / 2022

Number of Working Days 500

Estimated Mid-Point of Construction (Month/Year) 11 / 2023 (3.25 years)

Estimated Construction End (Month/Year) 11 / 2024

Number of Plant Establishment Days

Estimated Project Schedule

PID Approval	December	2018
PA/ED Approval	August	2020
PS&E	February	2022
RTL	May	2022
Begin Construction	November	2022

Reviewed by District O.E. or
Cost Estimate Certifier

Office Engineer / Cost Estimate Certifier	Date	Phone
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Approved by Project Manager

Project Manager	Date	Phone
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SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price (\$)		Cost
190101	Roadway Excavation	CY	14,040	x	39.00	= \$	547,560
198010	Imported Borrow	CY	11,400	x	45.00	= \$	513,000
170103	Clearing & Grubbing	LS	1	x	60,000.00	= \$	60,000

TOTAL EARTHWORK SECTION ITEMS	\$	1,120,600
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SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price (\$)		Cost
198210	Subgrade Enhancement Geotextile, Class B3	SQYD	7,100	x	3.75	= \$	26,625
250201	Class 2 Aggregate Subbase	CY	3,380	x	50.00	= \$	169,000
260203	Class 2 Aggregate Base	CY	200	x	75.00	= \$	15,000
290201	Asphalt Treated Permeable Base	CY	30	x	275.00	= \$	8,250
374493	Polymer Asphaltic Emulsion (Seal Coat)	TON	63	x	800.00	= \$	50,400
390132	Hot Mix Asphalt (Type A)	TON	21,200	x	90.00	= \$	1,908,000
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	20,800	x	100.00	= \$	2,080,000
390402	Rubberized Hot Mix Asphalt (Open Graded)	TON	3,610	x	125.00	= \$	451,250
394074	Place Hot Mix Asphalt Dike (Type C)	LF	1,140	x	5.00	= \$	5,700
394077	Place Hot Mix Asphalt Dike (Type F)	LF	19,200	x	2.00	= \$	38,400
397005	Tack Coat	TON	37	x	800.00	= \$	29,600
398100	Remove Asphalt Concrete Dike	LF	6,840	x	2.00	= \$	13,680
398200	Cold Plane Asphalt Concrete Pavement	SQYD	145,500	x	4.00	= \$	582,000
411105	Individual Slab Replacement (RSC)	CY	5,700	x	645.00	= \$	3,676,500
414220	Replace Joint Seal (Asphalt Rubber)	LF	41,600	x	3.75	= \$	156,000
418005	Remove Concrete Pavement	SQYD	19,800	x	15.00	= \$	297,000
420201	Grind Existing Concrete Pavement	SQYD	56,320	x	5.00	= \$	281,600
600013	Repair Spalled Surface Area	SQFT	120	x	114.00	= \$	13,680
600041	Furnish Polyester Concrete Overlay	CF	1,200	x	96.50	= \$	115,800
600043	Place Polyester Concrete Overlay	SQFT	14,400	x	5.50	= \$	79,200
420203A	Grind 1" Existing Approaching/Departure Slabs	SQYD	1,600	x	20.00	= \$	32,000

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	\$	10,029,700
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SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price (\$)		Cost
202006	Soil Amendment	CY	501	x	60.00	= \$	30,060
510092	Structural Concrete, Headwall	CY	6	x	2,250.00	= \$	13,500
510094	Structural Concrete, Drainage Inlet	CY	133	x	2,410.00	= \$	320,530
610112	24" Alternative Pipe Culvert	LF	2,963	x	98.00	= \$	290,374
610201	18" Alternative Slotted Pipe	LF	50	x	157.00	= \$	7,850
705206	24" Concrete Flared End Section	EA	2	x	2,090.00	= \$	4,180
710132	Remove Culvert	LF	363	x	55.00	= \$	19,965
710150	Remove Inlet	EA	14	x	1,200.00	= \$	16,800
723095	Rock Slope Protection (20 LB, Class I, Method B)	CY	47	x	240.00	= \$	11,280
729011	Rock Slope Protection Fabric (Class 8)	SQYD	108	x	15.00	= \$	1,620
731502	Minor Concrete (Miscellaneous Construction)	CY	11	x	1,080.00	= \$	11,880
750001	Miscellaneous Iron and Steel	LB	16,213	x	2.70	= \$	43,775
XXXXXX	Full Trash Capture Inlet Filter	EA	134	x	1,200.00	= \$	160,800
	10% Miscellaneous	-	-	x	-	= \$	93,261

TOTAL DRAINAGE ITEMS	\$ 1,025,900
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SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price (\$)		Cost
141120	Treated Wood Waste	LB	124,160	x	0.35	= \$	43,456
731840	Remove Concrete (Curb and Gutter)	LF	8,700	x	7.50	= \$	65,250
810190	Guard Railing Delineator	EA	700	x	30.00	= \$	21,000
820590	Relocate Roadside Sign - One Post	EA	5	x	1,000.00	= \$	5,000
820600	Relocate Roadside Sign - Two Post	EA	3	x	1,000.00	= \$	3,000
832007	Midwest Guardrail System (Wood Post)	LF	15,200	x	25.00	= \$	380,000
832015	Midwest Guardrail System (7' Wood Post)	LF	820	x	30.00	= \$	24,600
839221	Double Midwest Guardrail System (Wood Post)	LF	50	x	50.00	= \$	2,500
839543	Transition Railing (Type WB-31)	EA	38	x	3,500.00	= \$	133,000
839581	End Anchor Assembly (Type SFT)	EA	31	x	900.00	= \$	27,900
839584	Alternative In-Line Terminal System	EA	41	x	3,500.00	= \$	143,500
839640	Concrete Barrier (Type 60M)	LF	390	x	240.00	= \$	93,600
839731	Concrete Barrier (Type 736B)	LF	540	x	200.00	= \$	108,000
839752	Remove Guardrail	LF	9,700	x	7.00	= \$	67,900
839782	Remove Crash Cushion	EA	3	x	2,000.00	= \$	6,000
035913A	Alternative Severe Duty Crash Cushion	EA	3	x	35,000.00	= \$	105,000
038821A	Strengthened MGS (Wood Post)	LF	350	x	125.00	= \$	43,750
039021A	Concrete Anchor Block	EA	27	x	3,800.00	= \$	102,600
XXXXXX	Traffic Count Station	EA	1	x	75,000.00	= \$	75,000

TOTAL SPECIALTY ITEMS	\$ 1,451,100
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SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code	Unit	Quantity		Unit Price (\$)	=	Cost
Biological Mitigation	LS	1	x	15,000.00	= \$	15,000
Hazardous Material Investigation	LS	1	x	37,700.00	= \$	37,700
Hazardous Material Remediation	LS	1	x	35,000.00	= \$	35,000
066596 Additional Water Pollution Control	LS	1	x	3,200.00	= \$	3,200
<i>Subtotal Environmental Mitigation</i>						\$ 90,900

5D - NPDES

Item code	Unit	Quantity		Unit Price (\$)	=	Cost
130100 Job Site Management	LS	1	x	134,500.00	= \$	134,500
130300 Prepare SWPPP	LS	1	x	96,100.00	= \$	96,100
130310 Rain Event Action Plan (REAP)	EA	97	x	500.00	= \$	48,500
130320 Storm Water Sampling and Analysis Day	EA	15	x	11,800.00	= \$	177,000
130330 Storm Water Annual Report	EA	4	x	2,000.00	= \$	8,000
130730 Street Sweeping	LS	1	x	51,600.00	= \$	51,600
Temporary Construction Site BMPs	-	-	x	-	= \$	331,250
<i>(1.25% Total Construction Cost)</i>						
<i>Subtotal NPDES</i>						\$ 846,950

TOTAL ENVIRONMENTAL	\$ 937,900
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*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code	Unit	Quantity	Unit Price (\$)	Cost
872130 Modifying Existing Electrical System	LS	1	x 350,000.00 = \$	350,000
872130A Modifying Existing Traffic Management System	LS	1	x 25,000.00 = \$	25,000
<i>Subtotal Traffic Electrical</i>				\$ 375,000

6B - Traffic Signing and Striping

Item code	Unit	Quantity	Unit Price (\$)	Cost
846030 Remove Thermoplastic Traffic Stripe	LF	140,000	x 0.50 = \$	70,000
810120 Remove Pavement Marker	EA	2,700	x 1.25 = \$	3,375
498052 60" Cast-in-Drilled-Hole Concrete Pile (Sign Foundation)	LF	25	x 1,200.00 = \$	30,000
560218 Furnish Sign Structure (Truss)	LB	23,000	x 5.00 = \$	115,000
560219 Install Sign Structure (Truss)	LB	23,000	x 0.50 = \$	11,500
568046 Remove Sign Structure	EA	1	x 3,600.00 = \$	3,600
820710 Furnish Laminated Panel Sign (1"-Type A)	SQFT	350	x 26.00 = \$	9,100
840550 8" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility) (Broken 36-12)	LF	10,000	x 0.75 = \$	7,500
846007 6" Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF	130,000	x 0.75 = \$	97,500
810230 Pavement Marker (Retroreflective)	EA	2,700	x 3.25 = \$	8,775
<i>Subtotal Traffic Signing and Striping</i>				\$ 356,350

6C - Traffic Management Plan

Item code	Unit	Quantity	Unit Price (\$)	Cost
120100A Connector and Ramp Closures	LS	1	x 500,500.00 = \$	500,500
120201 Portable Radar Speed Feedback Sign System	EA	2	x 30,000.00 = \$	60,000
<i>Subtotal Traffic Management Plan</i>				\$ 560,500

6C - Stage Construction and Traffic Handling

Item code	Unit	Quantity	Unit Price (\$)	Cost
120090 Construction Area Signs	LS	1	x 100,000.00 = \$	100,000
120100 Traffic Control System	LS	1	x 600,000.00 = \$	600,000
120159 Temporary Traffic Stripe (Paint)	LF	90,000	x 0.40 = \$	36,000
871200 Changeable Message Sign System	LS	1	x 10,000.00 = \$	10,000
128651 Portable Changeable Message Signs (CMS)	LS	1	x 70,000.00 = \$	70,000
129000 Temporary Railing (Type K)	LF	29,200	x 15.00 = \$	438,000
129101A Temporary Alternative Crash Cushion Module	EA	483	x 200.00 = \$	96,600
<i>Subtotal Stage Construction and Traffic Handling</i>				\$ 1,350,600

TOTAL TRAFFIC ITEMS	\$ 2,642,500
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SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
066070 Maintain Traffic/Detour	LS	1	x 153,000.00 = \$	153,000

TOTAL DETOURS	\$ 153,000
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SUBTOTAL SECTIONS 1 through 7	\$ 17,360,700
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SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items

ADA Items	0.0%	\$	-
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8B - Bike Path Items

Bike Path Items	0.0%	\$	-
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8C - Other Minor Items

Other Minor Items	0.0%	\$	-
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Total of Section 1-7	\$ 17,360,700	x	4%	= \$	694,428
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TOTAL MINOR ITEMS	\$ 694,500
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SECTIONS 9: MOBILIZATION

Item code	Unit	Quantity	Unit Price (\$)	Cost
999990 Total Section 1-8			x 18,055,200 = \$	902,760

