ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT
Browns Valley Rehab (EA 03-0A570)

Resolution SHOPP-P-1819-04B
(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 *Browns Valley Rehab (EA 03-0A570)*, effective on, OCTOBER 17, 2018 (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 March 22, 2018 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *Browns Valley Rehab (EA 03-0A570)*, 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-18-13, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated March 22, 2018
- ☐ 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

03-0A570, Browns Valley Rehab

Resolution SHOPP-P-1819-04B

Amarjeet S. Benipal — 8-31-18
Amarjeet S. Benipal — Date

District Director

Project Applicant

Amarjeet S. Benipal — 8-31-18
Amarjeet S. Benipal — Date

District Director

Implementing Agency

Amarjeet S. Benipal — 8-31-18
Amarjeet S. Benipal — Date

District Director

California Department of Transportation

Laurie Berman — 9/11/18
Laurie Berman — Date

Director

California Department of Transportation

Susan Bransen — 10/26/18
Susan Bransen — Date

Executive Director

California Transportation Commission

Baseline agreement information was extracted from Caltransâ„¢ 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:** 09/10/18 12:31:45 PM

District	EA	Project ID	PPNO	Project Manager
03	0A570	0300020593	9579	TAN, JOHNY

County	Route	Begin Postmile	End Postmile	Implementing Agency	
YUB	20	13.3	R 17.8	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

Browns Valley Rehab

Location/Description

Near Marysville, from Marysville Road to Yuba River (Parks Bar) Bridge. Rehabilitate roadway.

Legislative Districts

Assembly:	03	Senate:	04	Congressional:	03

PERFORMANCE MEASURES

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Pavement	9.9				9.9	Lane-miles
Programmed Condition	Pavement	9.9				9.9	Lane-miles

Project Milestone	Actual	Planned
Project Approval and Environmental Document Milestone	08/01/17	
Right of Way Certification Milestone		04/01/19
Ready to List for Advertisement Milestone		04/15/19
Begin Construction Milestone (Approve Contract)		12/29/19

FUNDING (Allocated amounts are shaded)

Component	Fiscal Year	SHOPP					Total
PA&ED	17/18	4,300					4,300
PS&E	17/18	2,800					2,800
RW Support	17/18	2,500					2,500
Const Support	18/19	6,900					6,900
RW Capital	18/19	9,400					9,400
Const Capital	18/19	38,100					38,100
Total		64,000					64,000

03-YUB-20 – PM 13.3/R17.8
03-0A5700 – 0300020593- PPNO 9579
2010201.120 – Browns Valley Rehab Yuba 20
7/21/2017

Supplemental
PROJECT SCOPE SUMMARY REPORT
(Roadway Rehabilitation and Widen Shoulders)

To Request Programming in the 2019 SHOPP and For Project Approval.

On State Route 20 in Yuba County approximately 12 miles east of Marysville

Between Marysville Road

And Yuba River Bridge 16-11

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:

JOHN BALLANTYNE
DISTRICT DIVISION CHIEF, RIGHT OF WAY

APPROVAL RECOMMENDED:

FERMIN BARRIGA
PROJECT MANAGER

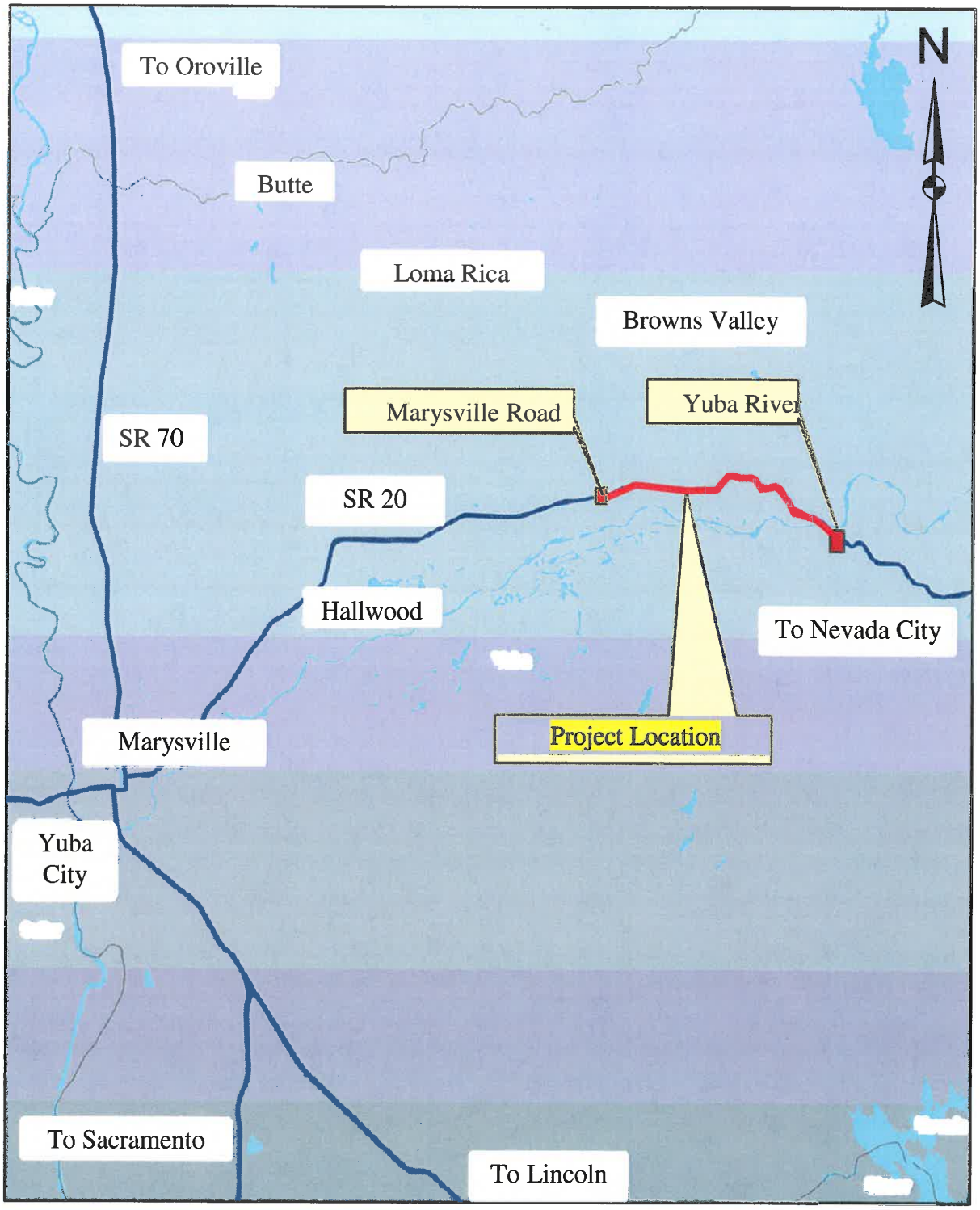
APPROVED:

8/1/17

RIHUI ZHANG
DISTRICT DIRECTOR
(or delegated authority)

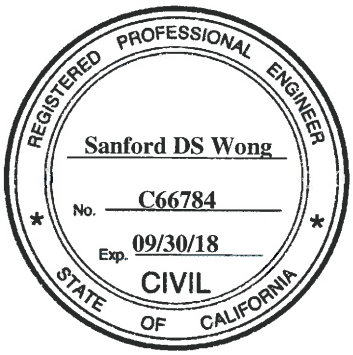
DATE

Vicinity Map



This project scope summary 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.

REGISTERED CIVIL ENGINEER *DATE* 7/21/2017



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1. INTRODUCTION

Project Description:

This Resurfacing, Restoration, and Rehabilitation (3R) project proposes to rehabilitate State Route (SR) 20 in Yuba County 12 miles east of Marysville from Marysville Road to the Yuba River (Parks Bar) Bridge. This project will widen the shoulders to standard eight feet, construct a new Dry Creek Bridge to accommodate standard shoulders and load rating, realign non-standard vertical curves between Too Handy Way and Digger Pine Lane, and realign the non-standard horizontal curves between Stacy Ann Drive and Sicard Flat Road. The project will be designed to conventional highway in rolling terrain with a proposed design speed of 55 miles per hour. For project location, see Attachment A: Location Map.

Project Limits	*03-YUB-20* *PM 13.3/R17.8*	
Programmable Project Alternative	1	
	Current Cost Estimate:	**Escalated Cost Estimate:**
Capital Outlay Support		
Capital Outlay Construction	$36,152,200	$38,472,440
Capital Outlay Right-of-Way	$7,491,085	$8,145,000
Funding Source	*2010201.120*	
Funding Year	2019	
Type of Facility	*2-lane conventional highway*	
Number of Structures	1 (Dry Creek Bridge; 16-10)	
SHOPP Project Output	9 miles of pavement rehabilitation	
Environmental Determination or Document	*Initial Study with proposed Mitigated Negative Declaration / Categorical Exclusion.*	
Legal Description	*Approximately 12 miles east of Marysville from Marysville Road to Yuba River Bridge 16-11*	
Project Development Category	*4A Project*	

2. RECOMMENDATION

This Project Report with attached Final Environmental Document recommend that the project be approved using the rehabilitation alternative, and that the project proceed to the next design phase.

This project, along with the Final Environmental Document, attest that (1) the affected local agencies have been consulted with respect to the recommended plan, that (2) their views have been considered, and (3) the local agencies are in general accord with the plan as presented.

3. PURPOSE AND NEED

Purpose:
The purpose of this project is to bring the highway geometrics up to current design standards including the horizontal alignment and shoulder widths, provide geometric consistency with the adjacent sections of highway at each end of the project roadway, replace Dry Creek Bridge with a full permit load bridge, extend the existing truck climbing lanes, and extend the service life of the pavement.

Need:
The existing horizontal alignment and shoulder widths do not meet current design standards, Dry Creek Bridge does not provide full permit load capacity, the existing truck climbing lanes do not meet operational needs, and the existing pavement has exhibited signs of distress, requiring resurfacing, and will further deteriorate without a complete pavement rehabilitation.

4. EXISTING FACILITY, DEFICIENCIES AND TRAFFIC DATA

SR 20 begins at SR 1 near Fort Bragg and ends at Interstate 80 (I-80) near Emigrant Gap. Within District 3, the route runs 122 miles west to east through Colusa, Sutter, Yuba, and Nevada counties. SR 20 is mainly a two-lane highway that serves regional, interregional, commute, commercial, agricultural, and recreational traffic. SR 20 serves as a major east-west connector to Interstate 5 (I-5) and SR 99 and interconnects with other major routes, including SR 70 and I-80.

SR 20 within the project limits is a two-lane conventional highway in rolling terrain with multiple local road at-grade intersections and driveway connections.

SR 20 is part of the Interregional Transportation Strategic Plan and is classified as a High Emphasis Focus Route. A High Emphasis Focus Route is one of Caltrans highest priority route designations for completion to at least minimum facility standards within a 20-year planning period, assuring that a statewide trunk system is in place and complete for higher volume interregional trip movements.

Within the project limits, SR 20 currently operates at Level of Service (LOS) C. By the year 2027, the operation of the facility is expected to decline to LOS D. Curve improvements and shoulder widening would enable the highway to maintain the LOS D standard.

4A. Roadway Geometric Information

		Existing	Proposed	Minimum RRR Standards
Facility Location	(Post Mile Limits)	(1)	(2)	
Minimum Curve Radius	Radius (ft)	500 ft	1000 ft	1000 ft
Through Traffic Lanes	Number of Lanes	2	2	2
	Lane Width (ft)	11-12 ft	12 ft	12 ft
	Type (Flexible, Rigid, or Composite)	Flexible	Flexible	Flexible
Paved Shoulder Width	Left (ft)	1'-8"	8 ft	8 ft
	Right (ft)	1'-8"	8 ft	8 ft
Median Width	(ft)	None	None	None
Shoulder is a Bicycle Lane	(Y/N)-Width (ft)	No; Share the Road Facility	Yes; Future Class 3	No; Share the Road Facility
Other Bicycle Lane Width (3)	Width (ft)	NA	NA	NA
Bicycle **Route**	(Y/N)	No	No	No
Facilities Adjacent to the Roadbed (4)	Code-Width (ft)	NA	NA	NA

Remarks:
This project's proposed improvement will not preclude the future Class 3 bicycle facility which is consistent with future planned improvements. In actuality, it will improve shoulder width for the future Class 3 bicycle facility.

4B. Condition of Existing Facility:

Caltrans completed a pavement rehabilitation project EA03-3F0004; 03-YUB-20 PM 13.3/20.3 which was accepted on November 24, 2015. The project scope was to cold plane the existing wearing course (0.08') and replace with 0.1' of Rubberized Hot Mix Asphalt (RHMA) (Type-O) and 0.2' of RHMA (Type-G). The limits of this pavement rehabilitation project are from edge of pavement to edge of pavement on SR 20.

1) Traveled Way Data (PM 13.3 /20.3)

PMS Category (1-29): 10 Priority Classification (.1-.4): 0.1

International Roughness Index (IRI): Ranges from 45-163; Average 85

*Rigid Pavement: No. *Flexible Pavement: Yes
* From latest PMS-Pavement Condition Inventory Survey Data.

3rd Stage Cracking %: Not Applicable Alligator B Cracking %: 0

Faulting: Not Applicable Patching %: 100% from PM 17.0/18.069

Joint Spalls: Not Applicable Rutting and Bleeding: None

Pumping: Not Applicable

Corner Breaks %: Not Applicable Raveling: None

Locations(s) of subsurface or ponded surface-water problem:

No known subsurface or ponding surface water problem. Design has confirmed with the Caltrans Area Superintendent.

Deflection Study Results (if available):
Not applicable.

2) Shoulder Data

Condition:
Shoulder pavement condition data was not evaluated. Based on the project funding program, SHOPP 3R, the shoulder will be rehabilitated as part of this project. The project will include tapered edge treatment. Rumble strips will not be included due to the shared facility bicycle classification. Adding rumble strips would negatively impact bicyclist on the shoulder.

Deficiencies
The existing 1'-8" shoulder width is non-standard and will be widened to standard 8 feet as part of this SHOPP 3R project.

3) Pedestrian Facility Data

Facility Type and Location(s) *(Station, post mile or other reference point)*	**Meets ADA Standards?** *(Yes or No for each listed location)*	**If Facility does not meet ADA Standards, what feature(s) are not ADA compliant?** *(List features per location)*	**Status of Each Noncompliant Location** Use the following statements, as appropriate: • *Will be corrected as part of this project;* • *Will not be corrected to full standard. An Exception to Accessibility Design Standards has been approved.*
Curb Ramps: *(List locations as appropriate)*	None		
Crosswalks: *(List locations as appropriate)*	None		
Others: *(List locations as appropriate)*	None		

Remarks:
Within this project limits, there are no existing pedestrian facilities such as sidewalks, curb ramp returns, crosswalks, and other pedestrian facilities.

4) Bicycle Path Data

This portion of SR 20 is currently designated a share the road facility which is a non-designated bicycle facility. Share the Road Facilities are non-classified State Highway System (SHS) segments, which have no bikeway designation and are open to bicyclist unless designated as closed to bicyclists. These facilities range from shoulder of varying width to full sharing of the mainline traffic lane.

This project will widen existing shoulder from 1'-8" to standard 8 feet. By widening the shoulders to standard width, it will create a better environment for bicyclists to use the shoulder versus the travel lane along this route.

Bicyclist access will be maintained during construction.

Future planned bicycle facility within these project limits based on the Caltrans District 3 State Highway Bicycle Facility Plan approved on June 2013 is a Class 3 bicycle facility. This proposed project improvement will not preclude the future Class 3 and all planned improvements can be retained and used for the future Class 3 facility.

This project will also create pedestrian and bicycle connectivity between Hammond Grove Park and Sycamore Ranch Park by creating a pedestrian trail on the south side of the new Dry Creek Bridge.

4C. Structures Information

Structures	Width Between Curbs			Replace Bridge Railings	Vertical Clearance			Work Identified in STRAIN	Replace Bridge Approach Rail	Replace Bridge Approach Slab	
Name Number	Exist (ft)	RRR Std. (ft)	Prop (ft)	(Y/N)	Exist (ft)	RRR Std. (ft)	Prop (ft)	(Y/N)	(Y/N)	(Y/N)	#
Dry Creek Bridge (16-10)	26 ft	40 ft	65'	Y	NA	NA	NA	Y	Y	N	

Remarks:
The Project Initiation Document Phase (K Phase) scoped the bridge improvement as a bridge retrofit to address scour concerns and issues. During the Project Approval and Environmental Document Phase (0 Phase), the Project Development Team (PDT) decided to replace the bridge versus retrofitting the existing bridge. The reasons for the change in structure approach are cost, reduced working days, load rating, and construction staging.

The cost to retrofit the existing bridge versus replacing the bridge is similar. Caltrans Structure Unit estimated retrofitting the existing bridge to cost in the range of $4.0-4.5 million versus the replacing bridge at a cost of $6.0 million.

The estimated working days developed by Caltrans Structure Unit for both the retrofit and replacement are the following:

- *Retrofit* two sided widening with concrete girder = 485 days
- *Retrofit* one sided widening with concrete girder = 210 days
- *New bridge* with CIP Prestressed concrete box girder = 320 days
- *New bridge* with Precast-Prestressed Wide Flange I-Girder = 320 days.

In summary, the new bridge requires fewer construction days versus the two sided retrofit which is the most probable retrofit option.

Another consideration is the load rating. The existing bridge has restricted load rating and the proposed new bridge would meet current standards with no load rating restrictions.

Construction staging is easier for the new bridge which will translate to lower construction costs because the existing bridge would be used for traffic while the new bridge is constructed. Minimal traffic control will be required. Driver safety through the structure construction area is also improved.

During the PA&ED phase, Yuba County has been consulted in the structure type selection and has provided feedback on the project roadway improvements. Yuba County has tentatively agreed to provide the right of way for the new bridge, with the understanding that a pedestrian trail/path will be included on the new bridge to provide pedestrian connectivity between Hammon Grove Park (east of Dry Creek) and Sycamore Ranch Park (west of Dry Creek River).

4D. Traffic Data

Present Year ADT: 7,600
Construction Year ADT: 8,510 — 10-Year ADT: 10,000

DHV: 1,220 — 20-Year ADT: 11,600

Directional Split: 66% — % Trucks: 5.0

*T.I. (10-Year): 9.0 — ESAL (10-Year): 1,000,000

*T.I. (20-Year): 10.0 — ESAL (20-Year): 2,423,911

* Must correlate with T.I. in Materials Report

Safety Field-Review: 4/9/2015

Latest 3-Year Collision Data:

Table 4 – Collision History 1/1/2010 to 12/31/2012

County	Route	PM	DIR	TOT	FAT	INJ	F+I	Actual			Average		
								FAT	F+I	TOTAL	FAT	F+I	TOTAL
Yuba	20	13.3-R17.8	Both	25	1	9	10	0.026	0.26	0.65	0.030	0.63	1.30

(average vs. actual rates)

Location(s) of Collision Concentration:
There are three locations of collision concentration based on the 1/1/2010 to 12/31/2012 TASAS Table B. The intersection of Sycamore Ranch and SR 20 (PM 13.6), the intersection of Browns Valley School Road and SR 20 (PM 13.7), and the intersection of Parks Bar Road and SR 20 (PM 17.2). Based on the type of accidents, the primary cause appears to be the lack of a turn lane resulting in high and low speed conflict.

Corrective Strategy:
This project will address the three locations of collision concentration by including roadway improvements to mitigate the high to low speed conflicts. At the intersection of Browns Valley School Road and SR 20, the project will include a left-turn lane on SR 20 to Browns Valley School Road. At the Sycamore Ranch and State Route intersection, the project will maintain the existing a right-turn lane from SR 20 to

Sycamore Ranch. For the Parks Bar Road and State Route 20 intersection, the project will include a right-turn lane for eastbound SR 20 to Parks Bar Road. The proposed roadway improvements should mitigate the high to low speed accident conflicts while meeting driver expectations.

Other project improvements include improved stopping sight distance for both horizontal and vertical curves along the project limits, wider shoulder, and improved side slopes.