TOTAL MOBILIZATION	\$ 902,800
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SECTION 10: SUPPLEMENTAL WORK

Item code	Unit	Quantity	Unit Price (\$)	Cost
066596 Additional Water Pollutional Control	LS	1	x 6,000.00 = \$	6,000
066597 Storm Water Sampling & Analysis	LS	1	x 3,000.00 = \$	3,000
066919 Dispute Resolution Board	LS	1	x 22,500.00 = \$	22,500
066015 Federal Trainee Program	LS	1	x 13,600.00 = \$	13,600
066610 Partnering	LS	1	x 50,000.00 = \$	50,000
066094 Value Analysis	LS	1	x 10,000.00 = \$	10,000
066070 Maintain Traffic	LS	1	x 259,200.00 = \$	259,200

Total Section 1-8	\$ 18,055,200	x	2.00%	= \$	361,104
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TOTAL SUPPLEMENTAL WORK	\$ 725,500
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SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
066105	Resident Engineers Office	LS	1	x	169,866.67	=	\$169,867
066063	Traffic Management Plan - Public Information	LS	1	x	146,000.00	=	\$146,000
066062	COZEEP Contract	LS	1	x	602,500.00	=	\$602,500
066838	Reflective Numbers and Edge Sealer	LS	1	x	1,000.00	=	\$1,000
066916	Annual Construction General Permit Fee	LS	1	x	2,800.00	=	\$2,800
Total Section 1-8			\$ 18,055,200		0.25%	=	\$ 45,138

TOTAL STATE FURNISHED	\$967,400
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SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization \$18,320,678 (used to calculate TRO)
 Total Construction Cost (excluding TRO and Contingency) \$20,939,463 (used to check if project is greater than \$5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **4.50%**

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
090100	Time-Related Overhead	WD	500	X	\$1,649	=	\$824,500

TOTAL TIME-RELATED OVERHEAD	\$824,500
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Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

SECTION 13: ROADWAY CONTINGENCY

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-12	\$	21,475,400	x	10%	=	\$2,147,540
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TOTAL CONTINGENCY	\$2,147,600
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II. STRUCTURE ITEMS

Bridge 1

DATE OF ESTIMATE	02/27/20	00/00/00	00/00/00
Bridge Name	Retaining Wall No. 396	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number		XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Structure Type	Ground Anchor Wall	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	9 LF	0 LF	0 LF
Total Bridge Length (Feet)	90 LF	0 LF	0 LF
Total Area (Square Feet)	810 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)		XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	\$285	\$0	\$0
COST OF EACH	\$230,850	\$0	\$0

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Structure Type	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	0 LF	0 LF	0 LF
Total Length (Feet)	0 LF	0 LF	0 LF
Total Area (Square Feet)	0 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	\$0	\$0	\$0
COST OF EACH	\$0	\$0	\$0

TOTAL COST OF BRIDGES	\$230,850
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TOTAL COST OF BUILDINGS	\$0
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Structures Mobilization Percentage	10%	\$23,085
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Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Structures Contingency Percentage	15%	\$34,628
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TOTAL COST OF STRUCTURES	\$288,563
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Estimate Prepared By: _____
XXXXXXXXXXXXXXXXXXXX ----- Division of Structures

_____ Date

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	\$	0
	A2)	SB-1210 (Project Permit Fees)	\$	0
B)		Acquisition of Offsite Mitigation	\$	
C)	C1)	Utility Relocation (State Share)	\$	0
	C2)	Test Holes (Design Phase)	\$	0
D)		Railroad Acquisition	\$	0
E)		Clearance / Demolition	\$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	\$	0
G)		Title and Escrow	\$	0
H)		Environmental Review	\$	
I)		Condemnation Settlements	\$	0
		<u>0%</u>		
J)		Design Appreciation Factor	\$	0
		<u>0%</u>		
K)		Utility Relocation (Construction Cost)	\$	0

L)	TOTAL RIGHT OF WAY ESTIMATE	\$0.00
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M)	TOTAL R/W ESTIMATE: Escalated	\$0.00
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N)	RIGHT OF WAY SUPPORT	\$0
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Support Cost Estimate
Prepared By _____ Project Coordinator¹ _____ Phone _____

Utility Estimate Prepared
By _____ Utility Coordinator² _____ Phone _____

R/W Acquisition Estimate
Prepared By _____ Right of Way Estimator³ _____ Phone _____

Note: Items G & H applied to items A + B
¹ When estimate has Support Costs only

² When estimate has Utility Relocation ³ When R/W Acquisition is required

ATTACHMENT F
Right-of-Way Data Sheet

RIGHT OF WAY DATA SHEET

(Form #)

To: _____ Date 09/14/2020

Dist 12 Co ORA Rte 05,55,73,91, P/M
133,405 (K/P) Varies

Attention: EA/Project ID 12-0R5600/1218000117

Project Description Pavement Rehabilitation (19 locations)

Subject: Right of Way Data Alternate No. 1

This Alternate meets the criteria for a Design/Build project: Yes No

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost			\$ <u>0</u>
Acquisition, including Excess Lands, Damages, and Goodwill.	\$ <u>0</u>	_____ %	\$ <u>0</u>
Project Permit Fees.			\$ <u>0</u>
B. Utility Relocation (State Share)	\$ <u>0</u>	_____ %	\$ <u>0</u>
C. Relocation Assistance	\$ <u>0</u>	_____ %	\$ <u>0</u>
D. Clearance/Demolition	\$ <u>0</u>	_____ %	\$ <u>0</u>
E. Title and Escrow	\$ <u>0</u>	_____ %	\$ <u>0</u>
F. Total Estimated Cost	\$ <u>0</u>		\$ <u>0</u>
G. Construction Contract Work	\$ <u>0</u>		\$ <u>0</u>

(These are construction costs that are to be included in the projects PS&E.)

2. Current Date of Right of Way Certification April, 2022

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

<u>Type</u>	<u>Dual/Appr</u>	<u>Utilities</u>	<u>RR Involvements</u>
X _____		U4-1 _____	None <u>X</u>
A _____		-2 _____	C&M Agrmt _____
B _____		-3 _____	Service Contract _____
C _____		-4 _____	Design _____
D _____		U5-7 _____	Const. _____
		-8 _____	Lic/RE/Clauses _____
		-9 _____	
Total <u>0</u>			Misc. R/W Work
			RAP Displ <u>N/A</u>
			Clear/Demo <u>N/A</u>
			Const Permits <u>N/A</u>
			Condemnation <u>N/A</u>
			Excess <u>0</u>

Areas: R/W 0 No. Excess Parcels 0

Entered PMCS Screens ___/___/___ by _____

Entered AGRE Screen (Railroad data only) ___/___/___ by _____

RIGHT OF WAY DATA SHEET (Cont.)

(Form #)

EXHIBIT

4-EX-1 (REV 7/2016)

Page 2 of 5

4. Are there any major items of Construction Contract Work?

Yes No (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

No right of way required.

6. Any assumptions and/or limiting conditions used?

Yes No (If "Yes," explain.)

7. Are utility facilities or rights of way affected?

Yes No (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)

The following checked items may seriously impact lead time for utility relocation:

- Longitudinal policy conflict(s)
- Environmental concerns impacting acquisition of potential easements
- Power lines operating in excess of 50 KV and substations

(See attached Exhibit 4-EX-5 for explanation.)

8. Are Railroad facilities or rights of way affected?

Yes No (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?

Yes None Evident (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.11.00.)

10. Are State or Federal rights of way affected?

Yes No (If "Yes," provide the following information.)

Agencies Involved:

_____ Army Corps of Engineers	_____ GSA	_____ US Postal Service
_____ BIA	_____ National Parks	_____ Veterans Administration
_____ BLM	_____ US Fish & Wildlife	_____ Other _____
_____ Dept. of Parks & Recreation	_____ US Forest Service	_____ Other _____

Rights/Permissions Required:

_____ Cooperative Work Agreement	_____ Letter of Concurrence	_____ Special Use Permit
_____ Cost Recovery	_____ Letter of Consent	_____ Timber Sale
_____ Courtesy Letter	_____ Mineral Agreement	_____ Transfer of Jurisdiction
_____ Easement	_____ Right of Entry	_____ Other _____
_____ Highway Easement	_____ Right of Way Grant	_____ Other _____

11. Are RAP displacements required?

Yes No (If "Yes," provide the following information.)

No. of single family _____ No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated N/A, it is anticipated that sufficient replacement housing will be available without Last Resort Housing.

RIGHT OF WAY DATA SHEET (Cont.)

(Form #)

EXHIBIT

4-EX-1 (REV 7/2016)

Page 4 of 5

12. Are there any outdoor advertising signs impacted?

Yes No (If "Yes," explain.)

13. Are Material Borrow and/or Disposal Sites required?

Yes No (If "Yes," explain.)

14. Are there potential relinquishments and/or abandonments?

Yes No (If "Yes," explain.)

15. Are there any existing and/or potential airspace sites?

Yes No (If "Yes," explain.)

16. Indicate the anticipated Right of Way schedule and lead time requirements.

(Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of 2 months from the date regular appraisals can begin to project certification.

In any event, RW Maps will require 2 months from Final Maps to project certification.

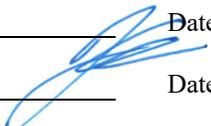
17. Is it anticipated that Caltrans staff will perform all Right of Way work?

Yes No (If "No," discuss.)

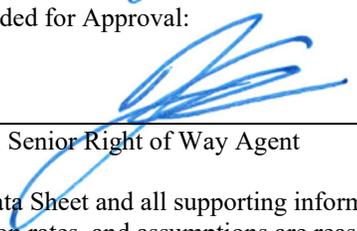
No Right of Way work is anticipated for the project as no new property or rights are required.

RIGHT OF WAY DATA SHEET (Cont.)
(Form #)

Evaluation Prepared By:

Right of Way:	Name	Jesse Ortiz 	Date	09/14/2020
Railroad:	Name	Jesse Ortiz 	Date	09/14/2020
Utilities:	Name	Andy Duong 	Date	09/14/2020
State/Federal Lands:	Name	Jesse Ortiz 	Date	09/14/2020

Recommended for Approval:



Jesse Ortiz, Senior Right of Way Agent

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

District Division Chief/Regional Manager
Right of Way

Date

ATTACHMENT G

Storm Water Data Report - Signed Cover Sheet



Dist-County-Route: 12-ORA-Various
Post Mile Limits: Various
Type of Work: Pavement Rehabilitation
Project ID (EA): 1218000117 (OR5600)
Program Identification: 20.XX.201.121 Pavement Rehabilitation
Phase: PID PA/ED PS&E

Regional Water Quality Control Board(s): Santa Ana (Region 8), San Diego (Region 9)

Total Disturbed Soil Area: 5.41 acres PCTA: 1.82 acres
Alternative Compliance (acres): 0.57 acre (maximum) ATA 2 (50% Rule)? Yes No
Estimated Const. Start Date: 11/01/2022 Estimated Const. Completion Date: 11/01/2024

Risk Level: RL 1 RL 2 RL 3 WPCP Other: _____

Is MWELo applicable? Yes No

Is the Project within a TMDL watershed? Yes No

TMDL Compliance Units (acres): 0.57 acre (maximum)

Notification of ADL reuse (if yes, provide date): Yes Date: TBD No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Anhhuy Truong 07/28/2020
Anhhuy Truong, Registered Project Engineer Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Bob Bazargan 8/3/2020
Bob Bazargan, Project Manager Date

Hilton Briggs 8/4/2020
Hilton Briggs, Designated Maintenance Representative Date

Eric Dickson 8/4/2020
Eric Dickson, Designated Landscape Architect Representative Date

[Stamp Required at PS&E only] Grace Pina-Garrett 8/31/20
Grace Pina-Garrett, District SW Coordinator Date

ATTACHMENT H

Preliminary Materials Report

Signed Cover Sheets



A Report Prepared for:

Parsons Transportation Group
2201 Dupont Drive Suite 630
Irvine, CA 92612

**PRELIMINARY MATERIALS REPORT
CONCRETE SLAB AND ASPHALT CONCRETE REPLACEMENT AT VARIOUS LOCATIONS
CALTRANS DISTRICT 12
COUNTY OF ORANGE
CALIFORNIA**

**PROJECT ID: 1218000117
CALTRANS EXPENDITURE AUTHORIZATION (EA) NUMBER: 0R5600**

Project No. 2019-019

by

Britton Howay, EIT
Staff Engineer

Somadevan Niranjanan
Geotechnical Engineer 2819



Diaz•Yourman & Associates
1616 East 17th Street
Santa Ana, CA 92705-8509
(714) 245-2920

July 14, 2020

**Pavement Rehabilitation and Shoulder Widening
for PA/ED Phase
Rev. 1**

**Caltrans District 12 Pavement Rehabilitation Project
Caltrans EA 0R5600
Contract No. 12A1798**

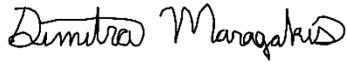
Submitted to:



**Prepared by:
PARSONS**

Date: July 2020

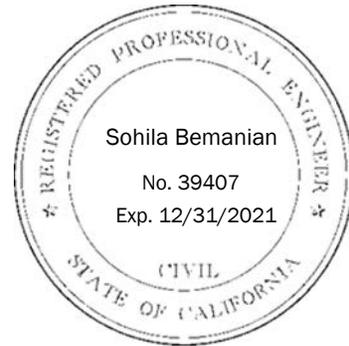
This Pavement Rehabilitation and Widening for PA/ED phase has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



Dimitra Maragakis, Staff Engineer



Sohila Bemanian, Registered Civil Engineer 39407



Executive Summary

The intent of this report is to provide pavement rehabilitation and shoulder widening strategies as part of the Caltrans District 12 Rehabilitation Project. These recommendations are being made as part of the PA/ED phase. Further testing and site condition surveys will be performed during PS&E phase to finalize the pavement recommendations. Table 1 shows a summary of the pavement-related work.

ATTACHMENT I
Risk Register

Risk Register / Risk Management Plan for 12-0R5600, 19-Location Pavement Rehabilitation

Risk Checkpoint: PA&ED Date: 9/8/2020
Project Nickname: 19-Location Pavement Rehabilitation EA: 12-0R5600 Co-Rt, Post Miles: 12 - Ora - 05,55,73,91,133,405 - Various PMs Project Manager: Bob Bazargan
FY & Program (SHOPP or STIP): 2018 SHOPP Total Costs (Capital & Support): \$40,400K RTL Target: May-22

Phase	Cost Contingency Range \$k			Schedule Contingency Range (Days)		
	Optimistic	PERT	Pessimistic	Optimistic	PERT	Pessimistic
0-PA&ED	\$67	\$100	\$149	24	40	58
1-PS&E	\$0	\$0	\$0	0	0	0
2-RW Sup	\$0	\$0	\$0	0	0	0
3-Con Sup	\$0	\$0	\$0	0	0	0
Support Contingency	\$67	\$100	\$149	24	40	58
4-Con Cap	\$490	\$915	\$1,360	32	60	90
9-RW Cap	\$0	\$0	\$0	0	0	0
Capital Contingency	\$490	\$915	\$1,360	32	60	90
Total Contingency	\$557	\$1,015	\$1,509	56	100	148

Risk Identification							Risk Assessment			Risk Response			Quantifying "Red" (High P & I) Level Risks							
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Calculated Contingency	Support (hours) Capital Cost \$k	Schedule (Days)		
Retired	1	Threat	Structure Design	Retaining Wall	Due to insufficient geological and survey data in Planning phase, it cannot yet be determined if retaining walls at the embankment slopes will be needed (at potentially 4 or 5 of the locations). If the retaining walls are needed, additional schedule and funds will be needed.	During the PA&ED, we identified one retaining wall is needed and one steep-slope (1.25:1) location that requires geotech study for slope paving. Landscaping has been consulted and approved for steep slope.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	We identified one retaining wall that has been approved by headquarters' structures. By designing the proposed steep-slope location, the need for the second retaining wall is eliminated.	Ann Truong	8/31/2020						
								5%	1 - Very Low (Insignificant)	1										
Active	2	Threat	Traffic	TMP	Due to the large number of required detours, the TMP cost may be higher than originally estimated, resulting in the need for further funding.	TMP cost has been determined during PA&ED phase. More information will be obtained during PS&E.	PS&E	2-Low (11-30%)	2 - Low (<\$1780k)	4	Mitigate	Project Engineer will request a Traffic Management Plan (TMP) including lane requirement charts to identify strategies for reducing congestion and managing traffic impacts during design.	Dennis Serafica	8/31/2020						
								10%	2 - Low (<1 month)	4										
Retired	3	Threat	Environmental	Treatment Areas	Due to no treatment areas being available, a treatment BMP will need to be integrated into the project. This will delay the project and require additional resources. Based on slab replacement scope, treatment and trash implementation plans may be required.	No treatment areas are included in PID. Pavement design and Storm Water Data Report studies would be used to determine the impact.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	Three treatment BMPs have been proposed, which satisfies the project requirements. SWDR was approved on 08/31/2020.	Nelly Lo	9/1/2020						
								5%	1 - Very Low (Insignificant)	1										
Retired	4	Threat	A&E	Storm Water Data Report	If the current A&E contract does not address the Storm Water Data Report, additional resources for support will be needed in order to resolve this matter.	Project Specific contract will be used for this project.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	SWDR was approved on 08/31/2020.	Nelly Lo	9/1/2020						
								5%	1 - Very Low (Insignificant)	1										
Retired	5	Threat	Materials	Slab Replacement	If more than 20% of slabs need to be replaced, additional cost will be needed to replace the additional slabs.	Slab replacement will be within 20% limit. To meet the current budget, slab replacement may be reduced to meet project cost constraint.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	During PA&ED, based on available budget, all slabs to be replaced have been determined by Caltrans, as shown per the PA&ED plans and estimates.	Sohila Bermanian	8/31/2020						
								5%	1 - Very Low (Insignificant)	1										
Retired	6	Threat	Design	LCCA	If LCCA is required, the support cost for Phase 0 will increase.	LCCA will not be required.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	LCCA report is not required for this project.	Pija Ansari	8/31/2020						
								5%	1 - Very Low (Insignificant)	1										
Retired	7	Threat	Environmental	Permit	During environmental technical studies based on preliminary design, we may find out that work to be performed would impact water in jurisdictional areas and additional permits may be required. This may affect the level of environmental document.	The PA&ED was designed to avoid impact to water in jurisdictional areas.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	Permits not required.	Angela Schnapp	8/31/2020						
								5%	1 - Very Low (Insignificant)	1										
Active	8	Threat	Environmental	Biological Survey	If sensitive resources (birds, bats, plants, etc.) are affected, this may require additional schedule and impact the cost.	Once Parsons (GPA) completes biological surveys, this will determine the impact.	PS&E	3-Moderate (31-50%)	2 - Low (<\$1780k)	6	Mitigate	There is a big possibility this can be avoided if construction would avoid sensitive resources.	Angela Schnapp	8/31/2020						
								40%	2 - Low (<1 month)	6										

Risk Identification							Risk Assessment			Risk Response				Quantifying "Red" (High P & I) Level Risks				
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Calculated Contingency	Support (hours) Capital Cost \$k	Schedule (Days)
Active	9	Threat	Environmental	Hazardous Waste	If hazardous waste is identified, this could impact cost and schedule. At this point, no hazardous waste is identified.	ADL, ACM, and LBP all have the potential to be found during follow-up surveys.	PS&E	4-High (51-70%)	4 - Moderate (\$1780k - \$3556.44k)	16	Mitigate	Remove hazardous waste during construction.	Angela Schnapp	8/31/2020	1-PS&E Sup	\$13k	P 100 hours ML 150 hours P 300 hours PERT 167 hours	
								60%	2 - Low (<1 month)	8					4-Con Cap	\$495k	O \$550k ML \$825k P \$1,100k PERT \$825k	
Active	10	Threat	Utilities	Utility Lines	Five potential areas for utilities: sewer, fiber optic, water. Fiber optic locations are identified but depth has not yet been determined. One fiber optic line crosses a ramp and MGS. Location 13 has a 16" IRWD crossing the freeway. If the water and fiber optic lines need to be relocated, this would impact cost and schedule.	During PA&ED, it was determined that there was no conflict with fiber optics. Conduct additional test holes at locations with fiber optics and water lines, and sewer lines during PS&E to identify positive locations on utility depths.	PS&E	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Accept	Design utility engineer will coordinate with utility owner to avoid impact and protect in place. Add MGS detail to design post spacing to avoid utility.	Andy Duong	8/31/2020				
								5%	1 - Very Low (Insignificant)	1								
Active	11	Threat	Design	Detours	Detour for two major interchanges at the 55/73 and 55/405 may be challenging to obtain agreement from local cities. There may be restrictions/limitations on local streets that affect the ability for Contractor to detour traffic during freeway/ramp closure, thus reducing flexibility for construction staging.	Detour plans were distributed to Cities and received concurrences. We will continue to reach out to the Airport authority for their input.	PS&E and Construction	2-Low (11-30%)	1 - Very Low (Insignificant)	2	Mitigate	Early communication with local cities, FAA and airport, county, and OCTA would be conducted to build consensus among stakeholders. During PS&E, prepare TMP for required detours and coordinate with local agencies.	Dennis Serafica	9/4/2020				
								20%	1 - Very Low (Insignificant)	2								
Active	12	Threat	Construction	Construction Traffic Impact from Adjacent Projects	There may be other construction projects (Caltrans, local) that occur during the same period, potentially resulting in work around or delay.	Need to identify all construction projects adjacent to our location.	PS&E	4-High (51-70%)	1 - Very Low (Insignificant)	4	Mitigate	Utilize the current list of project schedule for construction concurrently and update the list to incorporate into PS&E package. Use special provisions for contractor to schedule their work to manage conflicts with concurrent construction projects.	Ann Truong	8/31/2020				
								60%	2 - Low (<1 month)	8								
Active	13	Threat	Materials	Existing Concrete Thickness	Specify average slab thickness (+/- 0.5" or so). If there is more/less it can cause delay in project and impact cost. This could trigger claim by contractor for additional pay and impact to schedule.	Additional investigation will be done by coring and boring. Subbase needs to be identified or verified.	PS&E	2-Low (11-30%)	2 - Low (<\$1780k)	4	Mitigate	During PS&E, make sure that contractor is fully aware and information is incorporated in special provisions and plans. Provide SSPs to specify contractor's responsibilities of verifying pavement field conditions.	Sohila Bermanian Ben Nanjappa	9/8/2020				
								20%	2 - Low (<1 month)	4								
Active	14	Threat	Materials	Subbase	The unknown damaged subbase may need to be addressed prior to slab replacement.	Additional investigation will be done by coring and boring. Subbase needs to be identified or verified.	PS&E	2-Low (11-30%)	2 - Low (<\$1780k)	4	Mitigate	Reserve contingency funds (15%) and include special provisions to address the issue. Provide the results of the testing so the contractor can see areas where base needs to be addressed.	Sohila Bermanian Ben Nanjappa	9/8/2020				
								20%	2 - Low (<1 month)	4								
Retired	15	Threat	Materials	Slab Removal Method	Need to specify how to remove slabs to not damage the adjacent slabs.	This is not considered a risk.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	Lift method should be specified for slab removal. Damage to the adjacent slab will be required to be repaired at the Contractor's expense using Caltrans Standard patching material. Review another project's Rehabilitation Specifications.	Sohila Bermanian	8/31/2020				
								5%	1 - Very Low (Insignificant)	1								
Retired	16	Threat	Materials	Mix Design and Shrinkage	RSC Mix Design has potential for excessive shrinkage cracking.	This is not considered a risk.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	Attach special provisions for RSC mix design and opening to traffic requirements.	Sohila Bermanian	8/31/2020				
								5%	1 - Very Low (Insignificant)	1								
Retired	17	Threat	Materials	Slab Removal Location	Location of slab removal; GPS coordinates can be off.	This is not considered a risk.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%)	1 - Very Low (Insignificant)	1	Avoid	Contractor is responsible for marking slabs to be removed, and Caltrans to confirm the slabs being removed.	Sohila Bermanian	8/31/2020				
								5%	1 - Very Low (Insignificant)	1								
Active	18	Threat	Geotechnical	Liquefaction Potential	There is potential to encounter liquefaction at the retaining walls.	Will further investigate during PS&E. Scope and budget will be revised accordingly.	PS&E	3-Moderate (31-50%)	2 - Low (<\$1780k)	6	Accept	Increase cost of retaining wall. Adjust the estimate accordingly.	Jon Herstad	8/31/2020				
								40%	4 - Moderate (1-3 months)	12								