4E. Materials

Caltrans District 3 Material Branch has recommend the following pavement/material recommendation strategy for the PA&ED phase of this project.

New Pavement Section:
0.10' RHMA-O
0.20' RHMA-G
0.15' HMA-A
1.15' AB (Class 2)

Existing Pavement Section:
0.10' RHMA-O
0.20' RHMA-G

Caltrans Geotechnical Unit has been engaged to determine the appropriate side slopes for all new and modified slopes based on comments and concerns by the area maintenance supervisor about slope stability. Mr. Curtis Scribner, Caltrans Area Maintenance Supervisor, informed the PDT about slope stability on the east side of the project between Stephen Trail and Parks Bar Road.

The project will implement 1:1 side slopes between Stephen Trail and Parks Bar Road as a result of the Value Analysis and Geotechnical Report. All other slopes within the project limits will be 2:1 or flatter to conform to existing side slope conditions.

5. CORRIDOR AND SYSTEM COORDINATION

There are no known planned Caltrans projects within the project limits.

6. ALTERNATIVES

6A. Rehabilitation Strategy:

The project rehabilitation strategies are the following:

- Mainline-New Structural Section: (realignment section)
  - 0.10'RHMA-O
  - 0.20'RHMA-G

  - 0.15" HMA-A
  - 1.15' AB (Class 2)
- Existing Pavement:
  - 0.10' RHMA-O
  - 0.20' RHMA-G
- 0.10' RHMA-O Edge of Pavement to Edge of Pavement
- Incorporate Tapered Edge Treatment at shoulder edge throughout
- Widen Shoulders to standard 8 foot.
- Replace Dry Creek Bridge with a new bridge consisting of three 12-foot wide lanes, 8 feet wide shoulder, and a 10 foot wide multi-use path.
- Provide a multi-use path connecting Sycamore Ranch Park, across the new bridge, to Hammon Grove Park.
- Improve all horizontal curves to a minimum radius of 1,000 feet to improve stopping sight distance
- Improve vertical curves to standard to improve stopping sight distance
- Upgrade Metal Beam Guard Railing to Midwest Guardrail System.
- Upgrade dike to Type E safety shape
- Place shoulder backing against the 0.10 RHMA-O at the edge of pavement.
- Grade slopes to 4:1 or flatter where feasible
- Replace culverts and place rock slope protection as needed.
- Extended the existing westbound truck climbing lane near Steffan Trail/ Keyapaha Lane to Parks Bar Road.
- Extend the existing eastbound truck climbing lane from Stacy Ann Drive to approximately 400 feet beyond the highway crest to improve traffic operations.
- Install one large wildlife crossing underneath SR 20.
- Relocate utilities that encroach within the Clear Recovery Zone
- Install highway lighting to improve stopping sight distance at sag curves.
- Extend reinforced box culvert near PM 13.5
- Add left- and right-turn lanes at Sycamore Ranch RV Park and Browns Valley School Road. Improve the SR 20/Browns Valley School Road intersection to minimize or eliminate the skew intersection angle and improve the stopping sight distance
- Add two-way left-turn lane between the Hammon Grove Park driveway and east of Too Handy Road.

6B. Design exceptions:

The proposed rehabilitation alternative has two mandatory design exceptions and three advisory design exceptions.

The two mandatory design exceptions are:

1.) Sag vertical curve that does not provide the minimum required stopping sight distance length of 500 feet for a design speed of 55 mph. Existing stopping sight distance meets the design speed of 25 mph. To make standard would require

significant drainage improvements. The project will implement an alternative countermeasure improvement to address the sag stopping sight distance by installing street lights at the location of the curve.

2.) A maximum profile grade of 9% west of Sicard Flat Road, which is greater than the 7% maximum grade for rural highway in mountainous terrain. To make standard would require significant additional right of way. The project will implement an alternative countermeasure improvement to mitigate the maximum grade by maintaining the existing westbound truck climbing lane which allows slower vehicles and trucks to move out of the way of faster vehicles.

The three advisory design exceptions are:

1.) An existing sag vertical curve at the bottom of a grade that is longer than one (1) mile and has a slope steeper than 3%. The Stopping Sight Distance has not be increased by 20%, which would require a length of 600 feet. To make standard would require extensive right of way and cause additional environmental impacts. The project will implement an alternative countermeasure improvements to address the sag stopping sight distance by installing street lights at this location.

2.) An existing 300 foot sag curve does not meet the standard advisory vertical curve length of 550 feet. To make standard would require additional right of way. The project will implement an alternative countermeasure improvement to address the sag stopping sight distance by installing street lights at this location.

3.) 2:1 side slopes will be used at various locations versus the standard 4:1 or flatter. The proposed 2:1 slopes are consistent with the corridor and to make standard would require extensive new right of way. Based on a review of accident data for this segment, no safety issues exist as a result of the existing 2:1 side slopes. If it is determined to be needed, the project will implement an alternative countermeasure such as guard railing to address the concerns.

The Design Exceptions will be finalized and signed during the PS&E phase.

6C. Environmental Compliance:

Environmental Issues:

The following environmental issues were considered but no adverse impacts were identified:

- Coastal Zone
- Wild and Scenic Rivers
- Growth
- Farmland/Timberland
- Paleontology

Human Environmental:

Based on our analysis, a less-than-significant impact on the human environmental is anticipated, pursuant to CEQA.

Land Use:

No avoidance, minimization or mitigation measures required; project consistent with local land use policies.

Parks and Recreational Faculties:

Both Hammon Grove County Park and Sycamore Ranch Park and Campground have been determined a 4(f) resource which the project will affect. A Section 4(f) de Minimus Determination has been prepared by Caltrans and has Yuba County concurrence.

Community Impacts:

Community Character and Cohesion - The project would not result in a barrier or division of the community. In addition, all road closures would be temporary.

Relocations and Real Property Acquisition:

The project will have an impact on a few single family residences. Affected property owners would be fully compensated for right of way acquisitions and for any loss of market value to their remaining property in accordance with applicable federal and State regulations, excluding any right of way "dedications" in use or development permits.

Environmental Justice:

An environmental justice community has been identified within the project area due to a greater percentage of its population is living under the poverty line compared to the population of Yuba City. However, after the implementation of the project's avoidance, minimization, and/or mitigation measures, the project would not have any significant and unavoidable impacts. Therefore, the environmental justice community would not be significantly affected by the project.

Utilities:

Project implementation would require relocation of utilities. Impacts from relocation of utility infrastructure would be less than significant because Caltrans would coordinate with PG&E, BVID, Comcast, and AT&T before relocating any utilities and would notify the appropriate agencies and affected landowners of any potential interruptions in utility service.

Emergency Services:

Impacts from construction-related activities on emergency services would be less than significant because all emergency response agencies in the project area would be notified of the project construction schedule and would have access to SR 20 throughout the construction period.

Traffic and Transportation/Pedestrian and Bicycle Facilities:

Based on our analysis, less-than-significant impacts related to traffic and transportation and bicycle and pedestrian facilities are anticipated.

Visual/Aesthetics:

Impacts on residential views of SR 20 would be less than significant because Caltrans would incorporate Highway Design Manual Guideline 902.1, "Design Considerations, Aesthetics," which would require replanting to reflect adjacent communities and natural surroundings; buffer/screen objectionable or distracting views of the highway facility from homes, schools, and parks; soften visual impacts of large structures or graded slopes; frame or enhance good views; and replace native trees to block objectionable adjacent roadside or neighbor views.

Cultural Resources:

With the inclusion of Environmental Study Area (ESA) fencing during construction, the project would have a less than significant impact on archaeological and cultural resources within the project area.

Physical Environment:

Hydrology and Floodplain - The floodplain evaluation report indicates that the project is not a longitudinal encroachment of the base floodplain, the project does not constitute a significant floodplain encroachment, and there are no risks associated with project implementation.

Water Quality and Storm Water Runoff:

Impacts from construction-related erosion would be less than significant because Caltrans will implement a Storm Water Pollution Prevention Plan (SWPPP) and will hydroseed and restore to natural conditions all disturbed areas with permanent erosion control measures.

Geology/Soils/Seismic/Topography:

Impacts have been determined to be less than significant with standard avoidance and minimization measures.

Air Quality:

The project would not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in operational emissions when compared to the no build alternative.

The proposed improvements would involve modifying or demolishing the existing Dry Creek Bridge. Asbestos containing materials may be present on the bridge, see hazardous waste section for National Emissions Standards for Hazardous Air Pollutants (NESHAP) notification requirements.

There is no known naturally occurring asbestos in the area. Therefore, naturally occurring asbestos would not result in a potential air quality impact during construction activities.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Although grading and construction activities would be temporary, they would have the potential to cause both nuisance and health air quality impacts. PM10 is the pollutant of greatest concern associated with dust. If uncontrolled, elevated PM10 levels could occur downwind of actively disturbed areas and dust fall on adjacent properties could be a nuisance.

With the implementation of the measures below, less-than-significant impacts related to air quality pursuant to CEQA are anticipated.

Standard Specifications: Section 10-5, "Dust Control"; Section 14-9, "Air Quality"; and Section 18, "Dust Palliatives"; FRAQMD Rule 3.16 (Fugitive Dust); Implement all feasible PM10 control measures recommended by FRAQMD; Implement a fugitive dust control plan.

Noise:

The project would not result in a substantial increase in noise, and no traffic noise impacts are predicted to occur in this area.

During construction of the project noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise generated by construction activities would be a function of the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, and the proximity of nearby sensitive receptors. Construction impacts are temporary in nature and sensitive receptors would not be exposed to construction noise for any longer than necessary to complete the project. Construction noise impacts are anticipated to be less-than-significant because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02.

Biological Environment:

Oak and Riparian Woodland - The exact impacts to these resources has not been calculated at this time, but will be determined after the tree survey is completed. Compensatory mitigation may be required; a Section 1602 CDFW Streambed Alteration Agreement Permit will be required.

Wildlife Corridors:

To reduce project impacts on wildlife movement corridors within and adjacent to the ESL, Caltrans will implement the following general avoidance and minimization measures:

Predesignated Staging Areas; Best Management Practices; Construction Site Management Practices; ESA Fencing; Confined Work Areas and Limit Spread of Invasive Species

In addition, Caltrans is designing a 12-foot by 12-foot concrete box culvert to be used as a wildlife underpass at a location near PM 15.0 to address potential project impacts on wildlife movement in the Environmental Study Limit (ESL) and in areas of public concern. The placement of this structure is expected to facilitate more successful wildlife movement across (i.e., beneath) SR 20 in this area and potentially reduce animal-vehicle strikes.

Wetlands and Other Waters:

The project has been designed to avoid and minimize impacts on wetlands and waters to the greatest extent feasible. Caltrans will provide compensatory mitigation for the project-related permanent and temporary loss of wetlands and waters of the U.S. and State by implementing the following measures:

Fulfill Conditions of USACE CWA Section 404 Permit
Fulfill Conditions of CDFW 1600 Streambed Alteration Agreement
Fulfill Conditions of RWQB CWA Section 401 Permit

Special-Status Plant Species - Caltrans will implement standard BMPs and the general avoidance and minimization measures outlined in Section 4.1. In addition, Caltrans will implement Preconstruction Plant Surveys. If any special-status plants are found in the survey, Caltrans will consult with CDFW for further actions.

Special-Status Wildlife Species - A total of 7 special-status wildlife species, not including fish, have potential to occur in the ESL. Implementation of avoidance and minimization measures would reduce the potential for adverse impacts, as well as, conducting Preconstruction Surveys, including Wildlife Exclusion Fencing and tree removal during winter.

Special-Status Fish Species - Caltrans will implement the general avoidance and minimization measures outlined in Section 4.1, in particular Best Management Practices. In addition, stabilization of bank and aquatic habitat, construction work windows and underwater sound monitoring during construction will be required. Any additional measures derived from consultation with NMFS will be incorporated into the project.

6D. Hazardous Waste Disposal Site Required? If Yes, Where are Sites?

An initial site assessment (ISA) was prepared for the project. The purpose of the ISA was to identify any hazardous waste issues within and adjacent to the project area that could affect the project's design, constructability, feasibility, and/or cost. A records search of federal, state, and local databases, a map review, and a field review were conducted as well.

Aerially Deposited Lead (ADL) –

ADL from the historical use of leaded gasoline, exists along roadways throughout California. If encountered, soil with elevated concentrations of lead as a result of ADL on the state highway system right of way within the limits of the project will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This Agreement allows such soils to be safely reused within the project limits as long as all requirements of the Agreement are met.

Within the project corridor ADL is not expected to be at hazardous waste concentration levels. The construction contractor is required to implement the following SSP which requires the implementation of a Lead Compliance Plan (LCP).

The construction contractor would be required to implement SSP 7-1.02K(6)(j)(iii)_ Earth material containing lead.

Petroleum Hydrocarbons - The potential for petroleum hydrocarbons contamination is not expected within the project study limits.

Traffic Stripe: Lead/Chromium-Based Paint – The construction contractor is required to properly manage removed stripe and pavement marking and must implement a project specific **Lead Compliance Plan** prepared by a Certified Industrial Hygienist (CIH) as required by Cal/OSHA.

The construction contractor would require the implementaion of the following SSPs:

SSP 14-11.12_Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue

SSP 36-4_Residue Containing Lead from Paint and Thermoplastic (cold plane or grinding)

SSP 84-9.03C_ Remove Traffic Stripes and Pavement Markings Containing Lead, Requires a lead compliance plan for removal when residue is definitely non-hazardous. Used for new yellow paints and all other colors of paint.

Treated Wood Waste (TWW) –

TWW can occur as posts along metal beam guard railing (MBGR), thrie beam barrier, piles, or roadside signs. These wood products are typically treated with preserving chemicals that may be hazardous (carcinogenic) and include but are not limited to arsenic, chromium, copper, creosote, and

pentachlorophenol. The Department of Toxics Substances Control (DTSC) requires that TWW either be disposed as a hazardous waste, or if not tested, the generator may presume that TWW is a hazardous waste.

The Contractor must prepare a detailed Health, Safety and Work Plan for all site personnel in accordance with the DTSC and CAL-OSHA regulations. Treated wood waste must be disposed in an approved treated wood waste facility.
The construction contractor would be required to implement SSP 14-11.

Asphalt Grindings - No asphalt concrete grindings may be placed in shoulder backing at locations where erosion or maintenance operations could cause the grindings to be deposited into waterways.

National Emission Standards for Hazardous Air Pollutants "NESHAP" Notification.

Federal regulations as described in 40 CFR part 61, Subpart M, are incorporated into California air quality regulations by California Health and Safety code section 39658(b)(1). Caltrans guidelines require compliance with NESHAP regulations.

The NESHAP regulation is enforced by the EPA and in California by the Air Quality Control Boards. The Feather River Unified Air Quality management District (AQMD) is a Non-Delegated District.

The project proposes to demolish and replace Bridge No. 16-0010 built in 1938. Therefore, the construction contractor would be required to implement SSP 14-9.02_Air Quality – NEHSAP Notification.

With the implementation of the above measures, less-than-significant impacts related to hazardous waste/materials pursuant to CEQA are anticipated.

6E. Other Agencies Involved (Permits/Approvals from Fish and Wildlife, Corps of Engineers, Coastal Commission, etc.):

Coordination with USACE, CDFW, RWQCB, and USFWS will be required.

6F. Material and/or Disposal Site and Availability?

Based on the PA&ED design, this project is an import project that will require in the range of 30,000-40,000 CY of import material.

In general, the native material can be classified as rocky material due to the geographic areas and region. This project completed a geotechnical report (Attachment O) to determine the rip ability of the existing soil. In summary, there are some locations that will require blasting of existing material and this has been captured in the cost estimate.

6G. Highway Planting and Irrigation:

Based on the PA&ED Landscape Architecture Assessment Sheet (LAAS), the project does not anticipate any highway planting or irrigation at this time but will include temporary and permanent erosion control best management practices (BMP) such as hydroseeding, mulching, and other similar BMP's.

6H. Roadside Design and Management:

The project will implement roadside design and management treatments such as weed mats near guardrail locations and signs. Other roadside design and management treatments includes wider shoulders that can be used by Caltrans Maintenance personnel to access drainage systems from the roadway.

6I. Stormwater Compliance:

This project will be designed in conformance with the Caltrans Statewide Storm Water Management Plan (SWMP) as per the Caltrans Storm Water Quality Handbook. Best Management Practices (BMP) will be implemented to reduce or eliminate run-off of sediments from the proposed work during and after construction. A Storm Water Data Report was completed for this project's PA&ED phase.

During construction, the project will incorporate Construction BMP to avoid and/or minimize impacts. It is not anticipated during this PA&ED phase that any water quality impacts will result because BMP measures will be in place during soil disturbance.

6J. Right of Way and Utility Issues:

This project will require full and partial acquisition of commercial, residential and agricultural properties. Temporary Construction Easements are determined for some locations. Fee acquisition is estimated to be approximately 40 acres, Temporary Construction Easement is estimated to be approximately 10 acres, and several excess land is estimated to be approximately 7 acres. There are 35 parcels impacted including residential displacements.

Existing utilities will be relocated within the project limits. Identified utility companies are AT&T, PG&E – Electric, and Browns Valley Irrigation District (BVID). Estimated State's share of utility relocation cost is approximately $180,000.

Total right of way costs including fee, easement, utility, and other expenses is estimated to be approximately $7.5 million.

6K. Railroad Involvement:

There is no railroad involvement because there are no railroad tracks, crossings, or properties within the project limits.

6L. Salvaging and Recycling of Hardware and Other Non-Renewable Resources:

This project will try to implement salvaging and recycling of hardware and other non-renewable resources whenever possible. During the PA&ED phase, the PDT assumes the contractor may salvage and recycle hardware and other non-renewable resources when that option is available to the contractor.

6M. Prolonged Temporary Ramp Closures:

There will be no prolonged temporary ramp closures because there are no ramps or interchanges within the project limits.

6N. Recycled Materials:

This project will try to recycle material such as the cold plane hot mix asphalt and other recyclable material. The contractor may recycle the asphalt concrete grinding when feasible but this decision will be dependent on the contractor's discretion during the construction project phase.

If the awarded contractor produces hot mix asphalt as part of their operation, there is a high probability they would recycle the material for purposes of producing HMA pavement with recycled material per Section 39 of the Caltrans 2015 Specifications.

6O. Local and Regional Input:

Yuba County, Browns Valley Irrigation District, and other local and regional stakeholders have been and will continue to be involved with the PA&ED and PS&E PDT and project development phases.

Yuba County's input is to widen the new Dry Creek Bridge on the south side to create pedestrian and bicycle connectivity between Hammond Grove Park and Sycamore Ranch Park.

Browns Valley Irrigation District input is not to impact their proposed water extraction facility located at the new proposed Dry Creek Bridge. Based on discussions with Browns Valley Irrigation District, the project is ready to be constructed (shelf ready), but construction funding has not been identified. If the project impacts the water

extraction facility, Caltrans will pay for redesign or relocation for Browns Valley Irrigation District.

6P. What are the Consequences of Not Doing This Entire Project?

The no-build alternative was considered and evaluated during this PA&ED phase. The consequences of not constructing this project are the continuation of non-standard design features such as: the horizontal and vertical alignments that do not meet stopping sight distance and narrow shoulder widths on SR 20. Existing truck climbing lanes would not meet operational needs and Dry Creek Bridge would continue to be vulnerable to seismic issues. Existing Dry Creek Bridge will also continue to have permit load restrictions. As a result, this no-build alternative would not meet the project's purpose and need.

If this SHOPP 3R is not constructed, the future cost to correct this corridor will continue to increase and a future project would be more expensive than the cost of this project.

6Q. List all Alternatives Studied, Cost, Reasons Not Recommended, etc.:

This project studied the no-build alternative and three (3) build alternatives. The three (3) build alternatives were similar, with the only differences being different options for improvements to the Dry Creek Bridge.

The no-build alternative was rejected by the PDT early in the PA&ED project development phase because this alternative did not address the project's purpose and need.

Alternative 1: This alternative would retrofit and widen the existing bridge on its existing alignment. Both sides of the bridge would be widened with the addition of a similar concrete girder on each side, and the roadway approaches would be widened to conform to the new bridge. This alternative was rejected due to cost and because it would not improve the permit loading.