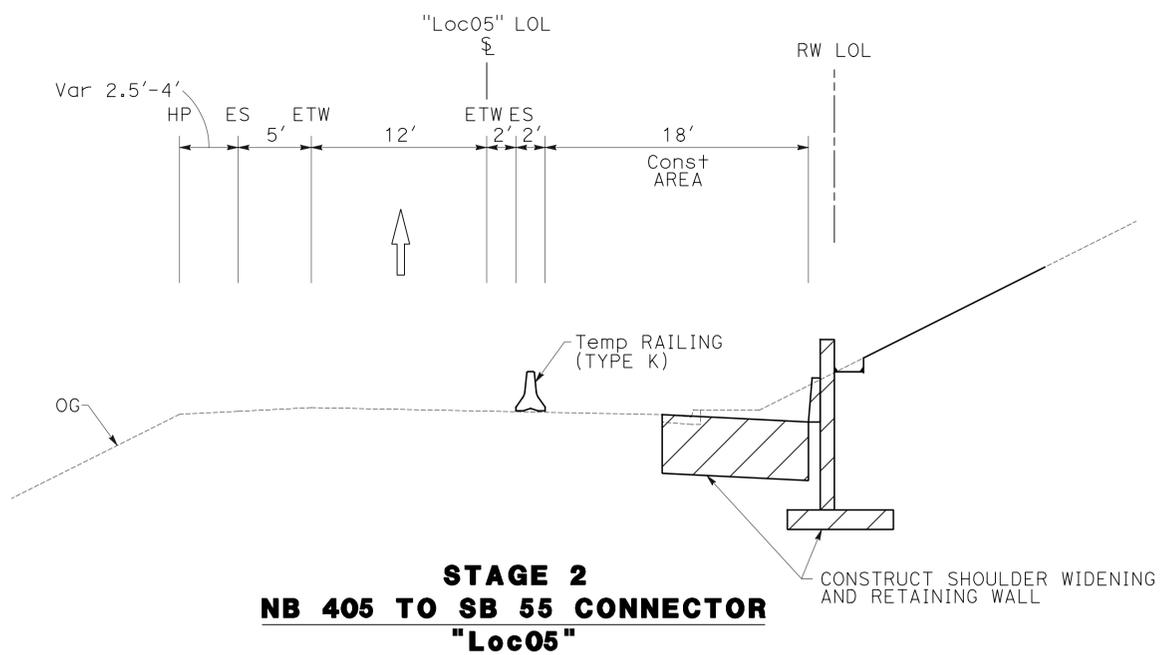
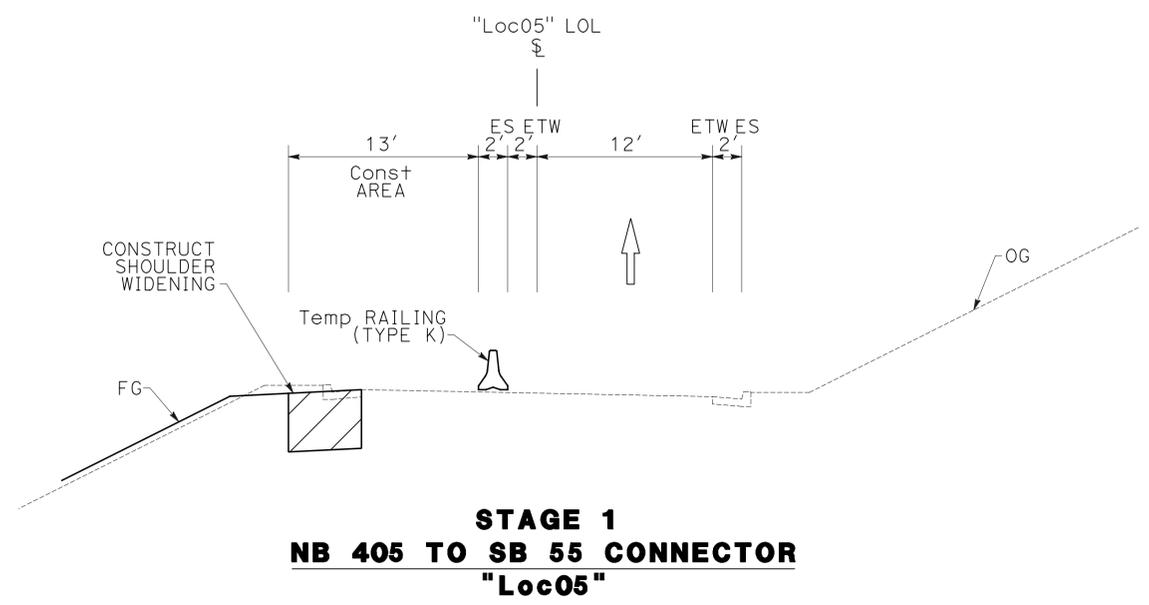
Risk Identification							Risk Assessment			Risk Response				Quantifying "Red" (High P & I) Level Risks				
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Calculated Contingency	Support (hours) Capital Cost \$k	Schedule (Days)
Retired	19	Threat	Structure Construction	Retaining Wall	Type 1 Wall may not be possible to construct due to conflict with existing conditions. This may require special design, which could impact cost.	During PA&ED, it was determined that the Type 1 Retaining Wall is not applicable.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%) 5%	1 - Very Low (Insignificant)	1	Avoid	Increase the contingency for PA&ED cost estimate.	Jon Hermstad	8/31/2020				
Active	20	Threat	Utilities	Electrical	The following quantities may be increased during PS&E: 1. The electroliers fixed-base and slip-base application modification behind safety barriers at all 19 locations. 2. Need to analyze dark accidents for the need of additional lighting (part of safety analysis).	Preliminary plans are included in the PA&ED submittal package; detailed plans will be developed further in PS&E.	PS&E	2-Low (11-30%) 20%	2 - Low (<\$1780k)	4	Accept	Increase the contingency for PA&ED cost estimate.	Dennis Serafica	9/4/2020				
Active	21	Threat	Design	Design Standard Decision Document (DSDD)	Delays in obtaining the DSDD approval may jeopardize the project schedule.	Since this project only has one alternative, the DSDD needs to be included in Project Report approval. This item can be retired with Caltrans approves the DSDD.	PA&ED	1-Very Low (1-10%) 5%	1 - Very Low (Insignificant)	1	Accept	Coordinate with District Design Liaison to obtain approval.	Ann Truong	9/4/2020				
Active	22	Threat	Traffic	Traffic Loops	Traffic Loops for ATMS needs to be maintained and/or replaced as needed.	Number of traffic loops have been identified during PA&ED phase. There is potential that additional locations will be identified during PS&E.	PS&E	1-Very Low (1-10%) 5%	1 - Very Low (Insignificant)	1	Accept	Will be further evaluated during PS&E.	Dennis Serafica	8/31/2020				
Retired	23	Threat	Traffic	Census Data	Freeway to Freeway connectors need Census data to higher level detection station.	Count station approved for installation and will be included in PS&E.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%) 5%	1 - Very Low (Insignificant)	1	Accept	Implemented into PA&ED.	Gary Slater Ann Truong	8/31/2020				
Active	24	Threat	Materials	Pavement Condition (HMA and PCC Slab Count)	The condition of the HMA Pavement and PCC slab count was based on visual inspection by the maintenance engineers as a minimum requirement for the project. However, note the condition and quantity of pavement repair/replacement may increase due to wear and tear and rain seasons during the next few years.	During PS&E, conduct field survey with Caltrans' maintenance and materials for consensus on slab count.	PS&E	3-Moderate (31-50%) 40%	4 - Moderate (\$1780k - \$3556.44k)	12	Accept	Recommendations from Caltrans' Materials and Maintenance should be considered for the final analysis. Doing visual inspection and geotechnical report we can determine the extent of damage to the subbase and include into PS&E. Quantities and extent for both PCC slabs and HMA pavement and shoulders should be verified during PS&E for design and verified in the construction phase for final quantities of items.	Sohila Bermanian Mehrdad Mahdavian Ben Nanjappa	9/8/2020				
Retired	25	Threat	Materials	Slab count and location	PCC Slab count and locations and limits of HMA Pavement Repair for all connectors should be verified during PS&E phase. (This item is to be retired and combined with Item No. 24 above.)	Pavement would be investigated during the PS&E phase.	Based on the investigation and known information, this risk has been retired.	1-Very Low (1-10%) 5%	1 - Very Low (Insignificant)	1	Avoid	Doing visual inspection and geotechnical report we can determine the extent of damage to the subbase and include into PS&E. (This item is to be retired and combined with Item No. 24 above.)	Sohila Bermanian Mehrdad Mahdavian Irvin Nguyen	9/4/2020				
Active	26	Threat	Funding	Contingency Money	Sufficient contingency money should be allocated for any unforeseen increase in quantity of item work during construction.	Contingency was revised to 10% per Caltrans' recommendation on the PR estimates. The recommended contingency is 15%.	PS&E	3-Moderate (31-50%) 40%	2 - Low (<\$1780k)	6	Mitigate	Due to unknown pavement conditions which will be determined during the PS&E phase, adequate contingency money is needed to properly fund the project. Depending on the unit costs bidding trend at the time of advertisement, it may impact required funding for construction	Ann Truong	8/31/2020				
Active	27	Threat	Materials	Increase in scope of work	Coring and boring results may require to increase the depth and the length of the pavement rehab and removal.	Coring and boring will be scheduled during PS&E	PS&E	3-Moderate (31-50%) 40%	8 - High (\$3560k - \$7120k)	24	Mitigate	Work with Caltrans' PM to provide required documentation to minimize the risk and optimize available funding. The pavement strategy was initially considered CAPM and later changed to limited pavement rehabilitation per the Maintenance Division; complete replacement of pavement was not recommended in the PIP or in the Initial Project Report.	Bob Bazargan Pija Ansari Ben Nanjappa	9/8/2020	1-PS&E Sup	\$10k	P 100 hours ML 200 hours P 300 hours PERT 200 hours	
									2 - Low (<1 month)	6				4-Con Cap	\$2,134k	O \$2,000k ML \$5,000k P \$10,000k PERT \$5,334k		
Active	28	Threat	Structure Design	Retaining Wall	The following reasons may require to design and construct an additional retaining wall at Location 5: 1. Steep slope is not feasible based on liquefaction analysis. 2. Additional cost related to slope may be the same or more than cost of retaining wall.	Further geotechnical investigation will be conducted during PS&E phase to determine feasibility of constructing a 1.25:1 slope at Location 5. It is assumed that the 1.25:1 slope cost would be significantly less than constructing a retaining wall.	PS&E	3-Moderate (31-50%) 40%	1 - Very Low (Insignificant)	3	Accept	Based on outcome of geotechnical studies and feedback from Caltrans, a final decision will be made.	S. Niranjan	8/31/2020				