Alternative 2: This alternative would retrofit and widen the existing bridge on its existing alignment, but widening would occur on one side of the bridge with several concrete girders. The roadway approaches would be widened to conform to the new bridge. This alternative was rejected due to cost and because it would not improve the bridge permit loading.

Alternative 3 (Preferred): This alternative would replace Dry Creek Bridge on an alignment that would be parallel to the existing bridge, to the south. This alternative is moving forward to the PS&E design phase because it has a reasonable capital construction cost, would upgrade the structure to full permit loading, and would address seismic vulnerability concerns.

7. TRANSPORTATION MANAGEMENT

7A. Transportation Management Plan

A PA&ED Traffic Management Plan (TMP) has been developed for this project and is attached in Attachment F. A summary of the key elements of the PA&ED TMP are the following:

- On SR 20, a minimum of one paved traffic lane, not less than 11-foot wide, shall be open for use by public traffic with one-way traffic control using flaggers, in accordance with Standard Plan Sheet T13. Lane and shoulder closures will be allowed during daytime hours on weekdays, but may be restricted during peak commute hours.
- Access to cross streets and driveways shall be maintained during construction.
- Pedestrian and bicycle access must be maintained during construction.
- When k-rail is used as a separation barrier between the work zone and the traveled way, there is no closure time restriction.

7B. Vehicle Detection Systems

There are no vehicle detection systems within the project limits.

8. ENVIRONMENTAL DETERMINATION/DOCUMENT

The Final Environmental Document for the project is an Initial Study with a proposed Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA), and a Categorical Exclusion pursuant to the National Environmental Policy Act (NEPA). The final environmental document has been prepared in compliance with Caltrans' environmental policies, as well as, all relevant local, state and federal environmental laws, policies and regulations.

Date Approved: July 20, 2017

9. PROJECT ESTIMATE:

The estimated cost is $43.7 million (Attachment I). A summary of the estimated cost is:

Roadway Items	$30,119,200
Structure Items	$6,033,000
Right of Way	$7,491,085
Total Capital	$43,644,000

10. FUNDING/PROGRAMMING

Funding

This project is funded through the Caltrans State Highway Operation and Protection Program under the resurfacing, restoration, and rehabilitation program under the funding source 201.0201.120.

It has been determined that this project is eligible for Federal-aid funding.

Programming

Fund Source	Fiscal Year Estimate								
201.0201.120	Prior	16/17	17/18	18/19	19/20	20/21	21/22	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	3508	0	761	0	0	0	0	0	4269
PS&E Support	1068	0	1455	223	0	0	0	0	2746
Right-of-Way Support	537	0	675	589	98	101	104	311	2416
Construction Support	0	0	0	1097	2475	2538	1543	411	8066
Right-of-Way									
Construction									
Total	5113	0	2891	1909	2573	2639	1647	722	17497

The support cost ratio is 39.86%

11. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
PROGRAM PROJECT	M015	12/09/2014	
BEGIN ENVIRONMENTAL	M020	02/19/2015	
NOTICE OF PREPARATION (NOP)	M030		
NOTICE OF INTENT (NOI)	M035		
CIRCULATE DED EXTERNALLY	M120	05/17/2017	
PA&ED	M200	8/1/2017	
PS&E TO DOE	M377	01/15/2018	
DRAFT STRUCTURES PS&E	M378	12/01/2017	
RIGHT OF WAY CERTIFICATION	M410	04/01/2019	
READY TO LIST	M460	04/15/2019	
FUND ALLOCATION	M470	07/15/2019	
HEADQUARTERS ADVERTISE	M480	08/31/2019	
AWARD	M495	11/30/2019	
APPROVE CONTRACT	M500	12/29/2019	
CONTRACT ACCEPTANCE	M600	12/01/20121	
END PROJECT	M800	12/01/2023	

12. RISKS

During the PA&ED project phase, 10 project risks were identified for the project's Risk Register (see Attachment L Risk Register). 4 risks have been retired while the other 6 risks remain active. The six (6) active project risks are:

- Based on previous projects within the project limits, there are known cultural resources in the area, which can delay the project schedule.
- Right of Way Certification is identified as a project risk due to the number and complexity of the parcels and insufficient lead time for possible condemnation.
- Re-work due to designing in advance of the environmental process is identified as a project risk. The PDT agreed strategy was that design would consider easements, TCE, and access road early in the design to identify impacts.
- Browns Valley Irrigation District Recapture Project may conflict with this project near Dry Creek Bridge.
- Utility Easement Requirements may be requested by the utility companies near the Dry Creek Bridge replacement.
- Based on the outcome of the cultural study, this project may require Cultural Phase II. This will impact the project schedule. Based on past history, there are 12 resources within the right of way.

13. EXTERNAL AGENCY COORDINATION

Per the Moving Ahead for Progress In The 21st Century (MAP 21) Act, this project is eligible for federal-aid funding and is considered to be State Authorized under current FHWA-Caltrans Stewardship Agreements. No FHWA action is required for this project.

A Cooperative Agreement will be prepared with Yuba County regarding shared funding cost of the multi-use trail on the new Dry Creek Bridge.

A Maintenance Agreement with Yuba County will be prepared to address the maintenance of the multi-use trail within the State right of way.

Additionally, a Relinquishment Agreement with Yuba County will be prepared to address excess right of way acquired for the construction of the project.

14. PROJECT REVIEWS

Scoping team field review _____ Date: 4/9/2015
Scoping team field review attendance email roster attached.
District Program Advisor _____ Date _____
Headquarters SHOPP Program Advisor _____ Date _____
District Maintenance *Curtis Scribner* Date: 4/9/2015
Headquarters Project Delivery Coordinator _____ Date _____
Project Manager *Fermin Barriga* Date: 12/2016
FHWA _____ Date _____
District Safety Review _____ Date _____
Constructability Review Jason Miller Date: 3/2016
Other _____ Date _____

15. PROJECT PERSONNEL

Name	*Title*	*Phone #*
Fermin Barriga	CT Project Manager	530-741-5120
Aaron Daniels	CT Task Order Manager	530-741-6324
Mark Rayback	Wood Rodgers Project Manager	916-826-6420
Sanford "Sandy" Wong	Wood Rodgers Task Order Manager	916-449-2204
Steven Robinson	Wood Rodgers Project Engineer	916-341-7445
Julie Rockenstein	CT Material Engineer	530-741-5176
Poppea Darling	CT Right of Way Agent	530-741-4016
Kristen Stubblefield	CT Environmental	530-741-5124
Daniel Sessions	CT Structure Lead	916-227-5663
Joyce Loftus	CT TMP	530-741-5411
Dan Ferchaud	CT Construction	530- 218-4829
Ed Long	CT Maintenance Supervisor	530-308-5127
Darrell Taylor	CT Area Superintendent	530-741-4333
Mike Lee	Yuba County PW Director	530-749-5420

16. ATTACHMENTS

A. Location map
B. Title Sheet
C. Typical Section
D. Layout Sheets
E. Material Recommendation
F. Traffic Management Plan (TMP)
G. Right of Way Data Sheet
H. FINAL Environmental Document (Separate document because the report is too large as an attachment)
I. Cost Estimate
J. Storm Water Data Report-signed cover sheet
K. Programming Sheet.
L. Risk Management Registrar.
M. Landscape Architecture Assessment Sheet (LAAS)
N. Dry Creek Bridge Advance Planning Study
O. Geotechnical Report
P. Initial Site Assessment

Attachment A and B

Location and Title Sheet

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

CALTRANS DESIGN OVERSIGHT APPROVAL — FERMIN BARRIGA — REGISTRATION No. — LICENSE Exp DATE — DATE SIGNED

CONSULTANT DESIGN MANAGER — MARK RAYBACK

INDEX OF PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

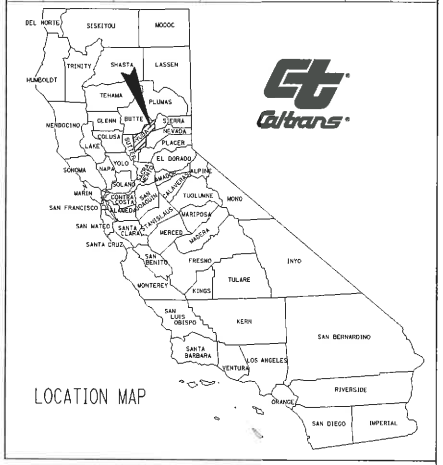
PROJECT PLANS FOR CONSTRUCTION ON

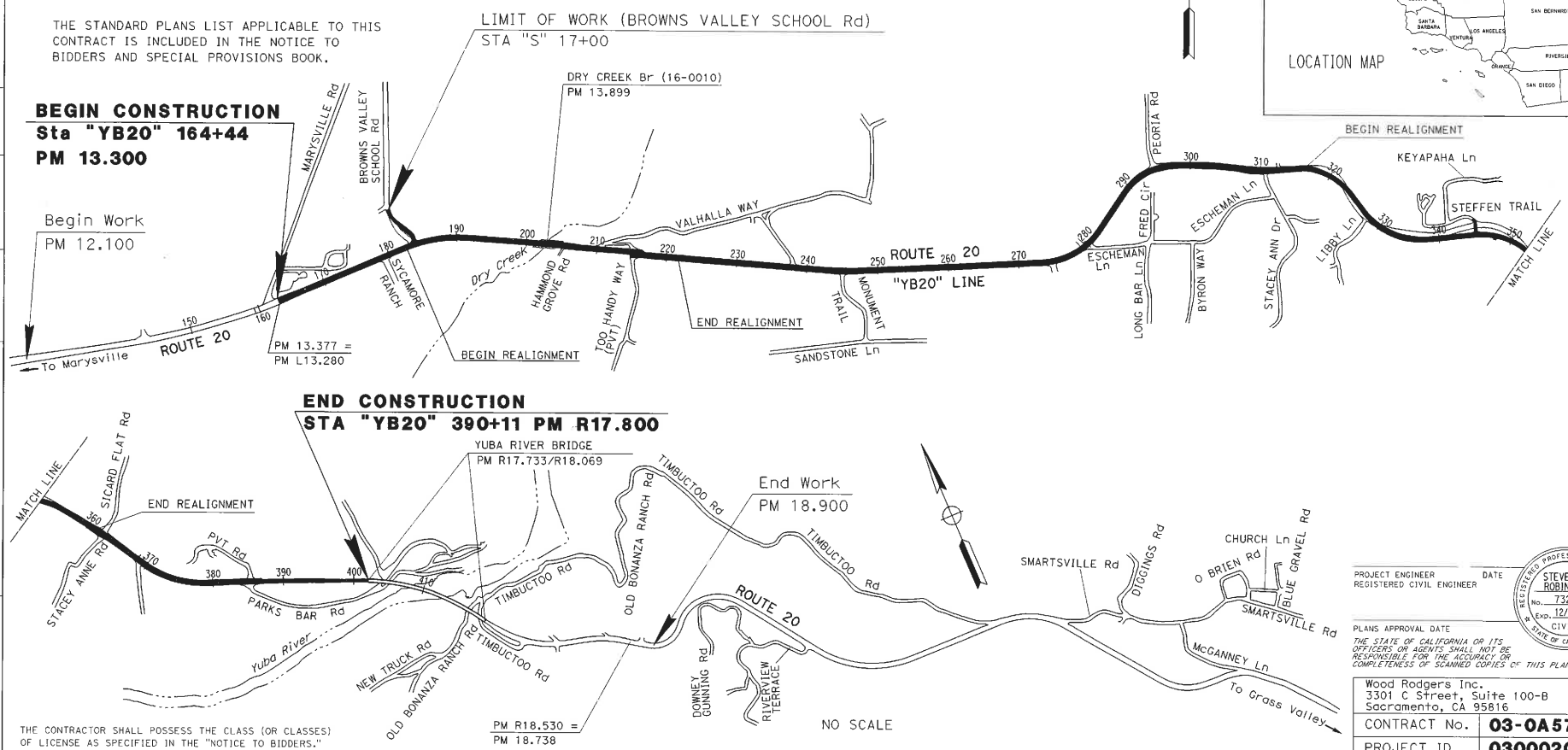
STATE HIGHWAY

IN YUBA COUNTY FROM MARYSVILLE ROAD TO THE YUBA RIVER BRIDGE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2015

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8	1	





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

PROJECT ENGINEER — DATE
REGISTERED CIVIL ENGINEER

STEVEN E. ROBINSON
No. 73207
Exp. 12/31/18
CIVIL
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

CONTRACT No.	03-0A5704
PROJECT ID	0300020593

LAST REVISION 00-00-00 — DATE PLOTTED =› $DATE — TIME PLOTTED =› $TIME

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Attachment C

Typical Section Sheets

NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. FOR HMA DIKE TYPE AND LOCATION, SEE LAYOUT SHEETS.
3. SUPERELEVATION SHOWN ON SUPERELEVATION DIAGRAM.
4. FOR TAPERED EDGE LOCATIONS, SEE Std PLAN P74,P75 ,P76
5. ROUND SLOPES PER Std PLAN A62A

ABBREVIATIONS:

RHMA-O RUBBERIZED HOT MIX ASPHALT-OPEN GRADED (OPEN GRADED FRICTION COURSE)

RHMA-G RUBBERIZED HOT MIX ASPHALT (GAP GRADED)

TE TAPERED EDGE

ROUTE 20
DESIGN DESIGNATION

ADT (2014)	8,470	D	66%
ADT (2034)	12,000	T	4%
ESAL	2,424,000	V	55 mph
		TI_{20}	10.0

PAVEMENT CLIMATE REGION
INLAND VALLEY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

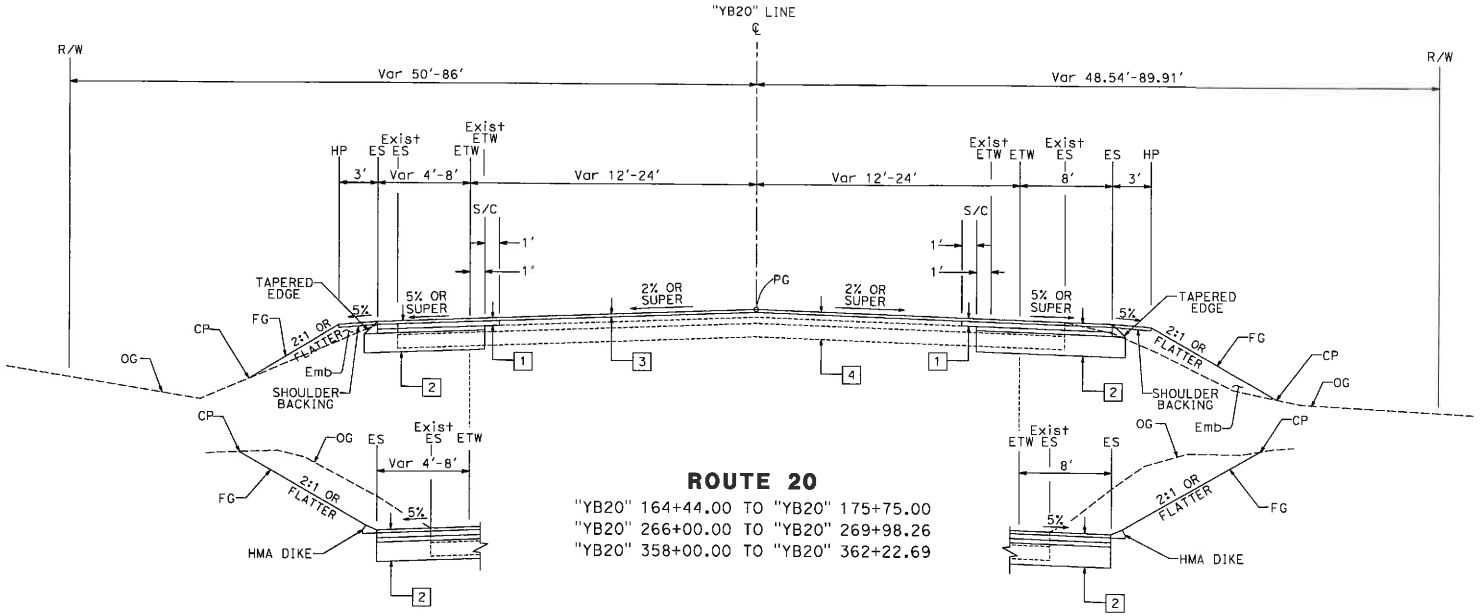
REGISTERED CIVIL ENGINEER DATE

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.

REGISTERED PROFESSIONAL ENGINEER STEVEN E. ROBINSON No. 73207 EXP. 12/31/18 STATE OF CALIFORNIA

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816



ROUTE 20

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"YB20" 266+00.00 TO "YB20" 269+98.26
"YB20" 358+00.00 TO "YB20" 362+22.69

"YB20" 169+25.00 TO "YB20" 175+75.00
"YB20" 266+00.00 TO "YB20" 269+98.26

"YB20" 169+00.00 TO "YB20" 175+75.00
"YB20" 266+00.00 TO "YB20" 269+98.26
"YB20" 358+00.00 TO "YB20" 358+25.00

LEGEND

1. 0.10' RHMA-O
   0.20' RHMA-G
2. 0.10' RHMA-O
   0.20' RHMA-G
   0.15' HMA (TYPE A)
   1.15' CL 2 AB
3. 0.10' COLD PLANE
   0.10' RHMA-O
4. Exist
   0.10' RHMA-O
   0.20' RHMA-G
   0.43' AC (TYPE A)
   0.80' AB
5. 0.33' HMA (TYPE A)
   0.5' CL 2 AB

TYPICAL CROSS SECTION

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY	DATE REVISED
MARK RAYBACK	STEVEN ROBINSON		
	SANFORD WONG		
	CHECKED BY		

LAST REVISION 00-00-00 DATE PLOTTED => 7/21/2017 TIME PLOTTED => 1:16:32 PM

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Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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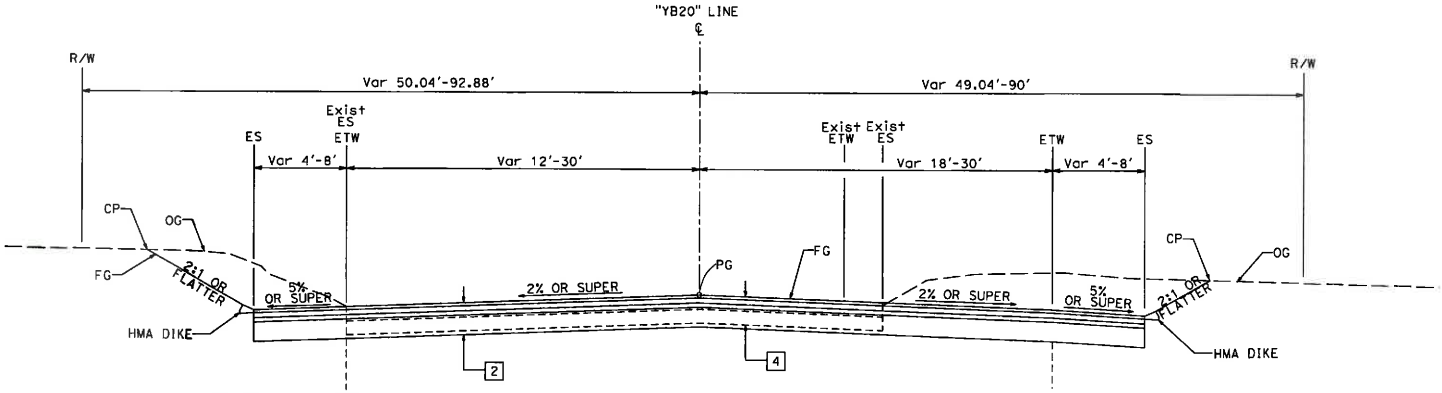
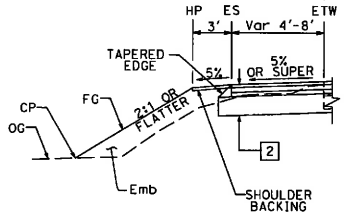
REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
EXP. 12/31/18
STATE OF CALIFORNIA

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

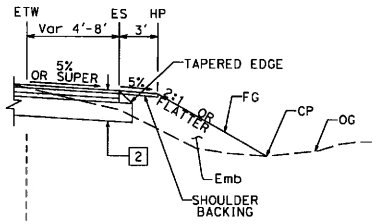




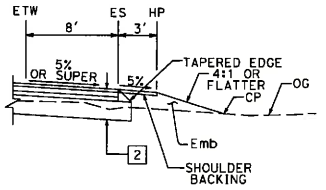
"YB20" 175+75.00 TO "YB20" 186+94.00
"YB20" 216+75.00 TO "YB20" 223+68.44

ROUTE 20

"YB20" 175+75.00 TO "YB20" 186+94.00
"YB20" 216+75.00 TO "YB20" 223+68.44



"YB20" 175+75.00 TO "YB20" 186+94.00



"YB20" 219+25.00 TO "YB20" 223+68.44

TYPICAL CROSS SECTION

NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 7/21/2017

TIME PLOTTED => 11:15:42 AM

BORDER LAST REVISED 7/2/2010

0300020593ca02.dgn 7/21/2017 11:15:42 AM

USERNAME => noaml_CT_v81

DGN FILE => ...\Civil\Dgn\0300020593ca02.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/18 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

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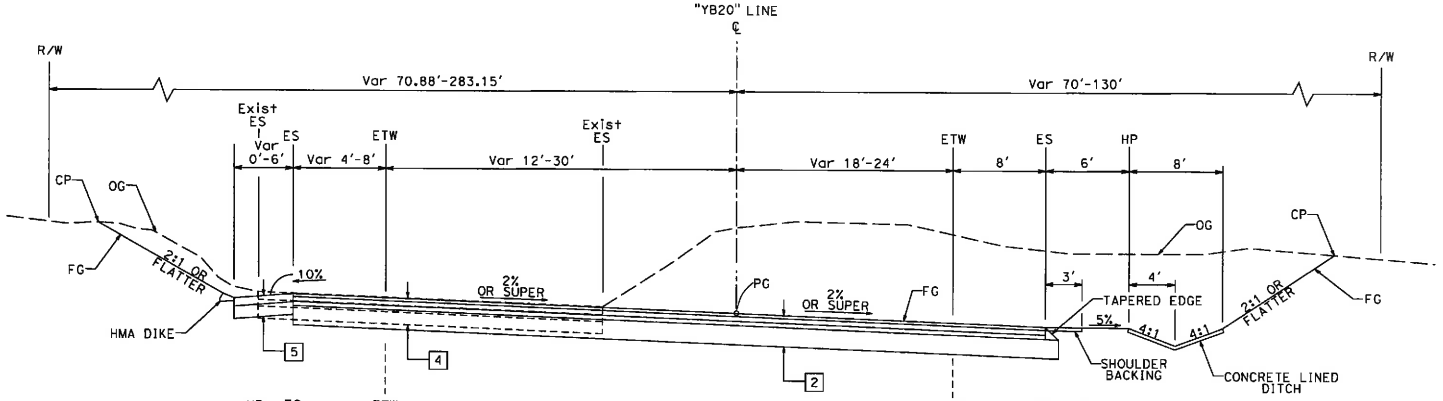
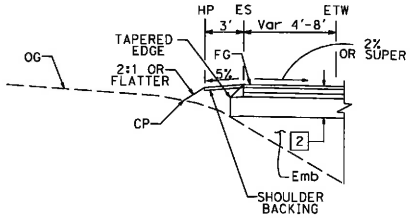
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

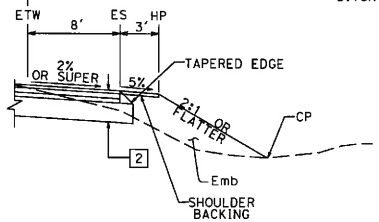




"YB20" 186+94.00 TO "YB20" 193+87.85

ROUTE 20

"YB20" 186+94.00 TO "YB20" 193+87.85
"YB20" 343+83.83 TO "YB20" 358+00.00



"YB20" 190+75.00 TO "YB20" 193+87.85

TYPICAL CROSS SECTION

NO SCALE

X-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | FUNCTIONAL SUPERVISOR: MARK RAYBACK | CALCULATED-DESIGNED BY: STEVEN ROBINSON | CHECKED BY: SANFORD WONG | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 7/19/2017 | TIME PLOTTED => 4126:37 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => naoml_CT_v8i | DGN FILE => ...\Civil\Dgn\0300020593ca03.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN F. ROBINSON No. 73207 Exp. 12/31/18 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

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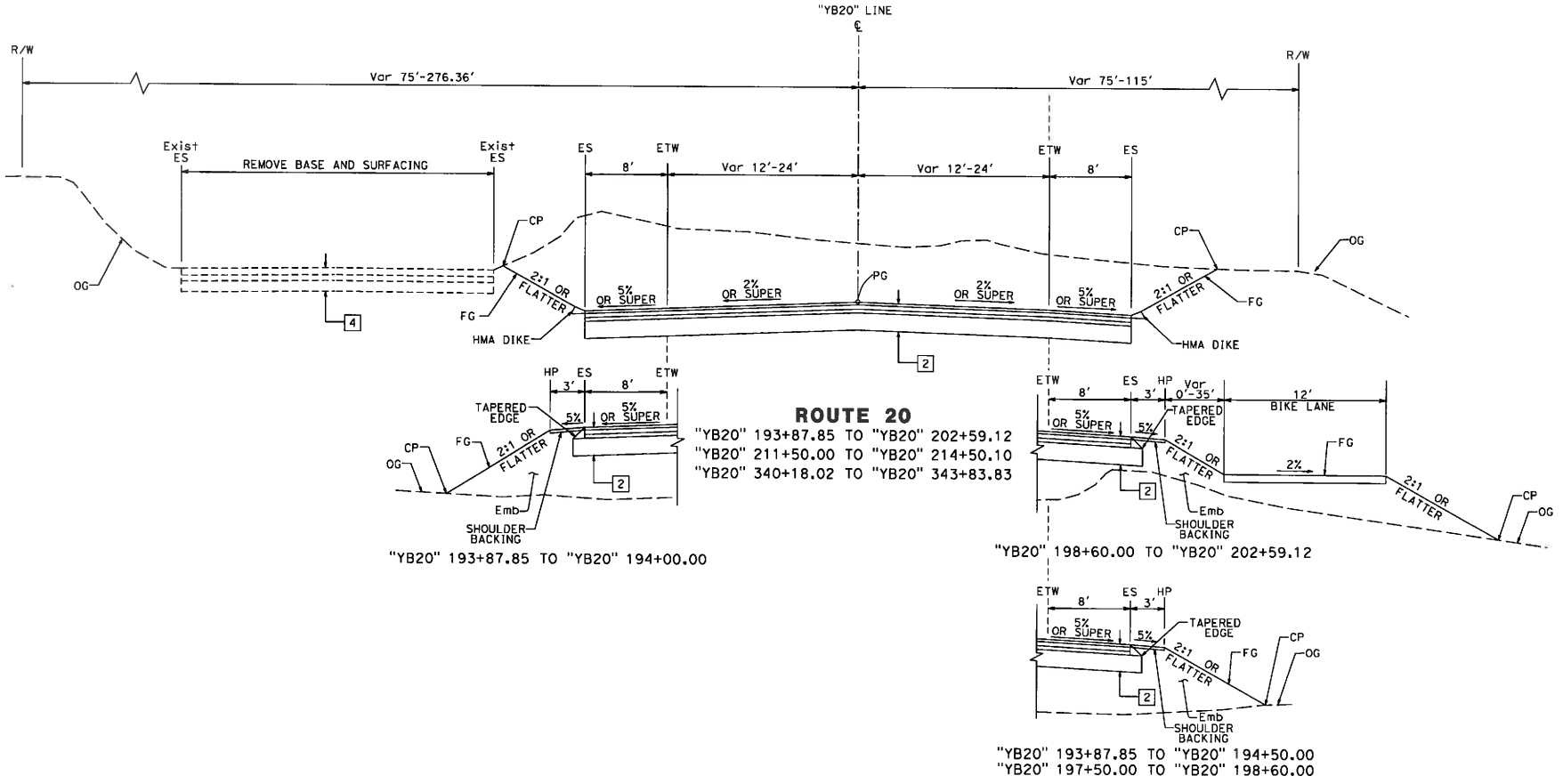
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.



TYPICAL CROSS SECTION

NO SCALE

X-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 7/19/2017

TIME PLOTTED => 4:26:38 PM

BORDER LAST REVISED 7/2/2010

USERNAME => ncomi_CT_v8i

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

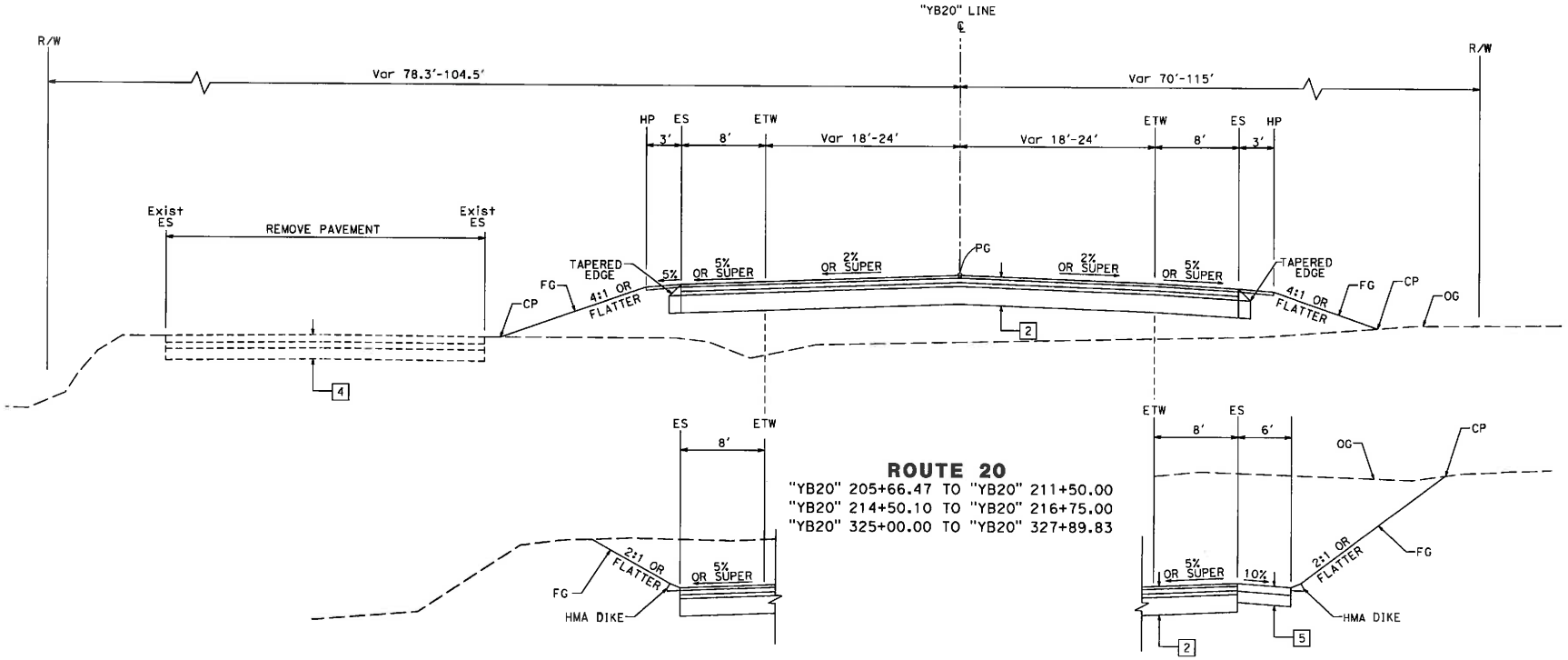
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER STEVEN E. ROBINSON No. 73207 Exp. 12/31/18 STATE OF CALIFORNIA

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

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816



ROUTE 20

"YB20" 205+66.47 TO "YB20" 211+50.00
"YB20" 214+50.10 TO "YB20" 216+75.00
"YB20" 325+00.00 TO "YB20" 327+89.83

"YB20" 214+50.10 TO "YB20" 216+75.00

"YB20" 207+50.00 TO "YB20" 211+50.00

TYPICAL CROSS SECTION

NO SCALE

X-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 7/19/2017
TIME PLOTTED => 4:26:38 PM

BORDER LAST REVISED 7/2/2010
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DGN FILE => ...\Civil\Dgn\0300020593ca05.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — STEVEN E. ROBINSON — No. 73207 — EXP. 12/31/18 — STATE OF CALIFORNIA

Wood Rodgers Inc.
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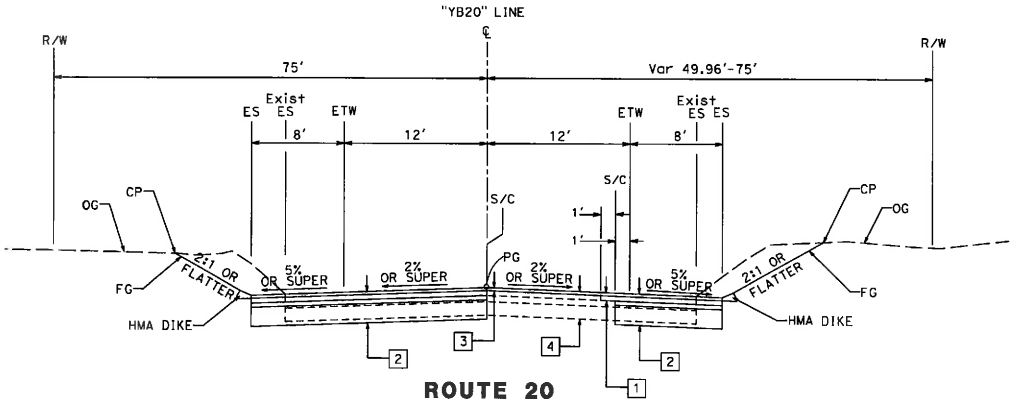
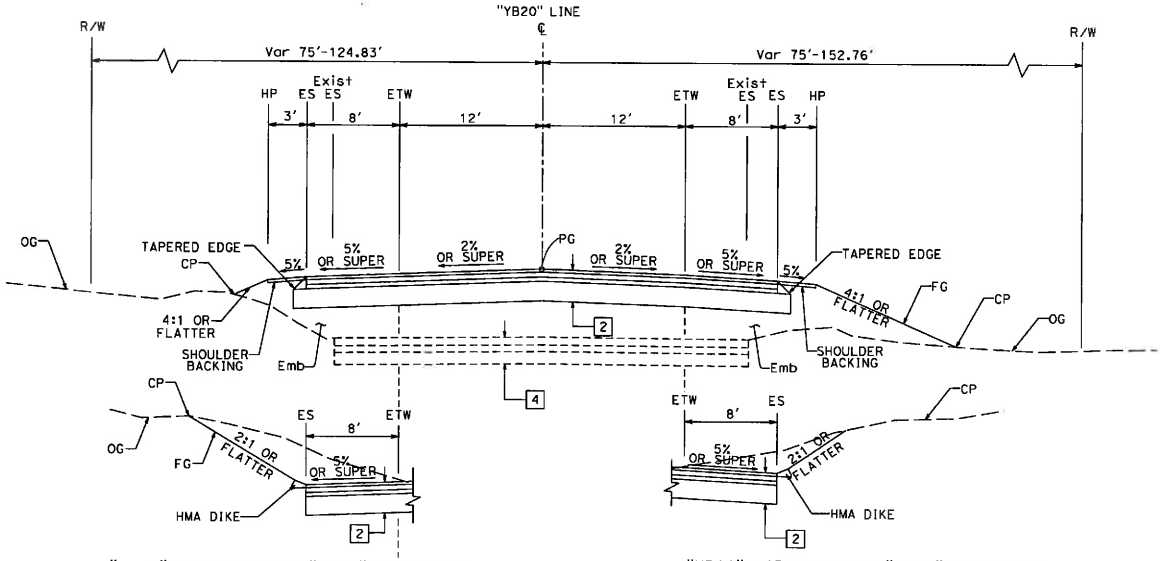
Sacramento, CA 95816



ROUTE 20

"YB20" 259+50.00 TO "YB20" 266+00.00

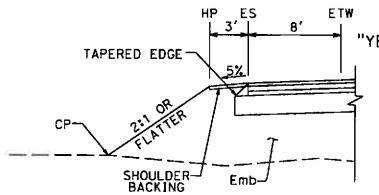


"YB20" 243+00.00 TO "YB20" 246+00.00

"YB20" 243+00.00 TO "YB20" 245+75.00

ROUTE 20

"YB20" 223+68.44 TO "YB20" 259+50.00



"YB20" 228+00.00 TO "YB20" 243+00.00

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

TYPICAL CROSS SECTION

NO SCALE

X-6

LAST REVISION | DATE PLOTTED => 7/19/2017
00-00-00 | TIME PLOTTED => 4:26:39 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | Caltrans

FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY
MARK RAYBACK	STEVEN ROBINSON	
	SANFORD WONG	DATE REVISED
	CHECKED BY	

BORDER LAST REVISED 7/2/2010

USERNAME => naomi_CT_v8i
DGN FILE => ...\Civil\Dgn\0300020593ca06.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

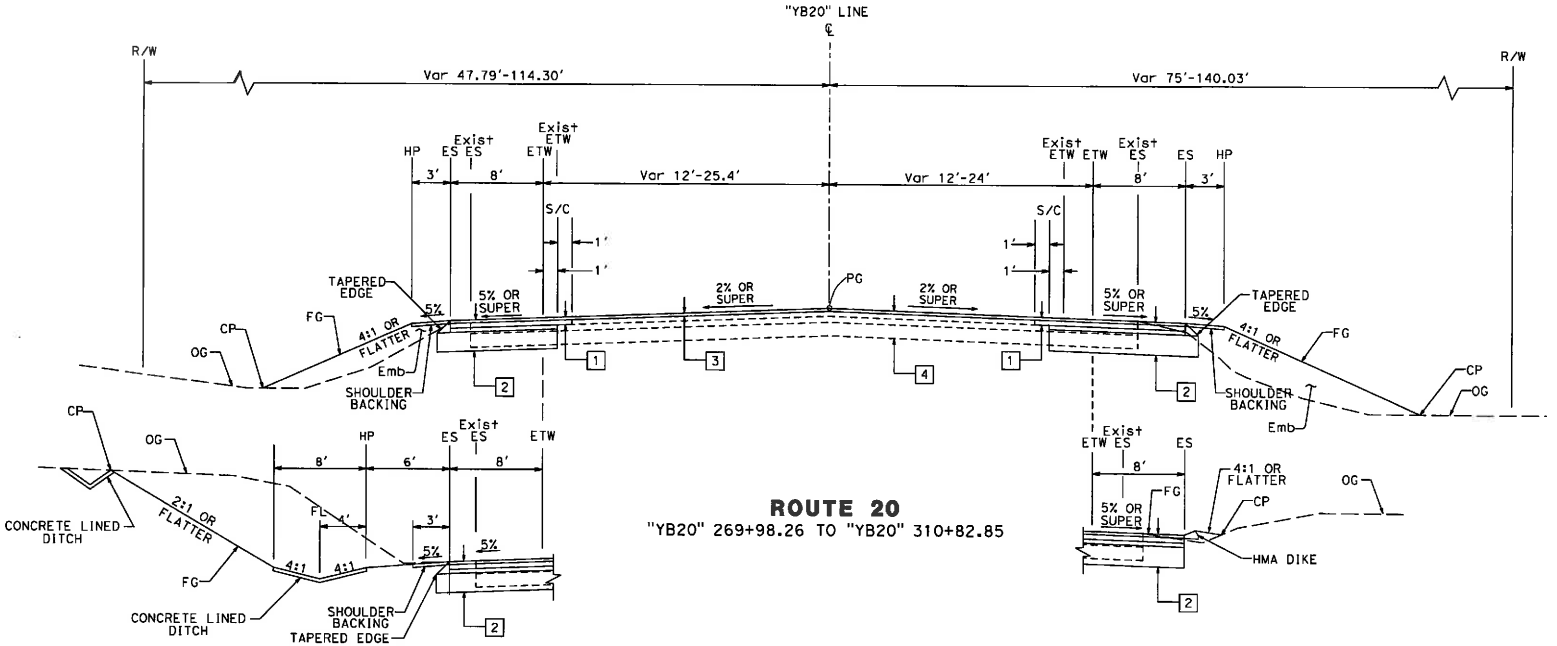
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
EXP. 12/31/18
STATE OF CALIFORNIA

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.