Risk Identification								Risk Assessment			Risk Response				Quantifying "Red" (High P & I) Level Risks			
Status	ID #	Type	Category	Title	Risk Statement	Current status / assumptions	Risk Trigger	Probability (P)	Cost Impact Schedule Impact (I)	Cost Score Schedule Score (PxI)	Strategy	Response Actions	Risk Owner	Updated	Impacted Phase	Calculated Contingency	Support (hours) Capital Cost \$k	Schedule (Days)
Active	29	Threat	Environmental	Treatment Areas	If Caltrans require additional treatment areas to be incorporated to achieve additional Compliance Units (in addition to the PCTA requirement), then the design of these Treatment BMPs will delay the project and require additional resources.	Three (3) DPPIA treatment BMP along with various full capture trash systems for improvements within Significant Trash Generating Areas are proposed.	PA&ED	3-Moderate (31-50%) 40%	2 - Low (<\$1780k) 4 - Moderate (1-3 months)	6 12	Mitigate	A treatment strategy has been developed and incorporated as part of project improvements to satisfy the Post Construction Treatment Area requirement per the PPDG. If Caltrans wishes to seek additional Compliance Unit credit, then additional Treatment BMPs will need to be integrated.	Nelly Lo	9/4/2020				

ATTACHMENT J
Stage Construction Details

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
Caltrans	DESIGNED BY	CHECKED BY
	CALCULATED/DESIGNED BY	CHECKED BY
	CONSULTANT FUNCTIONAL SUPERVISOR	
	REVISOR	DATE
	REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5,55,73 91,133,405	VARIES		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			CALTRANS D12 1750 E 4th St Santa Ana, CA 92705		



STAGE CONSTRUCTION AND TRAFFIC HANDLING DETAILS

NO SCALE

SCD-1

FOR PA&ED PHASE PRELIMINARY DESIGN ONLY



ATTACHMENT K
Lane Requirements Charts

Replace Reserved in section 12-4.02C(3)(g) with:

Freeway lane closures must comply with the requirements shown in the following charts:

Chart No. G1																									
Freeway Lane Requirements																									
County: <u>Orange</u>							Route/Direction: <u>55/NB</u>							Post Mile:											
Closure limits: <u>NB 55 from West Main Street Overcrossing to 200' north of West Main St Overcrossing</u>																									
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>2</u>	
Fri	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>2</u>	
Sat	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>2</u>	
Sun	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>2</u>	

Legend:

2	Provide at least 2 adjacent through <u>Freeway</u> _____ lanes open in the direction of travel.
4	Provide at least 4 adjacent through <u>Freeway</u> _____ lanes open in the direction of travel.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: 1. This chart shall be used for overnight closures of the NB 55 No. 3 and 4 lanes to construct 12' wide concrete slabs along the NB 55 No. 4.

Chart No. G2
Freeway Lane Requirements

County: Orange Route/Direction: 55/NB Post Mile:
 Closure limits: NB 55 from 500' north of Route 405 to 2100' north of Route 405

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>2</u>																	
Fri	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>2</u>																	
Sat	<u>2</u>	<u>4</u>	<u>2</u>	<u>2</u>																					
Sun	<u>2</u>	<u>4</u>	<u>2</u>	<u>2</u>																					

Legend:

<u>2</u>	Provide at least 2 adjacent through <u>Freeway</u> lanes open in the direction of travel.
<u>4</u>	Provide at least 4 adjacent through <u>Freeway</u> lanes open in the direction of travel.
<u>S</u>	
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: 1. This chart shall be used for overnight closures to construct AC overlay along NB 55.

Chart No. G3
Freeway Lane Requirements

County: Orange Route/Direction: 5/NB Post Mile:
 Closure limits: NB 5 from Bake Parkway to 800' north of Bake Parkway

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																	
Fri	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																	
Sat	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																					
Sun	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																					

Legend:

3	Provide at least 3 adjacent through <u>Freeway</u> lanes open in the direction of travel.
4	Provide at least 4 adjacent through <u>Freeway</u> lanes open in the direction of travel.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: 1. This chart shall be used for overnight closures to construct AC overlay along NB 5.

Chart No. G4
Freeway Lane Requirements

County: <u>Orange</u>					Route/Direction: <u>405/NB</u>					Post Mile:															
Closure limits: <u>NB 405 from Route 5 to 1900' north of Route 5</u>																									
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>2</u>	
Fri	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>2</u>	
Sat	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>2</u>	
Sun	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>2</u>	
Legend:																									
<table border="1"><tr><td>2</td></tr></table>	2	Provide at least 2 adjacent through <u>Freeway</u> lanes open in the direction of travel.																							
2																									
<table border="1"><tr><td>3</td></tr></table>	3	Provide at least 3 adjacent through <u>Freeway</u> lanes open in the direction of travel.																							
3																									
<table border="1"><tr><td></td></tr></table>		Work is allowed within the highway where a shoulder or lane closure is not required.																							
REMARKS: <u>1. This chart shall be used for overnight closures to construct AC overlay along NB 405.</u>																									

Chart No. G5
Freeway Lane Requirements

County: Orange Route/Direction: 55/NB Post Mile:

Closure limits: NB 55 from 600' north Paularino Parkway to 1300' north of Paularino Parkway

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																	
Fri	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																	
Sat	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																					
Sun	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>																					

Legend:

2	Provide at least 2 adjacent through <u>Freeway</u> lanes open in the direction of travel.
4	Provide at least 4 adjacent through <u>Freeway</u> lanes open in the direction of travel.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: 1. This chart shall be used for overnight closures to construct AC overlay along NB 55.

Replace *Reserved* in section 12-4.02C(3)(i) with:

Comply with the requirements for the [Connector closures and connector lane closures](#) shown in the following charts:

Chart No. <u>11</u>																										
County: Orange					Route/Direction: Various - Routes 55, 405, 73, 91, 5										Post Mile: Various											
Closure limits: NB 55 to SB 405 Connector (Loc 2), SB 405 to NB 55 Connector (Loc 4), NB 405 to SB 55 Connector (Loc 5), NB 55 to NB 73 Connector(Loc 8), NB 73 to NB 55 Connector (Loc 9), SB 55 to SB 73 Connector (Loc 10), SB 73 to SB 55 Connector (Loc 12), NB 5 to NB 405 Connector (Loc 13), SB 73 to SB 5 Connector (at Cabot Rd UC) (Loc 18), EB 91 to SB 55 Connector (Loc19)																										
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mon	C																									
Tue– Thu																										
Fri																								C	C	
Sat	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Sun	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Legend:																										
<input type="checkbox"/> C Connector may be closed completely.																										
<input type="checkbox"/> Work is allowed within the highway where a shoulder or lane closure is not required.																										
REMARKS: Request is for 55 hour continuous closure to facilitate construction of concrete slabs.																										

Chart No. 12

County: <u>Orange</u>	Route/Direction: <u>Various - Routes 55, 405, 73, 91, 5</u>	Post Mile: <u>Various</u>
-----------------------	---	---------------------------

Closure limits:
SB 55 to NB 405 Connector (Loc 1), NB 55 to SB 405 Connector (Loc 2),
NB 405 to NB 55 Connector (Loc 3), SB 405 to NB 55 Connector (Loc 4),
NB 405 to SB 55 Connector (Loc 5), NB 55 to SB 73 Connector (Loc 7),
NB 55 to NB 73 Connector (Loc 8), NB 73 to NB 55 Connector (Loc 9),
SB 55 to SB 73 Connector (Loc 10), SB 73 to SB 55 Connector (Loc 12),
SB 5 to NB 133 Connector (Loc 13), SB133 to NB 5 Connector (Loc 15),
NB 5 to NB 55 Connector (Loc 17), EB 91 to SB 55 Connector (Loc 19)

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																		<u>1</u>	<u>1</u>
Tue		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																		<u>1</u>	<u>1</u>
Wed – Thu		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																		<u>1</u>	<u>1</u>
Fri		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																		<u>1</u>	<u>1</u>
Sat		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																	<u>1</u>	<u>1</u>
Sun		<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																	<u>1</u>	<u>1</u>

Legend:

1 Provide at least 1 connector lane open in the direction of travel.

Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: 1. This chart shall be used for overnight lane closures for K-Rail, striping, and AC overlay work.

Chart No. 13

County: Orange	Route/Direction: 5/NB to 405/NB Connector	Post Mile:
--------------------------------	---	------------

Closure limits ;[NB 5 to NB 405 \(Loc 13\)](#)

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																		<u>2</u>	<u>2</u>
Tue		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																		<u>2</u>	<u>2</u>
Wed – Thu		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																		<u>2</u>	<u>2</u>
Fri		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																		<u>2</u>	<u>2</u>
Sat		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																	<u>2</u>	<u>2</u>
Sun		<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>																	<u>2</u>	<u>2</u>

Legend:

<u>2</u>	Provide at least 2 adjacent connector lanes open in the direction of travel.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: [1. This chart shall be used for overnight lane closures to accommodate AC overlay work.](#)

Replace *Reserved* in section 12-4.02C(3)(j) with:

Comply with the requirements for the [on-ramp](#) shown in the following chart:

Chart No. J1																										
County: Orange					Route/Direction: 55/SB from Baker On-Ramp										Post Mile:											
Closure limits: 55 SB on-ramp from Baker to 73 SB (Loc 6)																										
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mon	C																									
Tues- Thurs																										
Fri																								C	C	
Sat	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Sun	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
Legend:																										
C Ramp may be closed completely.																										
REMARKS: Request is for 55 hour continuous closure to facilitate construction of AC overlay, 12' wide concrete slabs.																										