ROUTE 20

"YB20" 269+98.26 TO "YB20" 310+82.85

"YB20" 273+50.00 TO "YB20" 275+25.00

"YB20" 293+50.00 TO "YB20" 297+00.00

TYPICAL CROSS SECTION

NO SCALE

X-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY	DATE REVISED
MARK RAYBACK	CHECKED BY	STEVEN ROBINSON	SANFORD WONG

LAST REVISION 00-00-00 | DATE PLOTTED => 7/19/2017 | TIME PLOTTED => 4:26:40 PM

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NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/18 — STATE OF CALIFORNIA

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

Wood Rodgers Inc.
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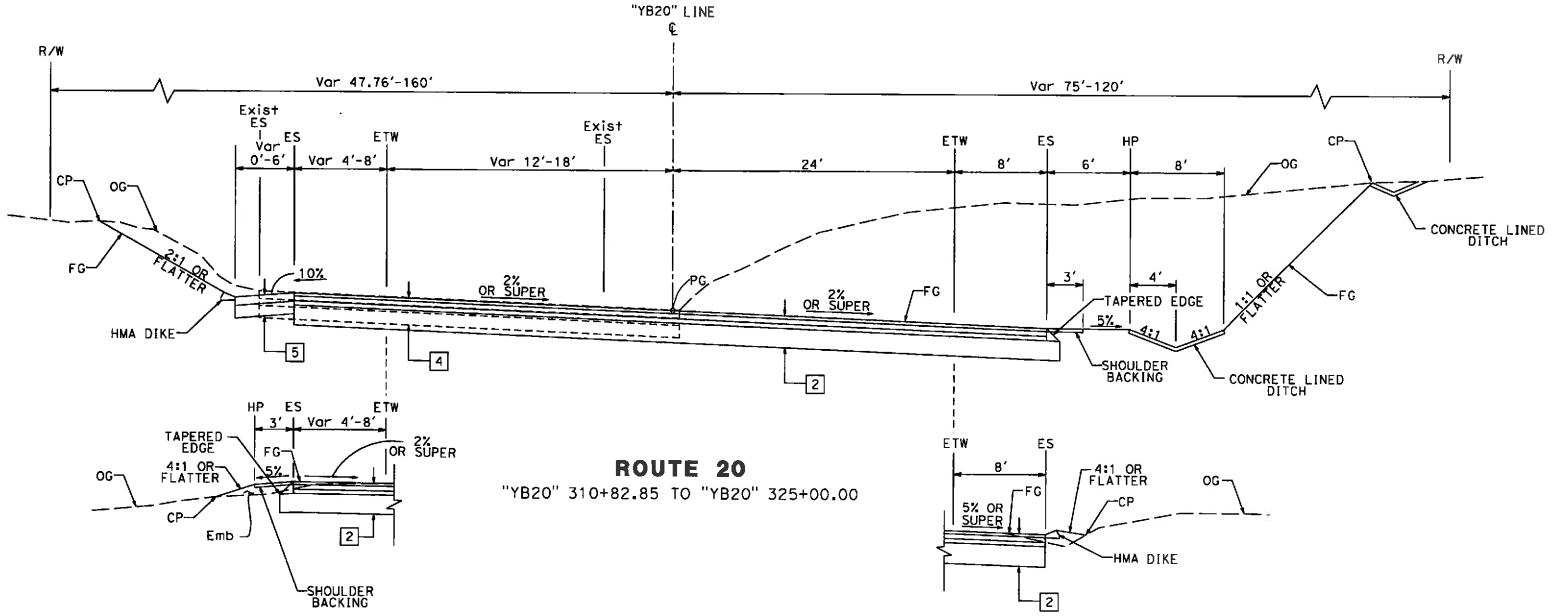

ROUTE 20

"YB20" 310+82.85 TO "YB20" 325+00.00

"YB20" 310+82.85 TO "YB20" 317+00.00

"YB20" 310+82.85 TO "YB20" 313+50.00

TYPICAL CROSS SECTION

NO SCALE

X-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | FUNCTIONAL SUPERVISOR: MARK RAYBACK | CALCULATED-DESIGNED BY | CHECKED BY | STEVEN ROBINSON | SANFORD WONG | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 7/19/2017 | TIME PLOTTED => 4:26:41 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => naomi_CT_v8i | DGN FILE => ...\Civil\Dgn\0300020593ca08.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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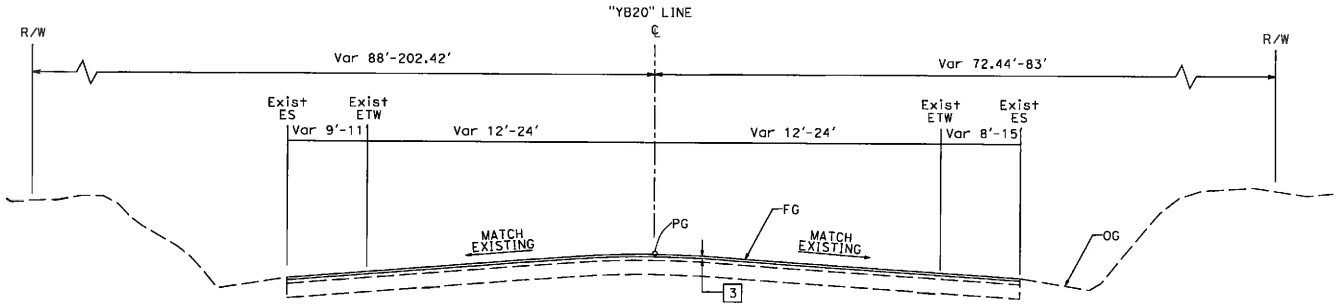
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

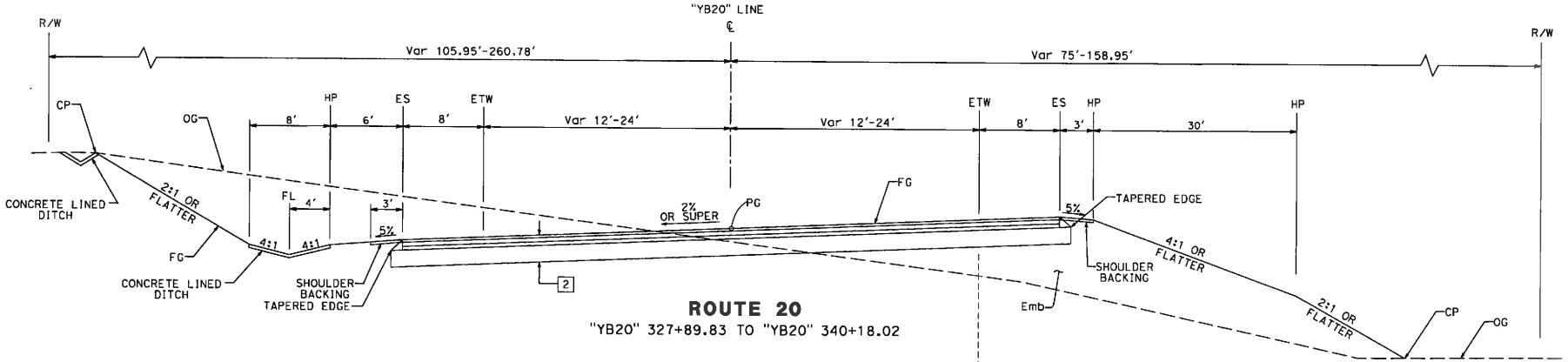


ROUTE 20

"YB20" 362+22.69 TO "YB20" 369+50.62

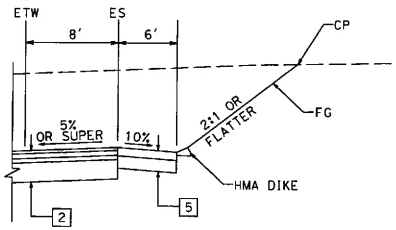
NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.



ROUTE 20

"YB20" 327+89.83 TO "YB20" 340+18.02



TYPICAL CROSS SECTION

NO SCALE

"YB20" 339+00.00 TO "YB20" 340+18.02

X-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY	DATE REVISED

LAST REVISION — DATE PLOTTED => 7/19/2017; TIME PLOTTED => 4126:41 PM

00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => naomi_CT_v8i
DGN FILE => ...\Civil\Dgn\0300020593ca09.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
EXP. 12/31/18
STATE OF CALIFORNIA

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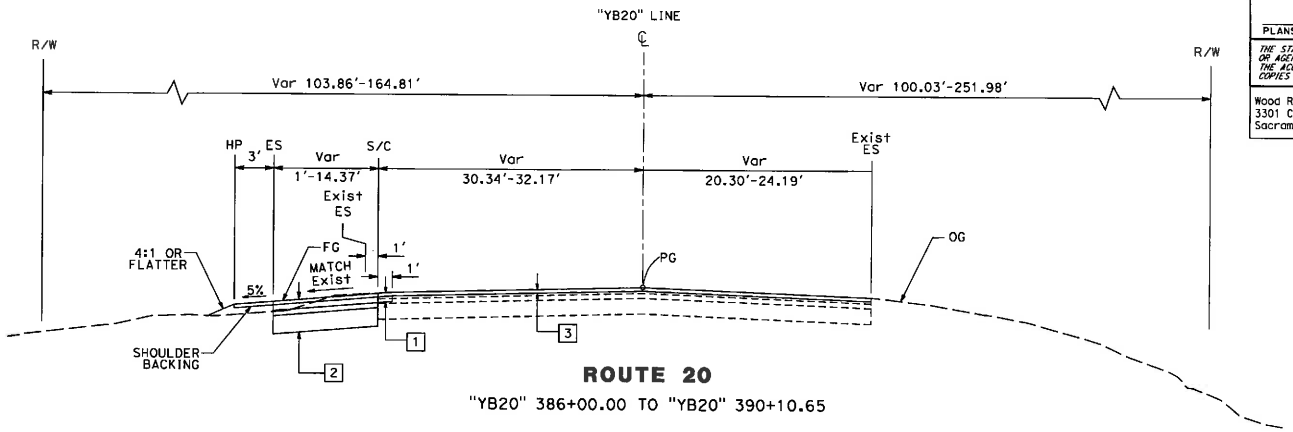
Sacramento, CA 95816

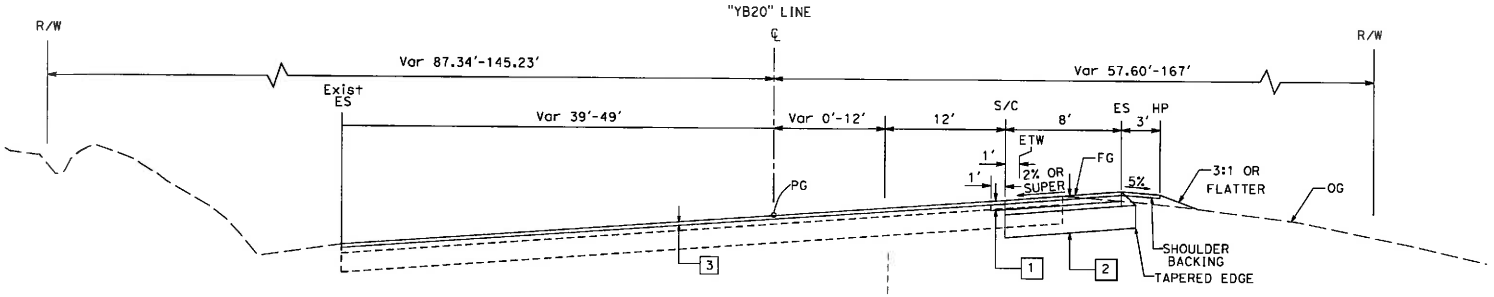
NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.



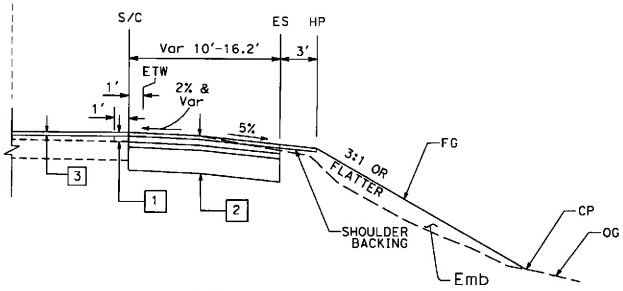
ROUTE 20

"YB20" 386+00.00 TO "YB20" 390+10.65



ROUTE 20

"YB20" 369+50.62 TO "YB20" 386+00.00



"YB20" 380+09.33 TO "YB20" 385+16.60

TYPICAL CROSS SECTION

NO SCALE

X-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 7/19/2017 | TIME PLOTTED => 4126:42 PM

BORDER LAST REVISED 7/2/2010

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DGN FILE => ...\Civil\Dgn\030020593ca010.dgn

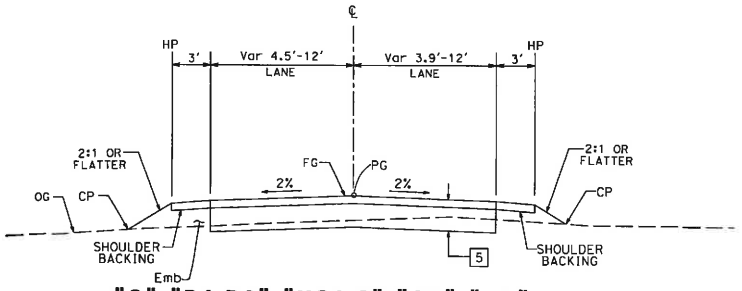
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

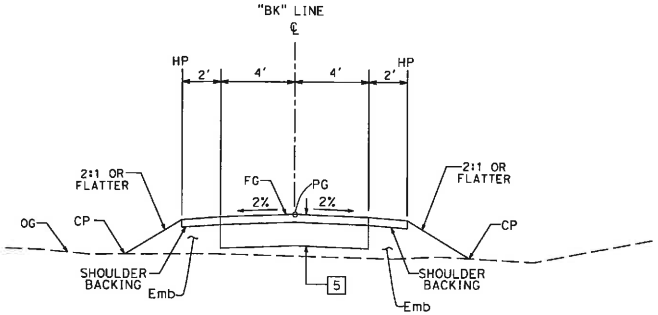
PROJECT NUMBER & PHASE 03120000264

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.

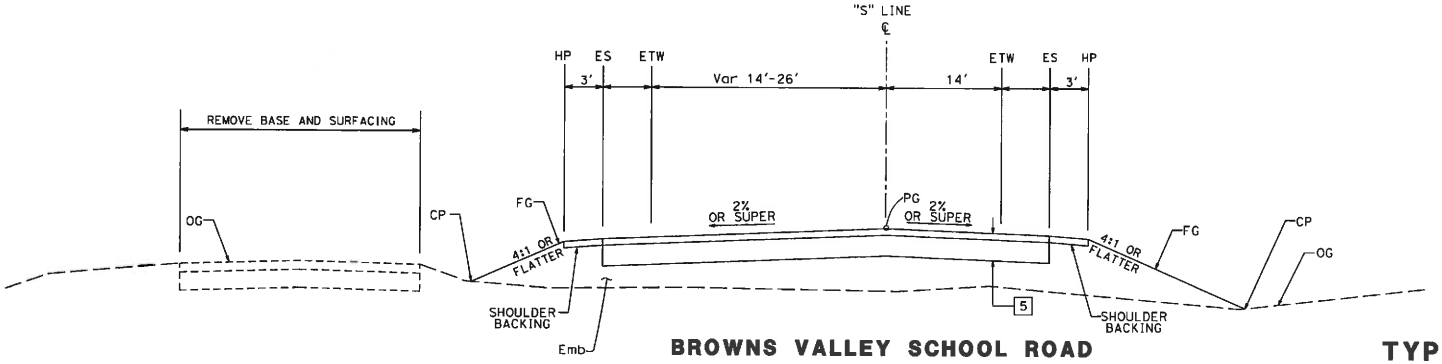


"S","D1-D8","HG1-3","SR","HR" LINE
"V1-V2","DP","EM","TH","MT" LINE
"P","SA","LI","ST"LINE



BIKE TRAIL

"BK" 17+72.24 TO "BK" 22+28.83
"BK" 25+74.30 TO "BK" 31+00.00



BROWNS VALLEY SCHOOL ROAD

"S" 10+00.00 TO "S" 17+00.21

TYPICAL CROSS SECTION

NO SCALE

X-11

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
EXP. 12/31/18
STATE OF CALIFORNIA

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Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
FUNCTIONAL SUPERVISOR: MARK RAYBACK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 7/19/2017
TIME PLOTTED => 4:26:43 PM

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/17.8		XXX

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
EXP. 12/31/18
STATE OF CALIFORNIA

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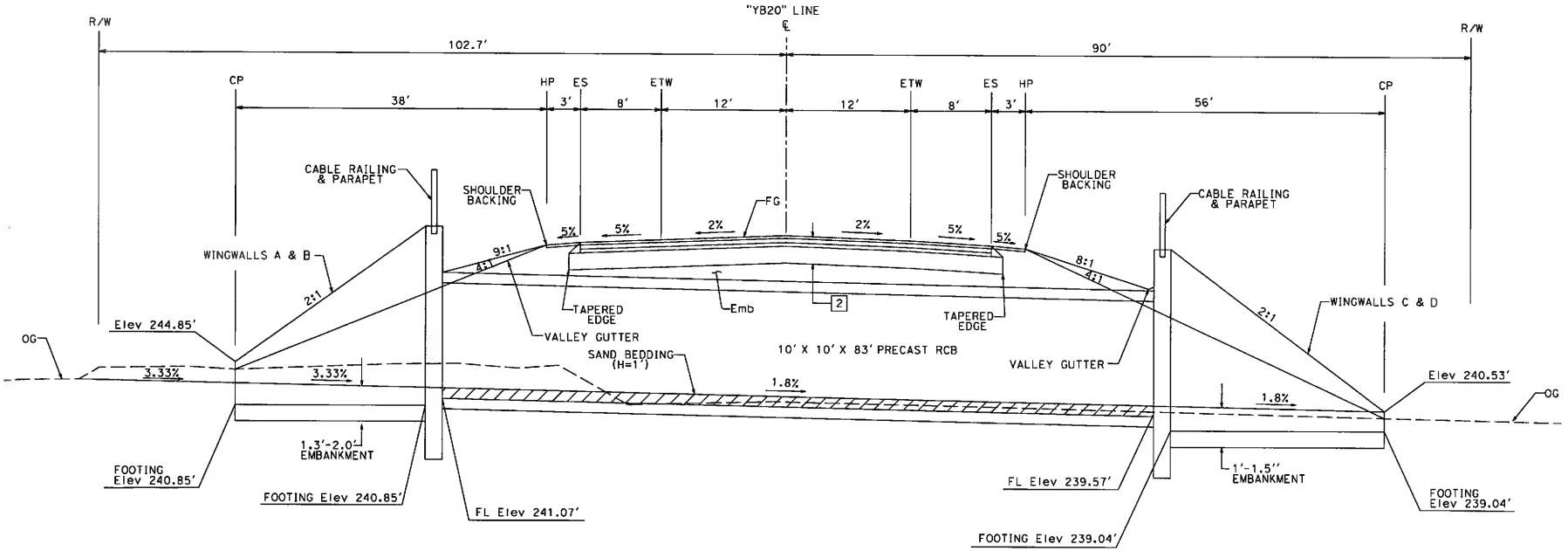
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

SEE NOTES AND LEGEND ON SHEET X-1.