Comply with the requirements and hours for the [off-ramp](#) shown in the following chart:

Chart No. J2																									
County: Orange					Route/Direction: 55/NB to 4th St Off-Ramp										Post Mile:										
Closure limits: NB 55 off-ramp to 4th St (Loc 16)																									
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon- Thu	1																			1	1				
Fri	1																			1	1				
Sat	1	1																		1	1				
Sun	1	1																		1	1				
Legend:																									
1 Provide at least 1 ramp lane not less than 11 feet in width open in the direction of travel.																									
REMARKS: Chart to be used for construction of AC overlay, K-Rail and striping installation / removal.																									

ATTACHMENT L
TMP Data Sheet

TRANSPORTATION MANAGEMENT PLAN DATA SHEET (Preliminary TMP Elements and Costs)

Co/Rte/PM 12-Ora-Var Project No. 1218000117 Alternative No. 2

Project Limit _____

Project Description Rehab 19 Connectors & Ramp at Various Locations

1) Public Information

<input type="checkbox"/>	a. Brochures and Mailers	\$ _____
<input checked="" type="checkbox"/>	b. Press Release	\$ 10,000
<input checked="" type="checkbox"/>	c. Paid Advertising	\$ 100,000
<input type="checkbox"/>	d. Public Information Center/Kiosk	\$ _____
<input type="checkbox"/>	e. Public Meeting/Speakers Bureau	\$ _____
<input type="checkbox"/>	f. Telephone Hotline	\$ _____
<input checked="" type="checkbox"/>	g. Internet	\$ 36,000
<input type="checkbox"/>	h. Others: _____	\$ _____

2) Motorists Information Strategies

<input checked="" type="checkbox"/>	a. Changeable Message Signs (Fixed)	\$ 10,000
<input checked="" type="checkbox"/>	b. Changeable Message Signs (Portable)	\$ 70,000
<input type="checkbox"/>	c. Ground Mounted Signs	\$ _____
<input type="checkbox"/>	d. Highway Advisory Radio	\$ _____
<input type="checkbox"/>	e. Caltrans Highway Information Network (CHIN)	\$ _____
<input type="checkbox"/>	f. Others _____	\$ _____

3) Incident Management

<input checked="" type="checkbox"/>	a. Construction Zone Enhanced Enforcement Program (COZEEP)	\$ 602,500
<input type="checkbox"/>	b. Freeway Service Patrol	\$ _____
<input type="checkbox"/>	c. Traffic Management Team	\$ _____
<input type="checkbox"/>	d. Helicopter Surveillance	\$ _____
<input type="checkbox"/>	e. Traffic Surveillance Stations (Loop Detector and CCTV)	\$ _____
<input type="checkbox"/>	f. Others _____	\$ _____

4) Construction Strategies

<input checked="" type="checkbox"/>	a. Lane Closure Chart	\$ 0
-------------------------------------	-----------------------	------

<input type="checkbox"/>	b. Reversible Lanes	\$
<input type="checkbox"/>	c. Total Facility Closure	\$
<input type="checkbox"/>	d. Contra Flow	\$
<input type="checkbox"/>	e. Truck Traffic Restrictions	\$
<input checked="" type="checkbox"/>	f. Reduced Speed Zone	\$ 60,000
<input checked="" type="checkbox"/>	g. Connector and Ramp Closures	\$ 500,500
<input type="checkbox"/>	h. Incentive and Disincentive	\$
<input type="checkbox"/>	i. Moveable Barrier	\$
<input type="checkbox"/>	j. Others _____	\$
5) Demand Management		
<input type="checkbox"/>	a. HOV Lanes/Ramps (New or Convert)	\$
<input type="checkbox"/>	b. Park and Ride Lots	\$
<input type="checkbox"/>	c. Rideshare Incentives	\$
<input type="checkbox"/>	d. Variable Work Hours	\$
<input type="checkbox"/>	e. Telecommute	\$
<input type="checkbox"/>	f. Ramp Metering (Temporary Installation)	\$
<input type="checkbox"/>	g. Ramp Metering (Modify Existing)	\$
<input type="checkbox"/>	h. Others _____	\$
6) Alternative Route Strategies		
<input type="checkbox"/>	a. Add Capacity to Freeway Connector	\$
<input type="checkbox"/>	b. Street Improvement (widening, traffic signal, etc)	\$
<input type="checkbox"/>	c. Traffic Control Officers	\$
<input type="checkbox"/>	d. Parking Restrictions	\$
<input type="checkbox"/>	e. Others _____	\$
7) Other Strategies		
<input type="checkbox"/>	a. Application of New Technology	\$
<input type="checkbox"/>	b. Others _____	\$
TOTAL ESTIMATED COST OF TMP ELEMENTS =		\$1,389,000

Project Notes:

Assumed purchase of 4 PCMS for project at \$15,000 ea +\$10000 miscellaneous labor.

COZEEP assumed \$2500/night for 8 hour closure (\$150/hour * 8 hours * 2 officers). 7 shifts utilized for continuous 55 hour closure.

Press Release: 19 locations * 2 press releases each * \$224 (2015 TMP Guideline)

Radio Ad: 19 locations * 2 ads each * \$400 (2015 TMP Guidelines, \$800/minute)

TV Ad: 19 locations * 1 commercial each * \$4,000

Internet: 30hrs labor * 24 month construction * \$50/hr

Fixed CMS (Existing): 8hrs labor * 24 month construction * \$50/hr

Detour plans provided in PAED attachment.

ATTACHMENT M

Preliminary Geotechnical Reports

Signed Cover Sheets

- District Preliminary Geotechnical Report
Signed Cover Sheet
- Structure Preliminary Geotechnical Report
Signed Cover Sheet



A Report Prepared for:

Parsons Transportation Group
2201 Dupont Drive Suite 630
Irvine, CA 92612

**DISTRICT PRELIMINARY GEOTECHNICAL REPORT
CONCRETE SLAB AND ASPHALT CONCRETE REPLACEMENT AT VARIOUS LOCATIONS
INTERCHANGE AT INTERSTATE 405 AND STATE ROUTE 55
CALTRANS DISTRICT 12
COUNTY OF ORANGE
CALIFORNIA**

**PROJECT ID: 1218000117
CALTRANS EXPENDITURE AUTHORIZATION (EA) NUMBER: 0R560**

Project No. 2019-019

by

Britton Howay, EIT
Staff Engineer II

Somadevan Niranjanan
Geotechnical Engineer 2819



Diaz•Yourman & Associates
1616 East 17th Street
Santa Ana, CA 92705-8509
(714) 245-2920

June 15, 2020



A Report Prepared for:

Parsons Transportation Group
2201 Dupont Drive, Suite 630
Irvine, CA 92612

**STRUCTURE PRELIMINARY GEOTECHNICAL REPORT
RETAINING WALL 396
INTERSTATE 405 & STATE ROUTE 55
BRIDGE NO 55-421F
POST MILE: 8.6
CALTRANS DISTRICT 12
COUNTY OF ORANGE
CALIFORNIA**

**PROJECT ID: 1218000117
CALTRANS EXPENDITURE AUTHORIZATION (EA) NUMBER: 0R560**

Project No. 2019-019

by

Britton Howay, E.I.T.
Staff Engineer II

Somadevan Niranjana
Geotechnical Engineer 2819



Diaz•Yourman & Associates
1616 East 17th Street
Santa Ana, CA 92705-8509

March 18, 2020

ATTACHMENT N

Environmental Technical Studies

- Initial Site Assessment (ISA) Technical Memorandum
- Natural Environmental Study (Minimal Impact) Cover Page
 - Section 106 Screening Report
- Transportation Air Quality Conformity Findings Checklist

Initial Site Assessment (ISA) Checklist

Project Information

District: 12 County: Orange Route: 12-ORA-Various Post Mile: Various
EA: 0R5600 Project No: 1218000117

Description: Rehabilitation of existing pavement by repairing broken concrete slabs and removing/replacing existing asphalt concrete with new RHMA-G at 16 connectors, 2 ramps, and 1 undercrossing

Is the project on the HW Study Minimal-Risk Projects List (HW1)? No

Project Manager: Bob Bazargan Phone: (657) 328-6298

Project Engineer: David Lam Phone: (657) 328-6080

Project Screening

Attach the project location map to this checklist to show location of all know and/or potential HW sites identified.

1. Project Features: New R/W? No Excavation? Yes Railroad Involvement? No
Structure demolition/modification? No Subsurface utility relocation? No

2. Project Setting: On the connectors, ramp and undercrossing of State freeways 5, 55,73, 91, 133 and 405

Rural or Urban: Urban

Current land uses: Freeway pavement and shoulders

Adjacent land uses: Mix of Residential, Commercial, Industrial, Public and Vacant lands

(industrial, light industry, commercial, agricultural, residential, etc.)

3. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.

4. Conduct Field Inspection. Date: 02/03/2020 Use the attached map to locate potential or known HW sites.

STORAGE STRUCTURES / PIPELINES:

Underground tanks No Surface tanks No

Sumps No Ponds No

Drums No Basins No

Transformers No Landfill No

Other _____

Attachment 1 – ISA Technical Memorandum

TECHNICAL MEMORANDUM

PROJECT: 12-OR560 Connector Rehabilitation Project (12-ORA-Various; EA OR5600; Project No: 1218000117)
FROM: Angela K. Schnapp, Parsons
DATE: February 10, 2020
SUBJECT: Initial Site Assessment (ISA)

During the project kickoff coordination efforts, Wayne Chiou of the California Department of Transportation (Caltrans) District 12 office discussed with Angela Schnapp of Parsons that if no right-of-way acquisition is required for the project, then there is no need to prepare a full Initial Site Assessment (ISA). Rather, completion of the ISA Checklist and an associated memorandum (memo) would be adequate to address hazardous materials/waste issues related to the project. Thus, this memo is being prepared to provide a summary of the efforts to identify the potential for hazardous materials or wastes to be encountered during the construction of the pavement rehabilitation efforts throughout Orange County, California.

1.0 PROJECT LOCATION

The project involves pavement rehabilitation at several sites throughout Orange County. While there are 19 locations where pavement rehabilitation efforts will occur, they can be grouped into seven different sites (see Figure 1).



Figure 1. Project Location

2.0 PROJECT DESCRIPTION

The project proposes to rehabilitate the existing pavements by replacing the broken concrete slabs with Portland Cement Concrete (PCC) and repairing the existing asphalt concrete (AC) with Rubberized Hot-Mix Asphalt - Gap Graded (RHMA-G) at eighteen (18) locations, including sixteen (16) connectors and two (2) ramps in Anaheim, Costa Mesa, Irvine, Santa Ana and Tustin and to rebuild the bridge structural departure slab at the Cabot Road undercrossing on the southbound Route 73 in Laguna Niguel. These 19 locations are listed in Table 1 – Project Locations.

Table 1 – Project Locations

Location ID	Alignment Name	Begin Postmile (PM)	PM Route	Description
Site 2				
1	S55-N405	R6.2	55	S55 to N405 Connector
2	N55-S405	R5.7	55	N55 to S405 Connector
3	N405-N55	8.3	405	N405 to N55 Connector
4	S405-N55	8.9	405	S405 to N55 Connector
5	N405-S55	8.3	405	N405 to S55 Connector
Site 1				
6	S55-BA*	R4.8	55	S55 Baker St On ramp
7	N55-S73	R4.5	55	N55 to S73 Connector
8	N55-N73	R4.4	55	N55 to N73 Connector
9	N73-N55	R26.3	73	N73 to N55 Connector
10	S55-S73	R5.1	55	S55 to S73 Connector
11	N73-S55	R26.3	73	N73 to S55 Connector
12	S73-S55	R26.7	73	S73 to S55 Connector
Site 5				
13	N5-N405	20.8	5	N5 to N405 Connector
Site 4				
14	S5-N133	24.2	5	S5 to N133 Connector
15	S133-N5	10.4	133	S133 to N5 Connector
Site 3				
16	N55-OF**	10.5	55	N55 Fourth St Off Ramp
17	N5-N55	30.2	5	N5 to N55 Connector
Site 6				
18	S73-CA***	11.05	73	S73 Cabot Rd Undercrossing
Site 7				
19	E91-S55	8.9	91	E91 to S55 Connector
Notes: N- North S- South E - East * - BA – Baker On-ramp ** - OF – Fourth Street *** - CA – Cabot Road Undercrossing				

3.0 POTENTIAL IMPACTS

Desktop reviews of the State Water Resources Control Boards' Geotracker database and aerial photographs in Google Earth were completed and verified during field surveys (conducted on February 3, 2020). These reviews indicated that there are unpaved shoulders and slopes on the project locations that may be disturbed by the project. These soils may contain aerially deposited lead (ADL), which is generally found within 30 feet of the edge of the roadway pavement and in the top 4 feet of soil. In addition, there are lane markings (i.e., thermoplastics and paints) on the connectors, ramps and undercrossing that may contain chromium and lead in yellow paint striping at concentrations that may pose a hazard to workers. Disturbance of ADL and lead in pavement markings may expose construction workers and adjacent land uses to health hazards associated with these hazardous materials/wastes. Proper removal, handling, storage, and disposal will be necessary during construction activities for the project.

While no structures are proposed for alteration or rehabilitation, should construction activities have the potential to disturb or alter adjacent bridge structures, asbestos-containing materials (ACM) in these structures could pose health hazards and, thus, should be removed and disposed in accordance with existing regulations. Also, since no right-of-way acquisition is planned, adjacent land uses and developments that historically handled or are currently handling hazardous materials or wastes will not be affected by the project and, in turn, will not affect the project. However, excavation activities associated with the construction of retaining wall foundations may encounter the underlying groundwater (if any). Dewatering activities will have to be conducted to prevent the disposal of groundwater in a way that may affect both groundwater and surface water quality.

4.0 RECOMMENDATIONS

ADL testing will need to be conducted during 35% of plans, specifications and estimates (PS&E). The handling, reuse, and disposal of ADL-impacted soils will have to be conducted in accordance with Caltrans' Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (ADL Agreement) with the Department of Toxic Substances Control.

The testing of yellow paint striping for the presence of lead-based paint (LBP) will have to be conducted prior to removal. The handling, storage, and disposal of LBP in yellow striping will have to be made in accordance with Caltrans' Standard Specifications 14-11.12, Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.

Since there are existing bridge structures near planned work areas, should any disturbance of the bridge structures (or overcrossings) be required, testing for potential ACM shall be conducted to determine appropriate noticing, handling, and disposal of ACM per South Coast Air Quality Management District's (SCAQMD's) Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.

Shallow groundwater (i.e., groundwater within 5 to 10 feet of the ground surface) is expected to be present at Site 2. Most of the work would only disturb the upper 2 feet of soils. However, potential excavation activities for the foundations of retaining walls may encounter shallow groundwater. For the proper handling and disposal of any potentially contaminated groundwater, all dewatering activities will have to comply with the Santa Ana Regional Water Quality Control Board Order R8-2015-004-025, NPDES No. CAG998001 (for Sites 1-5 and 7) or the San Diego Regional Water Quality Control Board Order R9-2015-0013, NPDES No. CAG91903 (for Site 6), depending on the site location.

In addition, Caltrans' Standard Specifications 14-11.02, Discovery of Unanticipated Asbestos and Hazardous Substances, and Standard Specifications 14-11.03, Hazardous Waste Management, will have to be followed in the event of discovery of unanticipated hazardous materials.

Natural Environment Study

(Minimal Impacts)

PO 1 Slab Replacement Project

Orange County, California

12 - Orange – Various – Various PM

EA 0R560/1218000117

July 2020

STATE OF CALIFORNIA
Department of Transportation

Prepared By: Hannah Hart Date: July 15, 2020

Hannah Hart, Biologist
(310) 792-2690
GPA Consulting
617 South Olive Street, Suite 910
Los Angeles, CA 90014

Recommended for Approval By: _____ Date: _____

Lisa Sato, District Biologist
(657) 328-6136
Division of Environmental Analysis
California Department of Transportation, District 12

Approved By: _____ Date: _____

Charles Baker, Senior Environmental Planner
(657) 328-6139
Division of Environmental Analysis
California Department of Transportation, District 12
1750 East Fourth Street, Suite 100
Santa Ana, CA 92705

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans District 12, Attn: Brian Liu, 3347 Michelson Drive, Suite 100, 3rd Floor, (657) 328-6135 (Voice), or use the California Relay Service: 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (Voice), or 711.

Memorandum

*Serious drought.
Help Save Water!*

To: Brian Liu
Department of Transportation
District 12
Environmental Planner, Specialist Branch

Date: March 13, 2020

From: Jonathan Wright
Department of Transportation
District 12
Archaeologist, Specialist Branch

File: EFIS 1218000117
12-ORA-VAR
PM VAR

Subject: Section 106 screening memo, Orange County, California.

Caltrans proposes to rehabilitate existing pavement on various connectors by repairing broken concrete slabs, cold-plane/replace existing AC with rubberized hot mix asphalt, replace exiting curbs and gutters with new shoulders, and to upgrade exiting guardrail at various locations in Orange County.

Based on the material provided on 3/12/2020, and a review of cultural documentation retained by Caltrans D12 from the SCCIC, aerial photographs, and following the guidelines established for federal NEPA undertakings applied to this project, it has been determined that the proposed project has no potential to affect historic properties/ historic resources, and is exempt from further review pursuant to Stipulation VII and Attachment 2 (Class #1- Pavement reconstruction, resurfacing, shoulder backing, or placement of seal coats. Class #11-Modification of existing features, such as slopes, ditches, curbs, sidewalks, driveways, dikes, or headwalls, within or adjacent to the right of way. Class #13- Addition or replacement of devices, such as glare screens, median barriers, fencing, guardrails, safety barriers, energy attenuators, guide posts, markers, safety cables, ladders, lighting, hoists, or signs. Class #19-Any work on Category 5 bridges, including rehabilitation or reconstruction) of the 2014 First Amended 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 Regarding Compliance with Section 106 of the National Historic Preservation Act (PA).

As proposed, Cultural has no concerns and cultural is complete. Further cultural review will be required if project plans are changed. Please note that this assessment could change if there are any changes to the proposed activities, or if additional locations are added.

You may contact me at (657) 328-6167 with any questions you may have regarding these comments.



Jonathan Wright
Lead Archaeological Surveyor, Specialist Branch

CHIEF DEPUTY DIRECTOR, et al.
Month Day, Year
Page 2 of 2

District 12



TRANSPORTATION AIR QUALITY CONFORMITY FINDINGS CHECKLIST

Project Information

Project Name: _____

DIST-CO-RTE-PM: _____

EA: _____ Federal Aid Number: _____

Document Type: 23 USC 326 CE 23 USC 327 CE EA EIS

Checklist

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM_{2.5}, or PM₁₀ per [EPA's Green Book](#) listing of non-attainment areas?

- If no, go to Step 17. **Transportation conformity does not apply to the project.**
 If yes, go to Step 2.

Step 2. Is the project exempt from conformity per [40 CFR 93.126](#) or [40 CFR 93.128](#)?

- If yes, go to Step 17. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).

40 CFR 93.126¹

Project type from Table 2:

 40 CFR 93.128

- If no, **go** to Step 3.

Step 3. Is the project exempt from regional conformity per [40 CFR 93.127](#)?

- If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type).

Project type: _____

- If no, go to Step 4.

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

- If yes, **the project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.

If no and the project is located in an isolated rural area, go to Step 5.

If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

¹ Please refer to [Clarifications on Exempt Project Determinations](#) to verify exempt project type from Table 2. Road diets, auxiliary lanes less than one-mile, and ramp metering may be exempt under "projects that correct, improve, or eliminate a hazardous location or feature."

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

- If yes, go to Step 6.
 - If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[e]).**
-

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

- If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[e]).**
 - If no, go to Step 7.
-

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

- Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[e] and 95.105).² Go to Step 8.**
-

Step 8. Is the project located in a CO nonattainment or maintenance area? (South Coast Air Basin only)

- If no, go to Step 9. **CO conformity analysis is not required.**
 - If yes, **hot-spot analysis requirements for CO per the [CO Protocol](#) (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors³) have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)⁴. Go to Step 9.**
-

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

- If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**
- If yes, go to Step 10.

² The analysis must support this conclusion before going to the next step.

³ Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: <http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot>.

⁴ As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA's [Transportation Conformity Guidance](#) for PM 10 and PM 2.5?

- If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on _____.** Go to Step 12.
- If yes, go to Step 11.

Step 11. The project is a POAQC.

- The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on _____.** Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards. Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures? [Control measures can be found in the applicable Federal Register notice at: <https://www.epa.gov/state-and-local-transportation/conformity-adequacy-review-region-9#ca>.]

- If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).** Go to Step 14.
- If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document? AND

Step 13c (applies only if Step 13a and/or 13b are answered "yes"). Has a written commitment been made as part of the air quality analysis to implement the identified measures?

- If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination (40 CFR 93.125(a)).** Go to Step 14.
- If no, go to Step 14.

Step 14. Does the project qualify for a Categorical Exclusion pursuant to 23 USC 326?

- If yes, go to step 15.
- If no, go to Step 16.

Step 15. Is any analysis required by steps 1-13 of this form?⁵

- If yes, then Caltrans prepares the appropriate analysis and documentation for the project file and makes the conformity determination through its signature on the CE form. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 17.
- If no, then Caltrans makes the conformity determination through its signature on the CE form. No FHWA involvement is required. Go to Step 17.

Step 16. Does the project require preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327?

- If yes, then Caltrans submits a conformity determination request to FHWA for FHWA's conformity determination letter. **An AQCA is needed.** See the AQCA Annotated Outline.

Date of FHWA air quality conformity determination: _____

Go to Step 17.

Step 17. STOP as all air quality conformity requirements have been met.