ROUTE 20
WILDLIFE CROSSING
Sta 253+75.00

TYPICAL CROSS SECTION
NO SCALE

X-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY	DATE REVISED
MARK RAYBACK	CHECKED BY	STEVEN ROBINSON	SANFORD WONG

LAST REVISION 00-00-00
DATE PLOTTED => 7/19/2017
TIME PLOTTED => 4:26:44 PM

BORDER LAST REVISED 7/2/2010

USERNAME => naomi_CT_v8i
DGN FILE => ...\Civil\Dgn\0300020593ca012.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

Attachment D

Layout Sheets

NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. LOCATE AND PLACE TAPERED EDGE PER Std PLAN P74,P75, AND P76.

LEGEND

⇨ FLOW OF TRAFFIC

COLD PLANE AND RHMA-O OVERLAY LIMITS

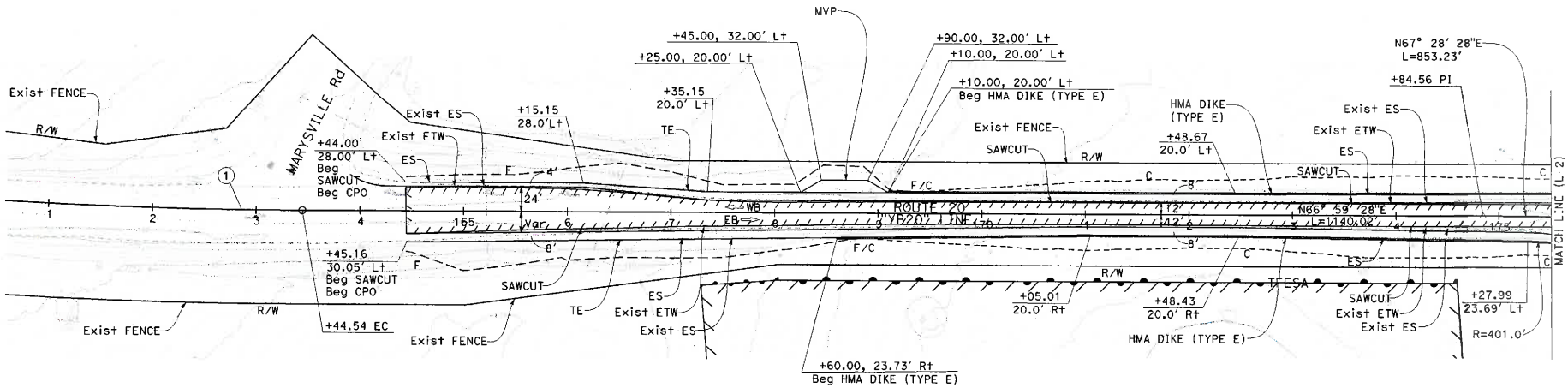
REMOVE EXISTING AC PAVEMENT

ABBREVIATIONS

CPO - COLD PLANE AND OVERLAY
TE - TAPERED EDGE

CURVE DATA

No.	R	Δ	T	L
①	5000.00′	14°08′02"	619.85′	1233.42′



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAYOUT

SCALE: 1"=50′

L-1

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => @USER | DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEERS — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/16 — CIVIL — STATE OF CALIFORNIA

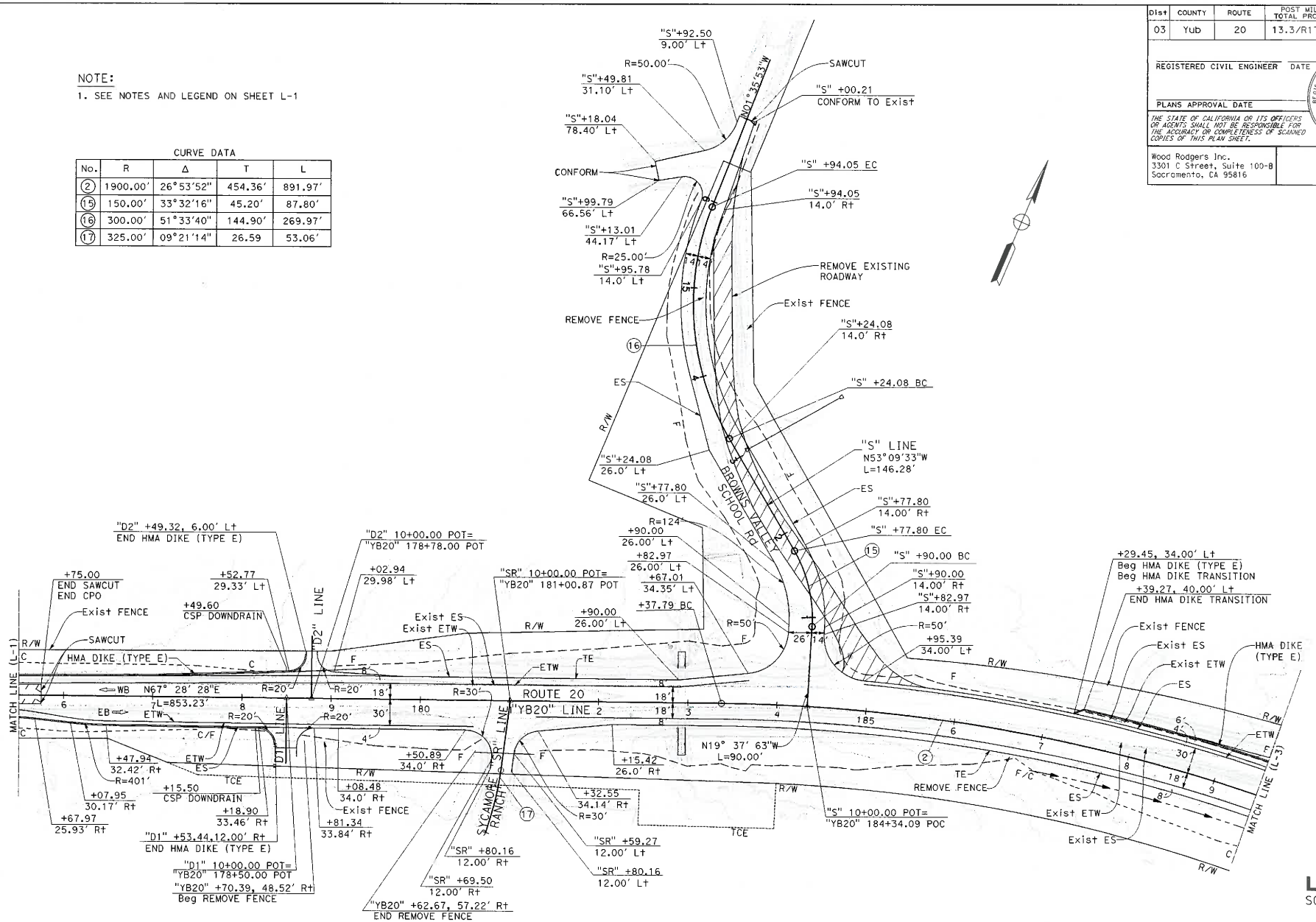
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTE:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(2)	1900.00′	26°53′52"	454.36′	891.97′
(15)	150.00′	33°32′16"	45.20′	87.80′
(16)	300.00′	51°33′40"	144.90′	269.97′
(17)	325.00′	09°21′14"	26.59	53.06′



LAYOUT
SCALE: 1"=50′
L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK | CALCULATED/DESIGNED BY: SANFORD WONG | CHECKED BY: STEVEN ROBINSON | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER | DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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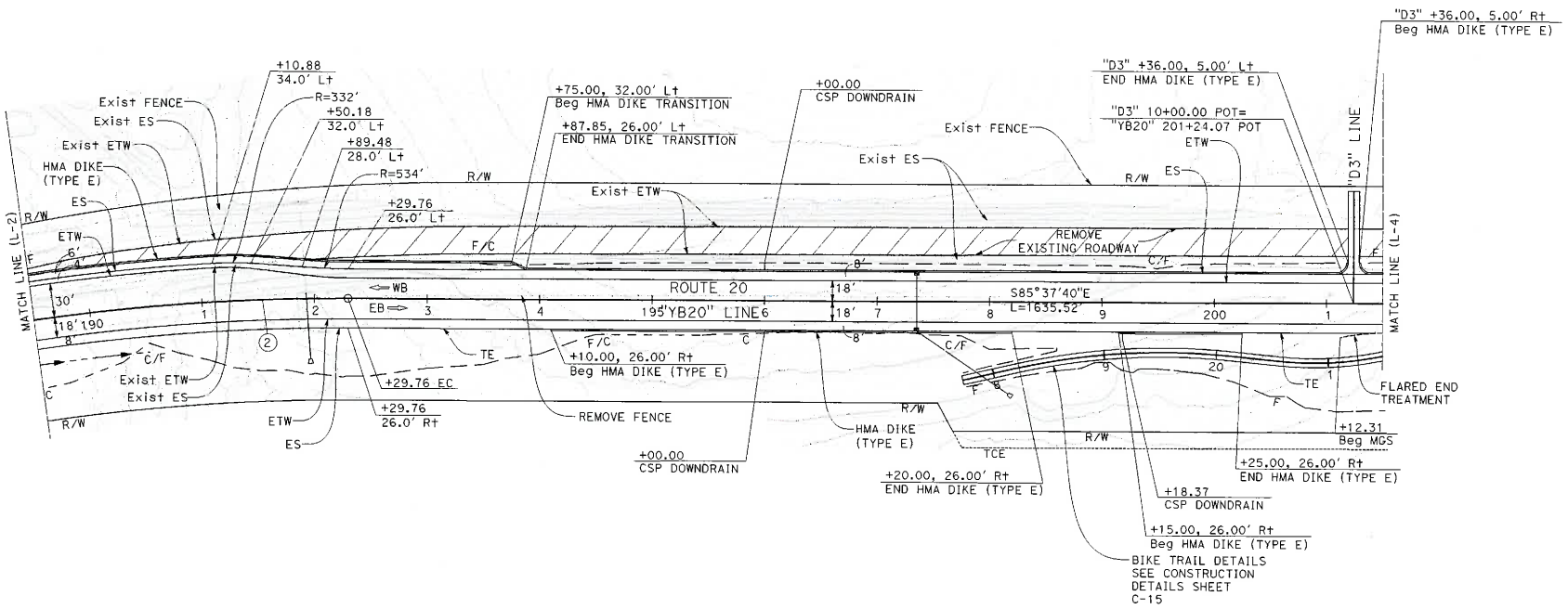
Sacramento, CA 95816

NOTE:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
②	1900.00'	26°53'52"	454.36'	891.97'



LAYOUT
SCALE: 1"=50'

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => @DATE
TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010

USERNAME => $USER
DGN FILE => $REQUEST

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

NOTE:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
③	2700.00′	03°45′07"	88.44′	176.81′
⑱	75.00′	70°59′50"	53.49	92.94′

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/16 — CIVIL — STATE OF CALIFORNIA

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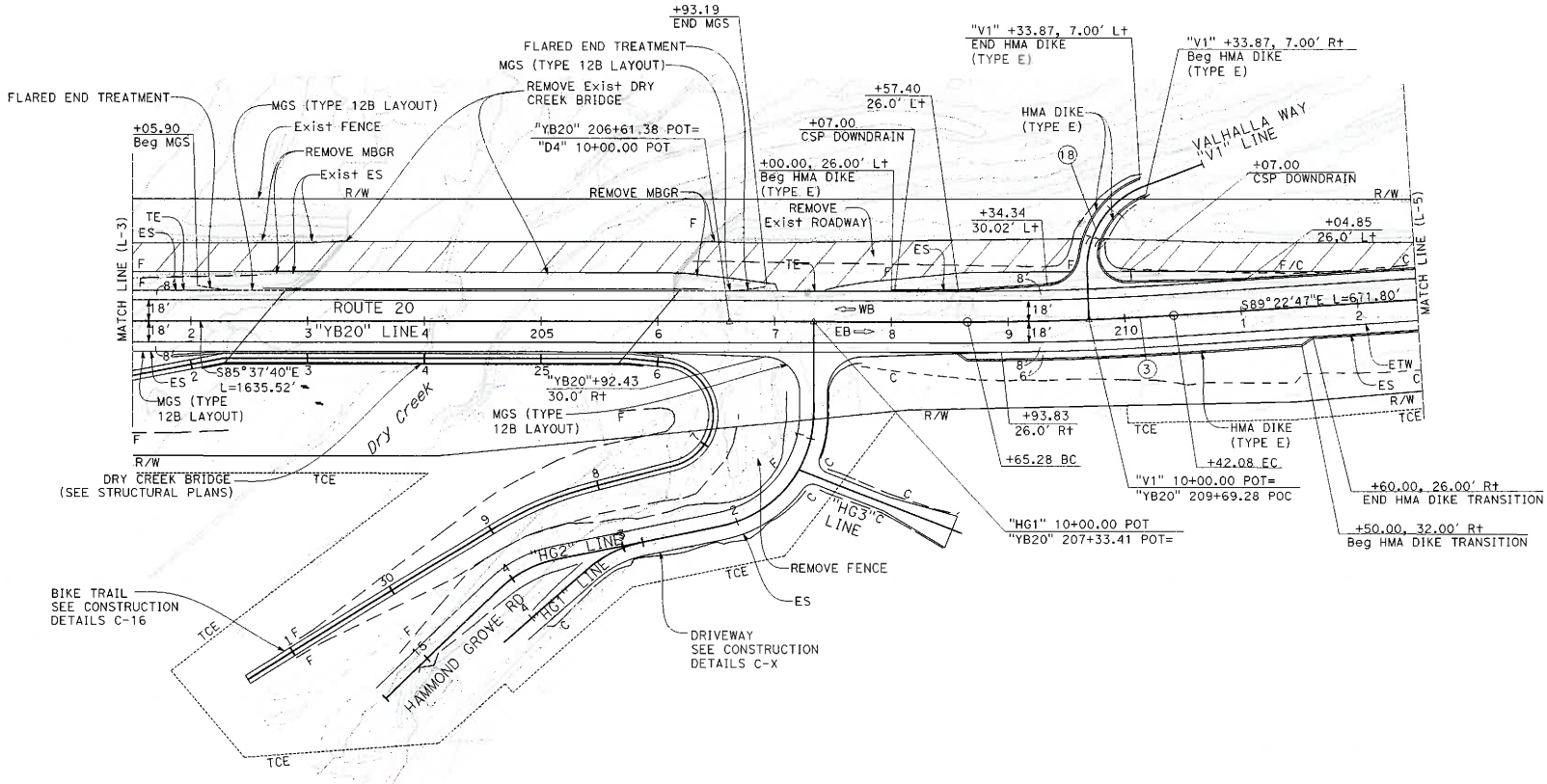


LAYOUT
SCALE: 1"=50′

L-4

LAST REVISIONS: DATE PLOTTED => $DATE; TIME PLOTTED => $TIME; 00-00-00

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON | CHECKED BY: SANFORD WONG

REVISED BY | DATE REVISED

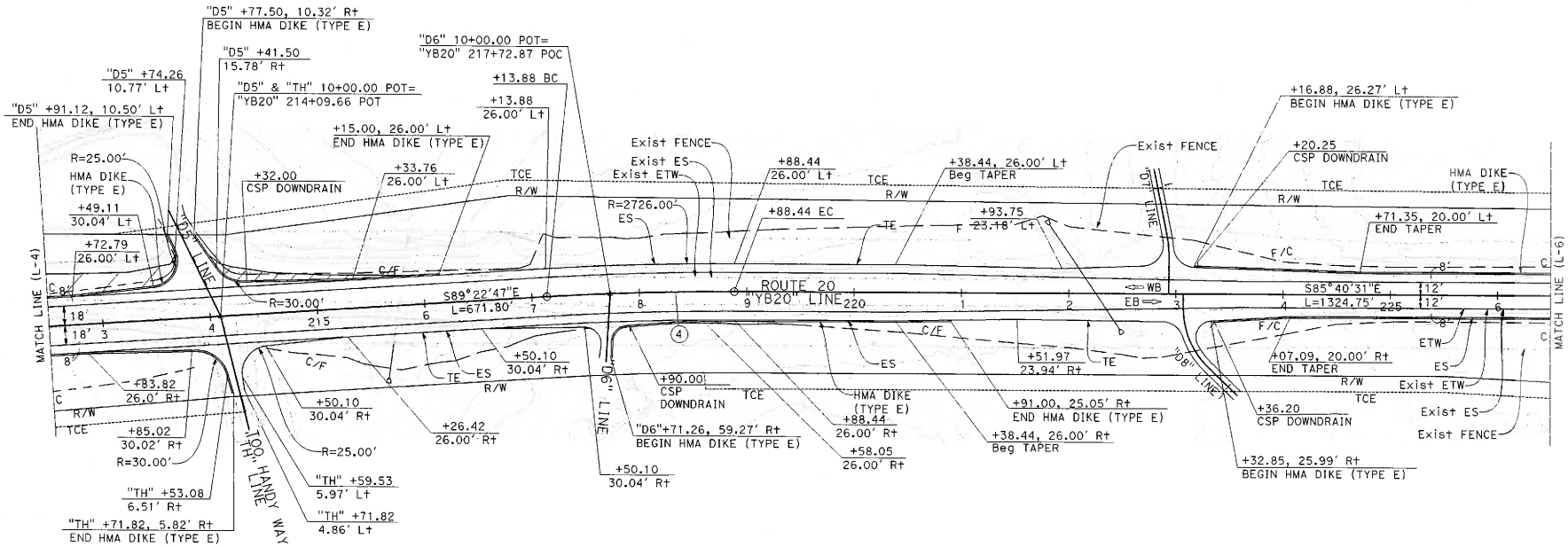
BORDER LAST REVISED 7/2/2010 | USERNAME => $USER; DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

NOTE:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
④	2700.00′	03°42′16"	87.31′	174.56′



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED/DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAYOUT
SCALE: 1"=50′

L-5

LAST REVISION 00-00-00 DATE PLOTTED => &DATE TIME PLOTTED => &TIME

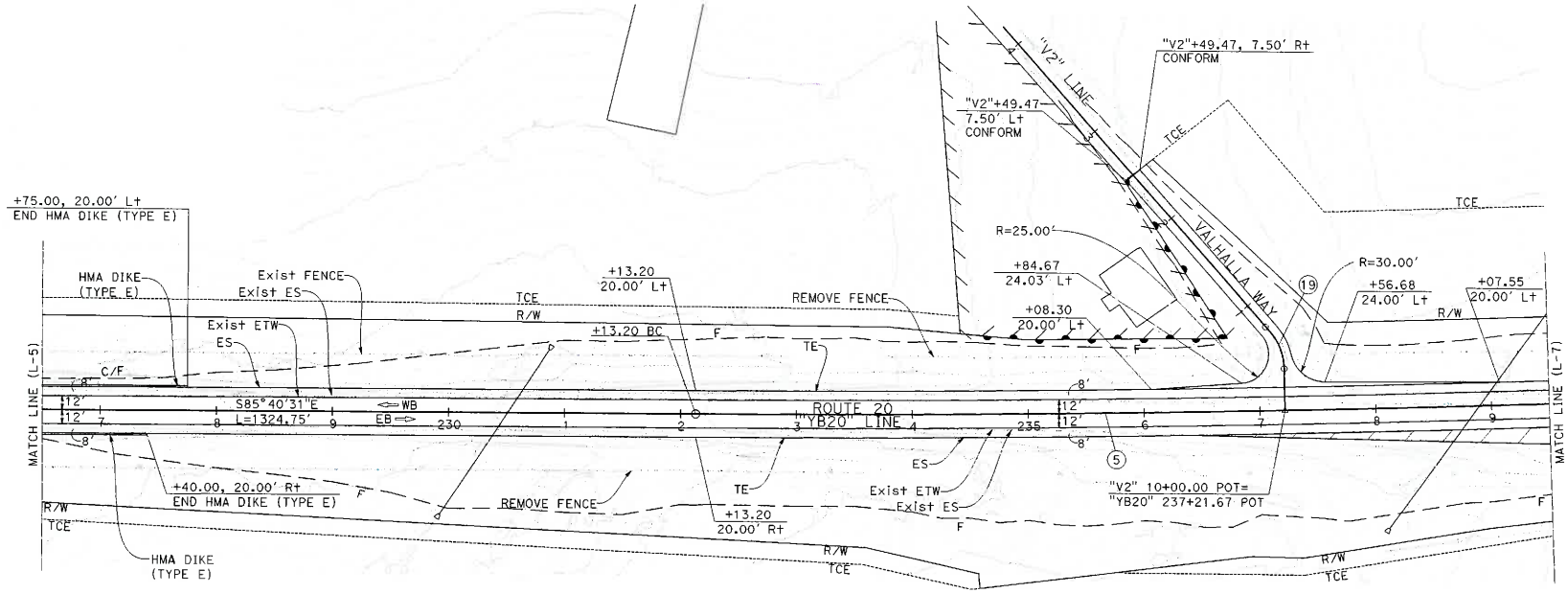
BORDER LAST REVISED 7/2/2010 | USERNAME => &USER DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(5)	20000.00'	7°23'49"	1292.83'	2582.06'
(5)	50.00'	40°08'01"	18.26'	35.02'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER

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LAYOUT
SCALE: 1"=50'

L-6

LAST REVISION 00-00-00 | DATE PLOTTED => #DATE | TIME PLOTTED => #TIME

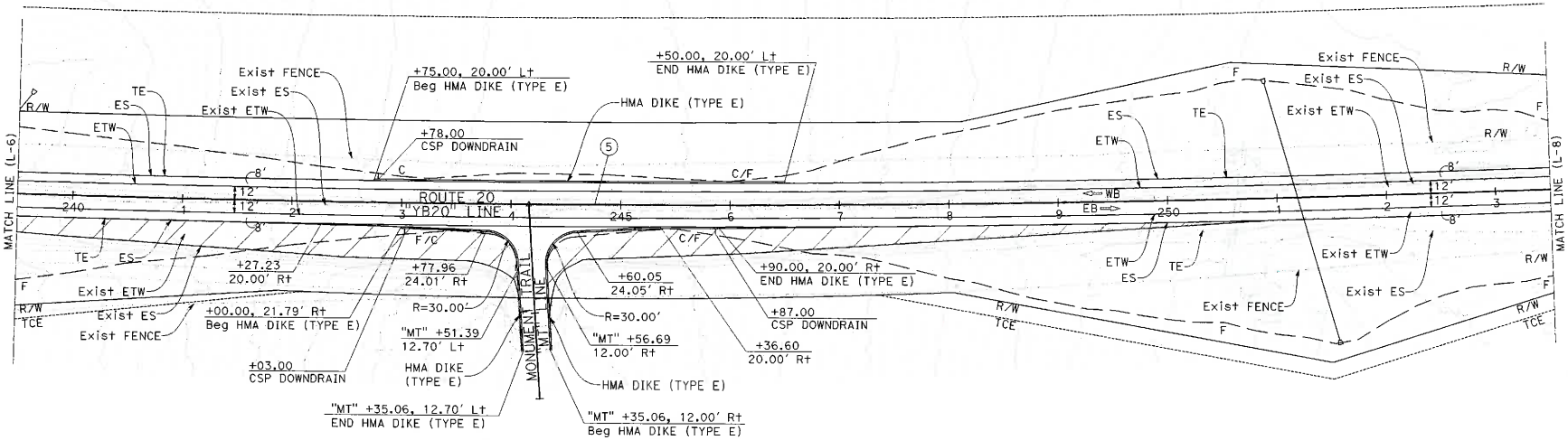
BORDER LAST REVISED 7/2/2010 | USERNAME => #USER | DGN FILE => #REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(5)	20000.00'	7°23'49"	1292.83'	2582.06'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL STATE OF CALIFORNIA

PLANS APPROVAL DATE

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Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAYOUT

SCALE: 1"=50'

L-7

LAST REVISION 00-00-00 DATE PLOTTED => &DATE TIME PLOTTED => &TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => &USER DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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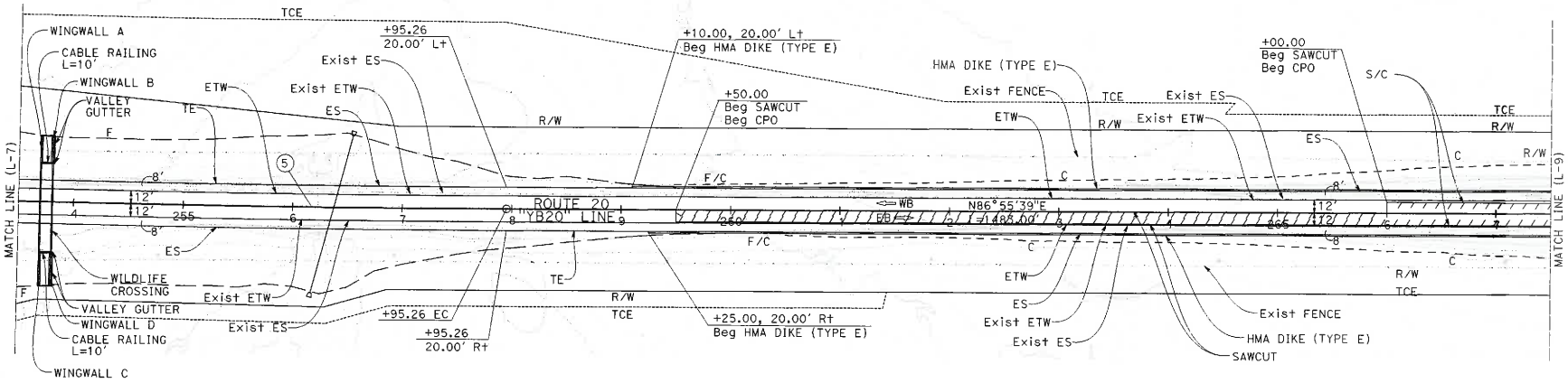
Sacramento, CA 95816

CURVE DATA

No.	R	Δ	T	L
(5)	20000.00'	7°23'49"	1292.83'	2582.06'

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY

DATE REVISED

LAYOUT

SCALE: 1"=50'

L-8

LAST REVISION 00-00-00 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

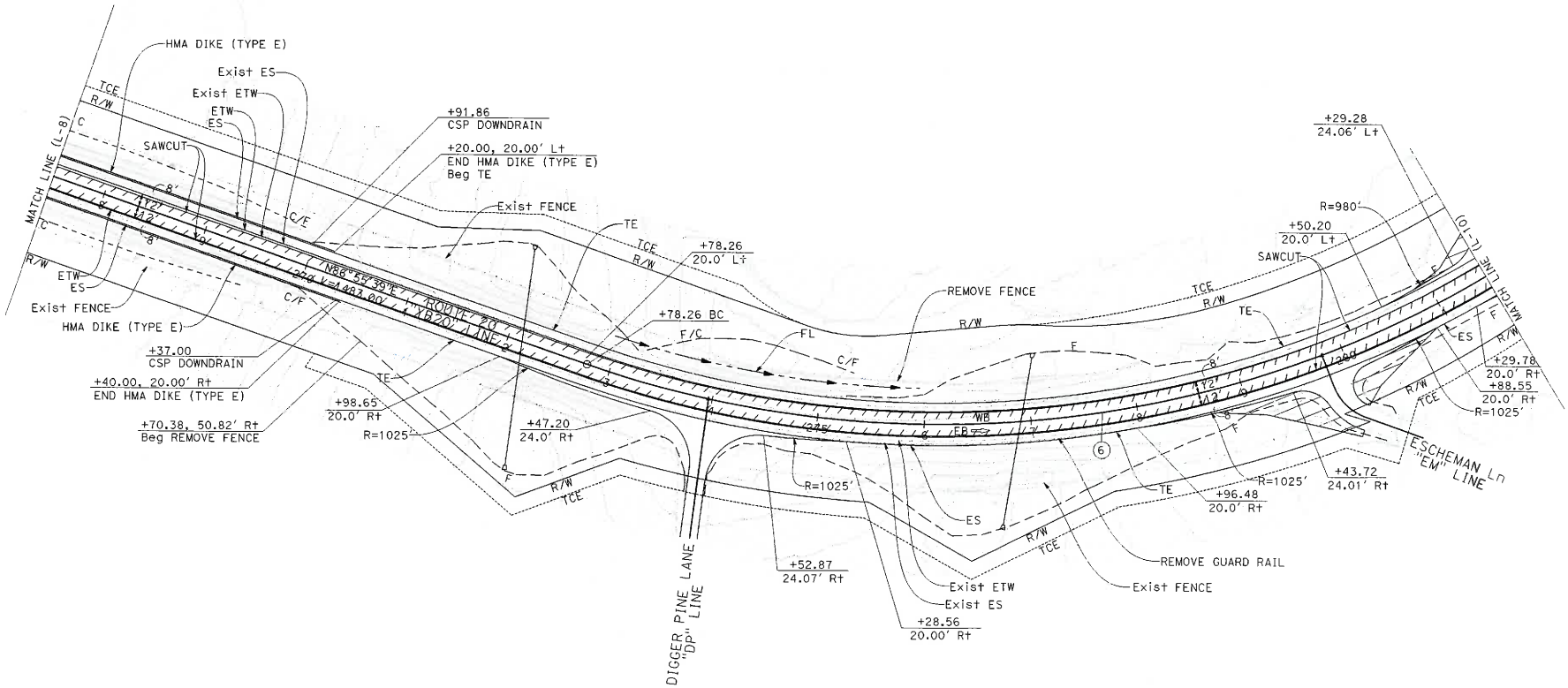
Wood Rodgers inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
⑥	1000.00'	53°15'53"	501.47'	929.65'



LAYOUT
SCALE: 1"=50'

L-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY	LAST REVISION
Caltrans	MARK RAYBACK	CHECKED BY	DATE REVISED	00-00-00
	STEVEN ROBINSON	SANFORD WONG		DATE PLOTTED => %DATE TIME PLOTTED => %TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => %USER, DGN FILE => %REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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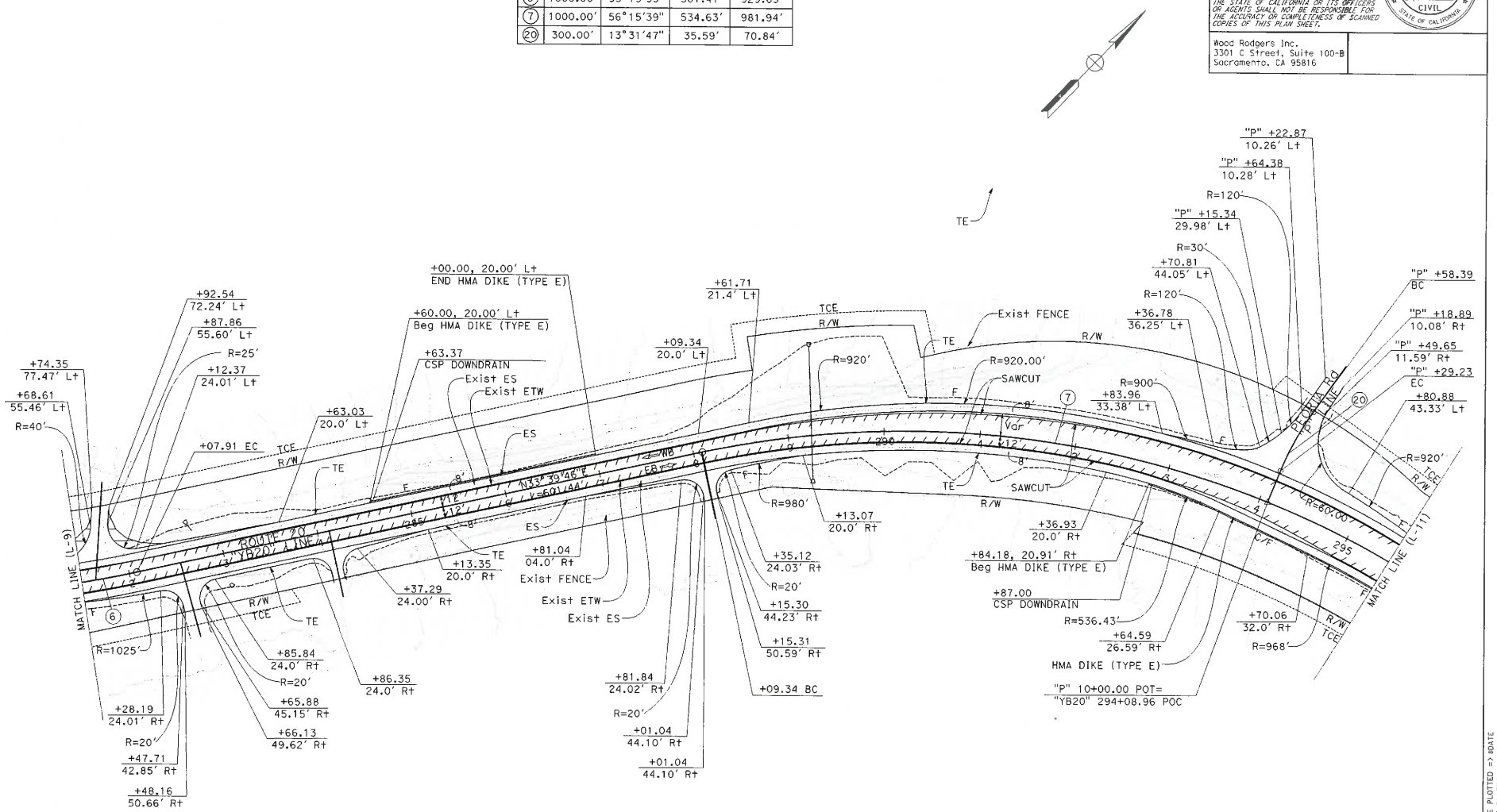
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
⑥	1000.00'	53°15'53"	501.47'	929.65'
⑦	1000.00'	56°15'39"	534.63'	981.94'
⑳	300.00'	13°31'47"	35.59'	70.84'



LAYOUT
SCALE: 1"=50'

L-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK | CALCULATED-DESIGNED BY: STEVEN ROBINSON | CHECKED BY: SANFORD WONG | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => &DATE | TIME PLOTTED => &TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => &USER | DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(7)	1000.00'	56°15'39"	534.63'	981.94'
(8)	3500.00'	05°52'09"	179.42'	358.53'
(9)	3290.00'	06°34'53"	189.17'	377.91'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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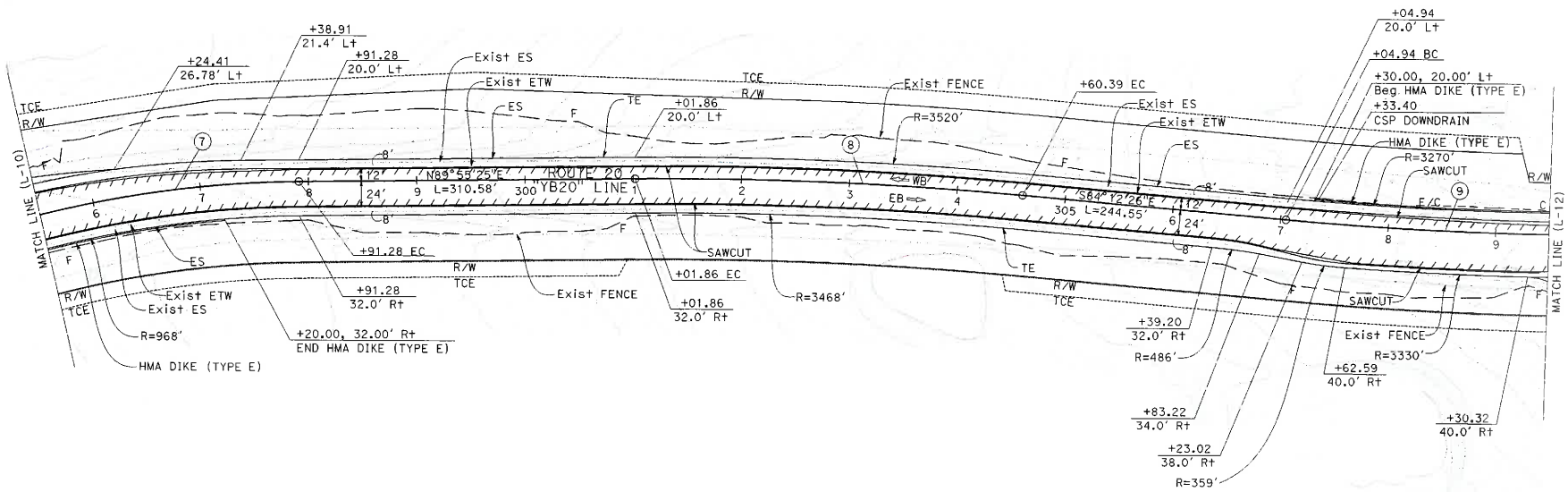

LAYOUT
SCALE: 1"=50'

L-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED/DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/16 — CIVIL — STATE OF CALIFORNIA

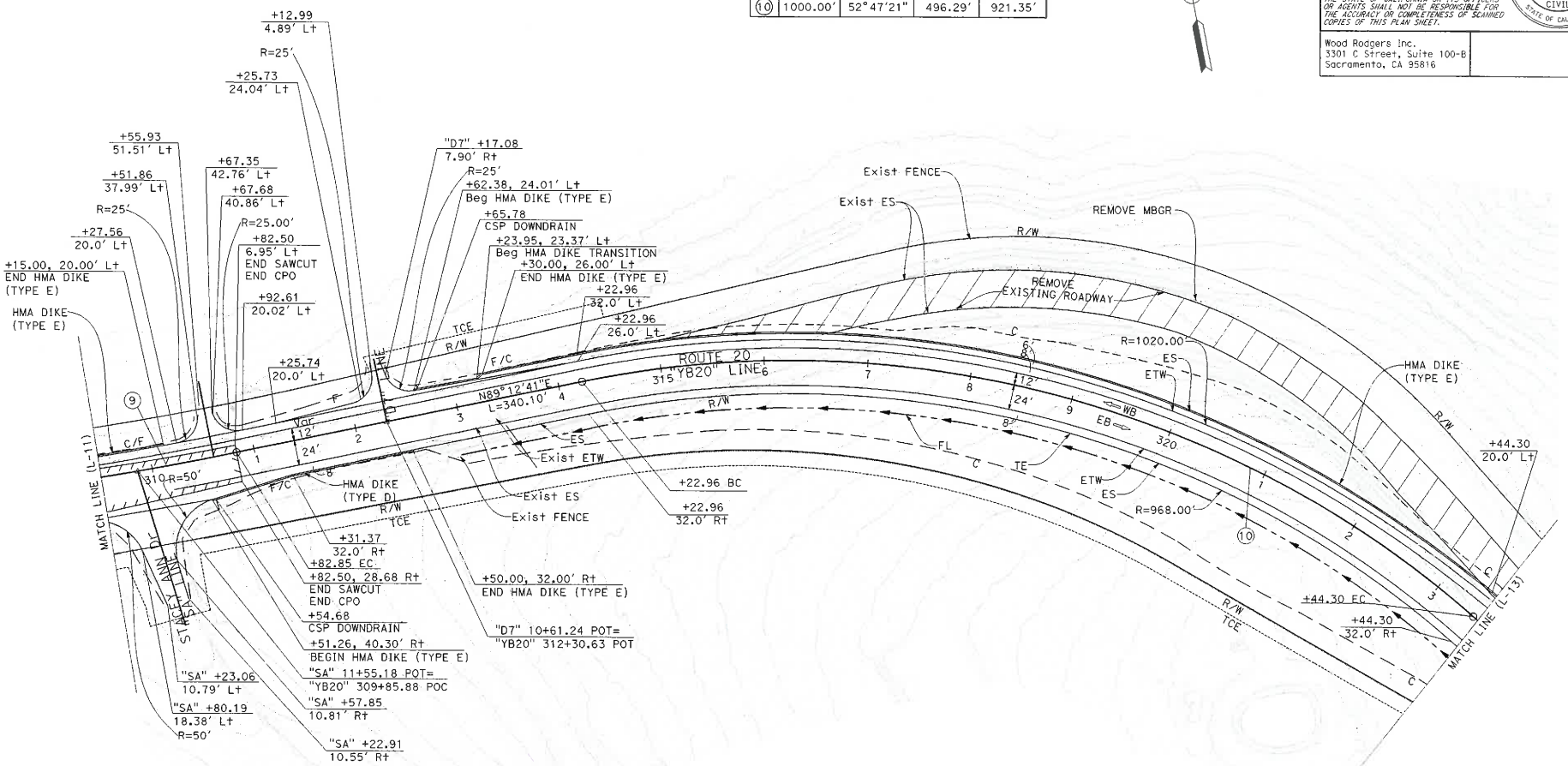
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(9)	3290.00′	06°34'53"	189.17′	377.91′
(10)	1000.00′	52°47'21"	496.29′	921.35′