Signature

Signature

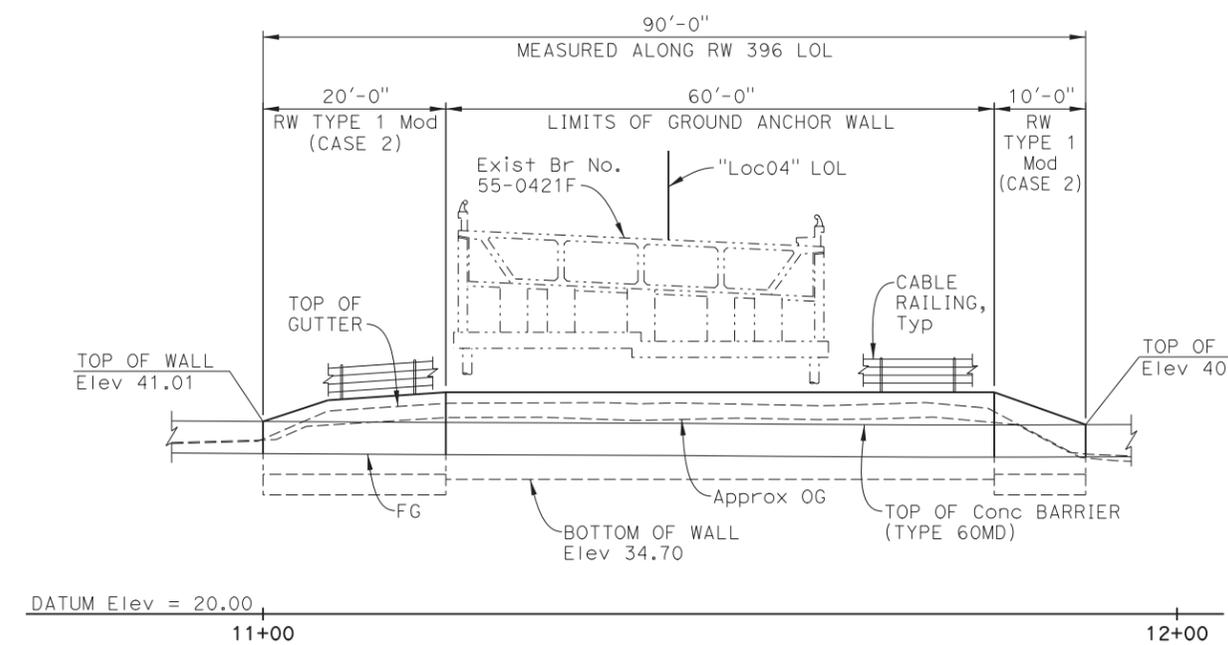
Date

⁵ Please note that not all projects that qualify for a categorical exclusion will be exempt from air quality conformity requirements. Many types of projects that may qualify for a CE (such as the addition of auxiliary lanes less than one-mile, weaving lanes less than one-mile, turning lanes less than one-mile, climbing lanes less than one-mile, parking, road diets, ramp metering, and even many bridge projects) MAY require some level of project level conformity analysis and may even require interagency consultation. Additionally, please note that for ALL projects the project file must include evidence that one of the three following situations apply: 1) Conformity does not apply to the project area; or 2) The project is exempt from all conformity analysis requirements; or 3) The project is subject to project-level conformity analysis (and possibly regional conformity analysis) and meets the criteria for a conformity determination. The project file must include all supporting documentation and this checklist.

ATTACHMENT O
Structure Advance Planning Study

Dist	COUNTY	ROUTE	POST MILE
12	Ora	405	8.9

PARSONS
2201 DUPONT DRIVE, SUITE 200
IRVINE, CA 92612



MIRRORED ELEVATION
1" = 10'

ASSUMPTIONS:

- Ramp Traffic will remain adjacent to wall during construction. One lane and one shoulder will require closure during wall construction.
- The maximum retaining wall design height "H" is 8ft.

NOTE:

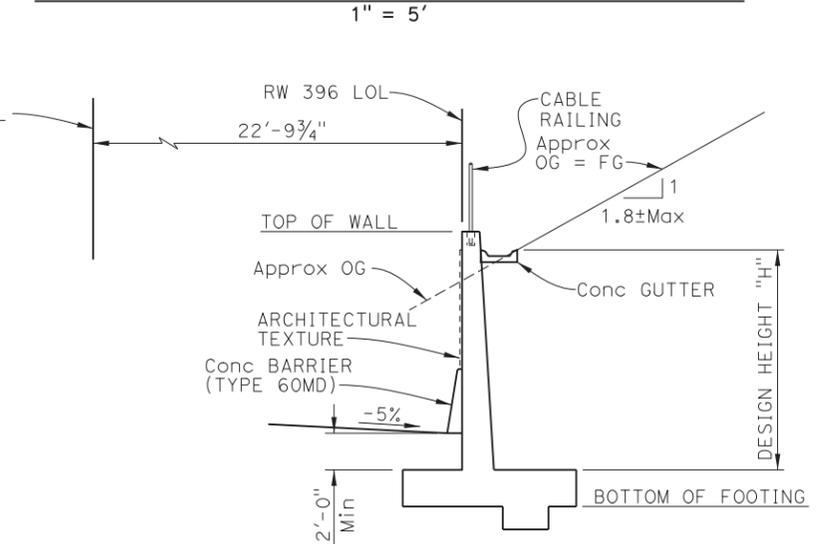
- Contours shown represent approximate existing ground.

LEGEND:

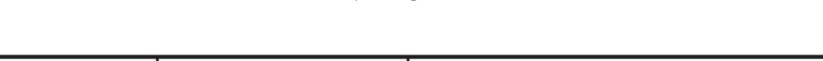
- Direction of Traffic
- Existing Structure
- New Structure

DATE OF ESTIMATE	03/02/20
LENGTH	= 90'-0"
HEIGHT	= 9'-0" Avg
AREA	= 810 ft ²
COST/ft ² INCLUDING TRO, MOBILIZATION & 25% CONTINGENCY	= \$385
TOTAL COST	= \$311,000

TYPICAL SECTION AT EXISTING BRIDGE
1" = 5'



TYPICAL SECTION - TYPE 1 MOD WALL
1" = 5'



PLAN
1" = 10'

CURVE DATA ①

R = 862.00'
Δ = 103°01'50"
T = 1084.28'
L = 1550.07'

DESIGNED BY G. Douglass	DATE 03/02/20
DRAWN BY S. Weight	DATE 03/02/20
CHECKED BY L. Laing	DATE 03/03/20
APPROVED J. Hermstad	DATE 03/04/20

J. Hermstad
PROJECT ENGINEER

PLANNING STUDY	
RETAINING WALL No. 396	
UNIT: X	BRIDGE No.: 55E XXXX
CONTRACT No.: 12-OR5600	PROJECT No. & PHASE: 12180001171

X	DESIGN OVERSIGHT
X	SIGN OFF DATE

ATTACHMENT P

Asset Management Performance Measures

PRE-PERFORMANCE MEASURE

SHOPP Project - Accomplishment - Performance Measures - Benefits									
District: 12 Tool ID: 21043 Project ID: 1218000117 EA: 0R560 Co-Rte-PM: ORA-005-20.89/30.11 (Primary Location) Res In PID WP: 06/21/18 Project Manager: Bob Bazargan Save to Excel									
<input type="checkbox"/> Bridge <input checked="" type="checkbox"/> Pavement <input type="checkbox"/> Drainage <input type="checkbox"/> Facilities <input type="checkbox"/> Safety <input type="checkbox"/> Mobility <input type="checkbox"/> Roadside <input checked="" type="checkbox"/> Complete Streets <input type="checkbox"/> Sustainability /Climate Change <input type="checkbox"/> Advance Mitigation <input type="checkbox"/> Major Damage <input type="checkbox"/> Green-house Gases <input type="checkbox"/> Relinquishment									
Performance & Accomplishments (TYP)									
Activity Detail	Performance Objective	Unit of Measurement	Quantity	Assets in Good Cond	Assets in Fair Cond	Assets in Poor Cond	New Asset Added	Comment	
1 Existing Ramps & Connectors (201.121, .122, .120)	Pavement Class I	lane-miles	19.42		19.42			estimated total In-mi of 4 inter. Conn.	
2 Existing Shoulders (201.121, .122, .120)	No Performance Objective in the SHSMP	SF	773600.0		773600.0				
3 Complete Streets Not Applicable (3)	No Performance Objective in the SHSMP	3						Project is located on freeway mainline	
4 Is any location within the project limits Ped/Bike accessible?	No Performance Objective in the SHSMP	Yes/No						No	

POST - PERFORMANCE MEASURE

SHOPP Project - Accomplishment - Performance Measures - Benefits									
District: 12 Tool ID: 21043 Project ID: 1218000117 EA: 0R560 Co-Rte-PM: ORA-005-20.89/30.11 (Primary Location) Res In PID WP: 06/21/18 Project Manager: Bob Bazargan Save to Excel									
<input type="checkbox"/> Bridge <input checked="" type="checkbox"/> Pavement <input type="checkbox"/> Drainage <input type="checkbox"/> Facilities <input checked="" type="checkbox"/> Safety <input type="checkbox"/> Mobility <input type="checkbox"/> Roadside <input type="checkbox"/> Complete Streets <input type="checkbox"/> Sustainability /Climate Change <input type="checkbox"/> Advance Mitigation <input type="checkbox"/> Major Damage <input type="checkbox"/> Green-house Gases <input type="checkbox"/> Relinquishment									
Performance & Accomplishments (PRG)									
Activity Detail	Performance Objective	Unit of Measurement	Quantity	Assets in Good Cond	Assets in Fair Cond	Assets in Poor Cond	New Asset Added	Comment	
1 Existing Ramps & Connectors (201.121, .122, .120)	Pavement Class I	lane-miles	19.42	19.42				estimated total In-mi of 4 inter. Conn.	
2 Existing Shoulders (201.121, .122, .120)	No Performance Objective in the SHSMP	SF	773600.0	773600.0					
3 Median Barrier (201.010, .015)	No Performance Objective in the SHSMP	LF	50.0	50.0					
4 Guard Rail (201.010, .015)	No Performance Objective in the SHSMP	LF	12875.0	12875.0					

ATTACHMENT Q
Final Value Analysis Study Report
Signed Cover Sheets



Final Value Analysis Study Report



D-12 Rehabilitate Pavement at 19 Orange County Locations

PN 1218000117

EA OR5600

Contract No. 53A0208

Task Order No. 1151

June 2020

Prepared by

Value Management Strategies, Inc.





Date: June 4, 2020

To: Son Nguyen, District 12 DVAC

Subject: Final VA Study Report
D-12 Rehabilitate Pavement at 19 Orange County Locations

Dear Mr. Nguyen,

Value Management Strategies, Inc. is pleased to submit this Final VA Study Report for the referenced project.

It was a pleasure working with District 12 on this project, and I look forward to the next one. If you have any questions or comments concerning this preliminary report, please do not hesitate to contact me at 760-741-5518 Ext. 203 or email fred@vms-inc.com.

Sincerely,

VALUE MANAGEMENT STRATEGIES, INC.

A handwritten signature in black ink, appearing to read "Fred Kolano". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Fred Kolano, CVS-Life, FSAVE
VE Study Team Leader

Copy: (PDF) Addressee
(PDF) Belinda Hon, HQ VA Program Manager
(PDF) Erika Barrick, HQ VA Program Administrator