LAYOUT

SCALE: 1"=50′

L-12

LAST REVISION	DATE PLOTTED => $DATE
00-00-00	TIME PLOTTED => $TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY

DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => $USER
DGN FILE => $REQUEST

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

STEVEN E. ROBINSON No. 73207 Exp. 12/31/16 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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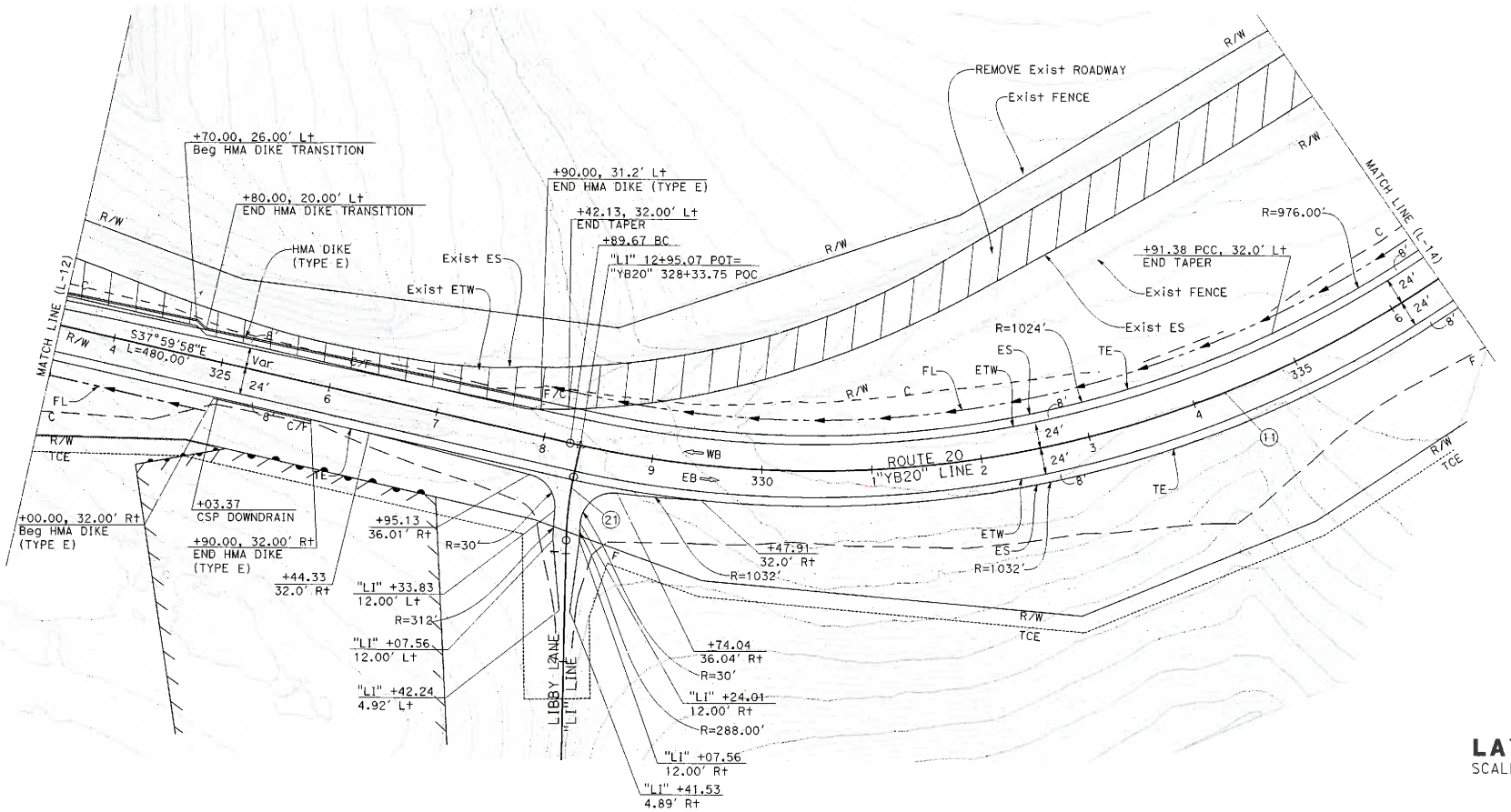
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(11)	1000.00'	64°16'11"	628.15'	1121.72'
(21)	300.00'	11°09'17"	29.30'	58.41'



LAYOUT
SCALE: 1"=50'

L-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
Caltrans	MARK RAYBACK	STEVEN ROBINSON	SANFORD WONG		

LAST REVISION 00-00-00 | DATE PLOTTED => &DATE | TIME PLOTTED => &TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => &USER | DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEERS — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/16 — CIVIL — STATE OF CALIFORNIA

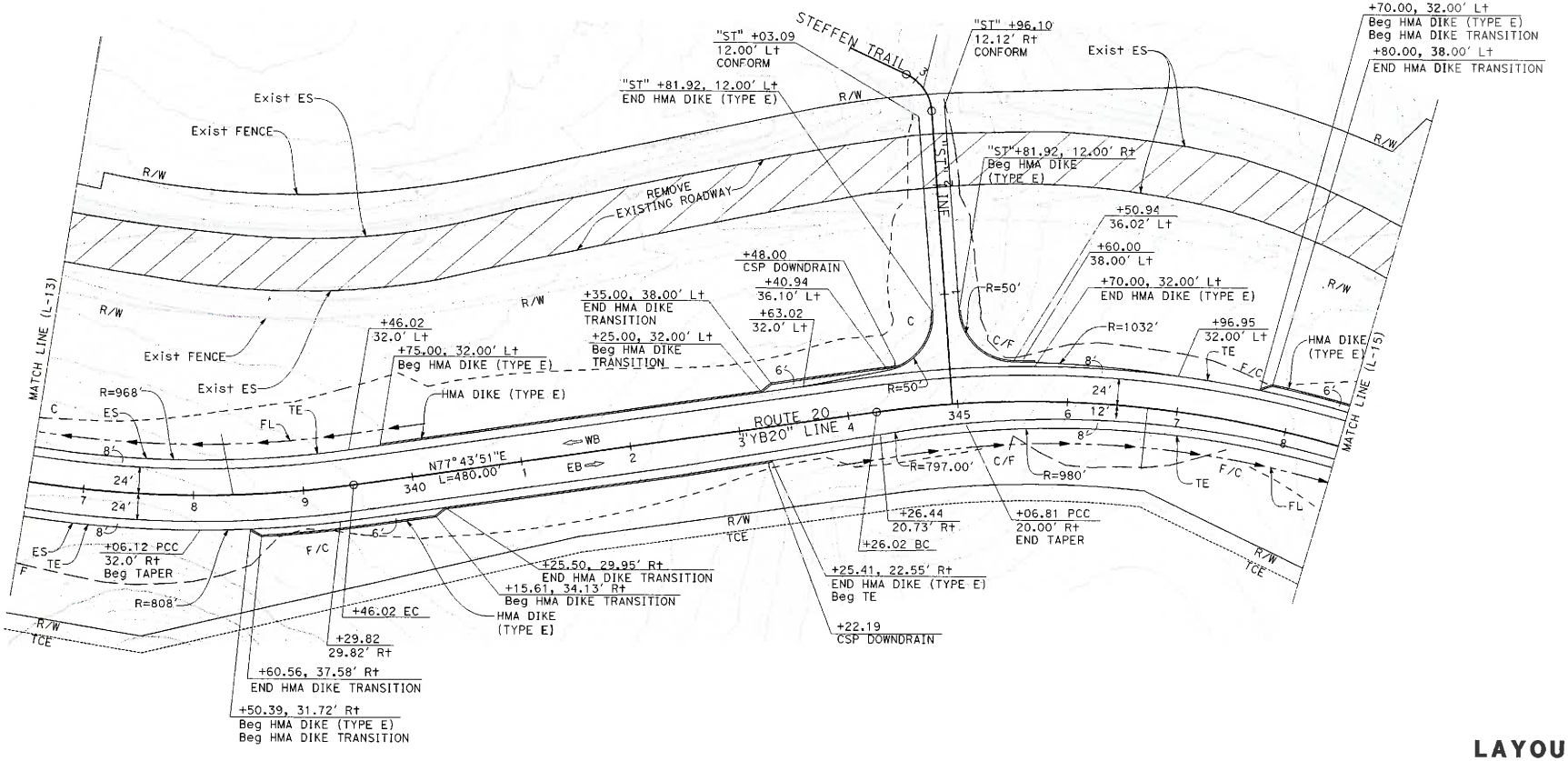
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(11)	1000.00'	64°16'11"	628.15'	1121.72'
(12)	1000.00'	65°13'36"	639.86'	1138.42'
(22)	40.00'	60°51'51"	23.50'	42.49'



LAYOUT
SCALE: 1"=50'
L-14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK
CALCULATED-DESIGNED BY: STEVEN ROBINSON
CHECKED BY: SANFORD WONG
REVISED BY
DATE REVISED

LAST REVISION 00-00-00 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — STEVEN E. ROBINSON — No. 73207 — Exp. 12/31/16 — CIVIL — STATE OF CALIFORNIA

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

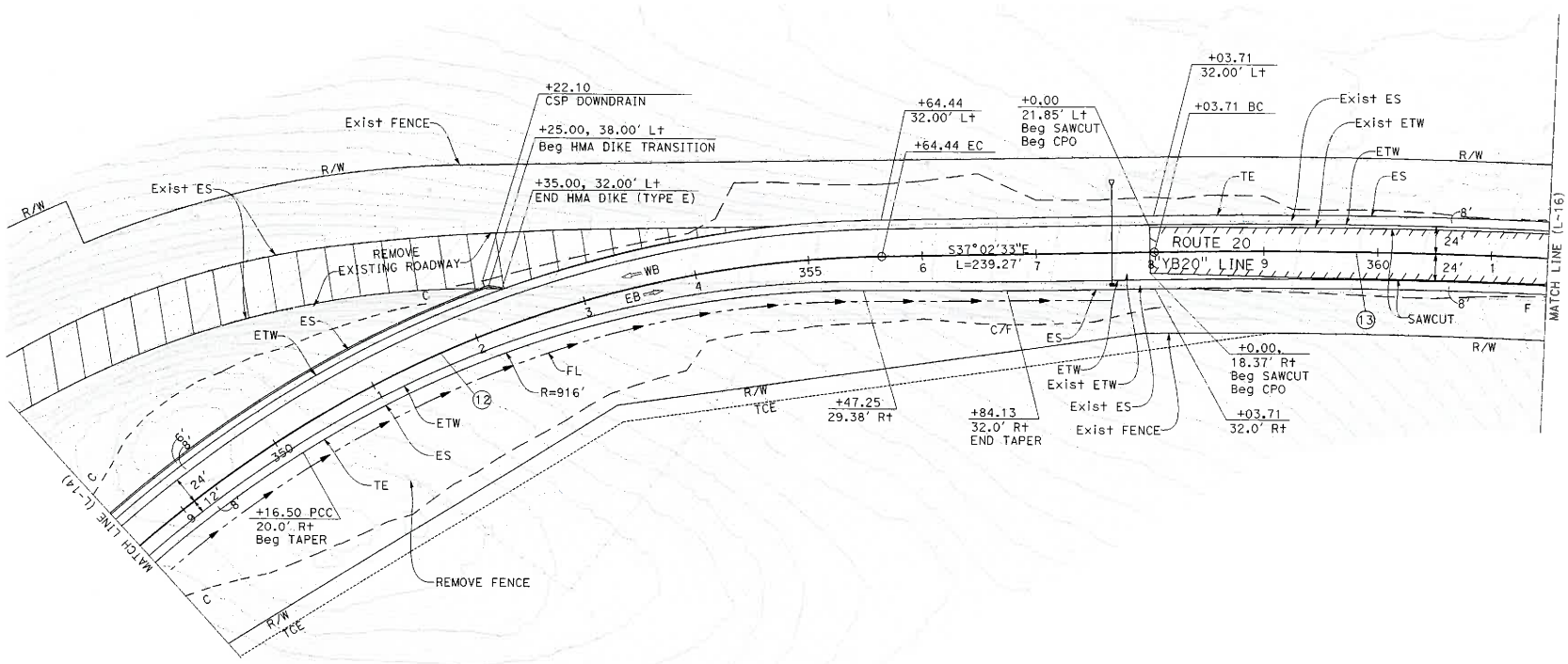
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(12)	1000.00'	65°13'36"	639.86'	1138.42'
(13)	5600.00'	07°09'34"	350.33'	699.76'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK

CALCULATED-DESIGNED BY: STEVEN ROBINSON

CHECKED BY: SANFORD WONG

REVISED BY

DATE REVISED

LAYOUT

SCALE: 1"=50'

L-15

LAST REVISION 00-00-00 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => $USER DGN FILE => $REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

NOTES:

SEE LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(13)	5600.00'	07°09'34"	350.33'	699.76'
(14)	1350.00'	38°10'06"	467.06'	899.32'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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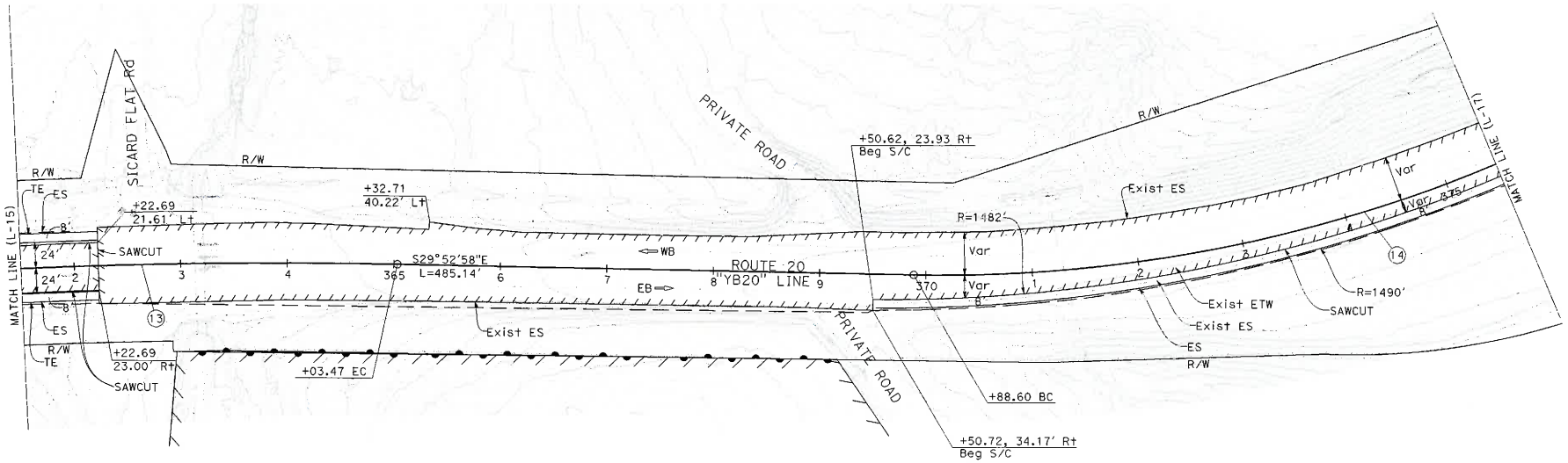

LAYOUT
SCALE: 1"=50'

L-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | CONSULTANT FUNCTIONAL SUPERVISOR: MARK RAYBACK | CALCULATED-DESIGNED BY: STEVEN ROBINSON | CHECKED BY: SANFORD WONG | REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => #DATE | TIME PLOTTED => #TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => #USER | DGN FILE => #REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
Exp. 12/31/16
CIVIL
STATE OF CALIFORNIA

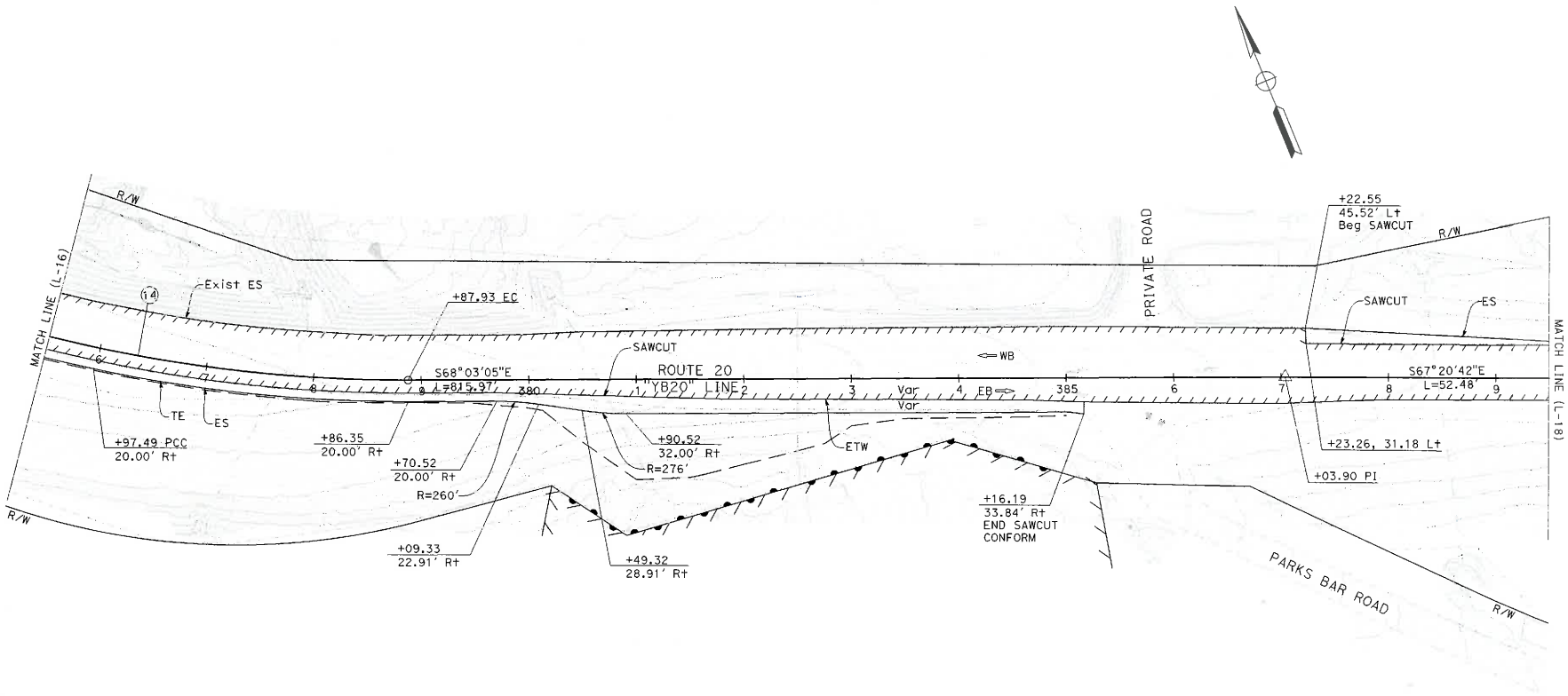
Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1

CURVE DATA

No.	R	Δ	T	L
(14)	1350.00'	38°10'06"	467.06'	899.32'



LAYOUT
SCALE: 1"=50'

L-17

LAST REVISION 00-00-00 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
MARK RAYBACK	STEVEN ROBINSON	SANFORD WONG		

BORDER LAST REVISED 7/2/2010 | USERNAME => &USER, DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Yub	20	13.3/R17.8		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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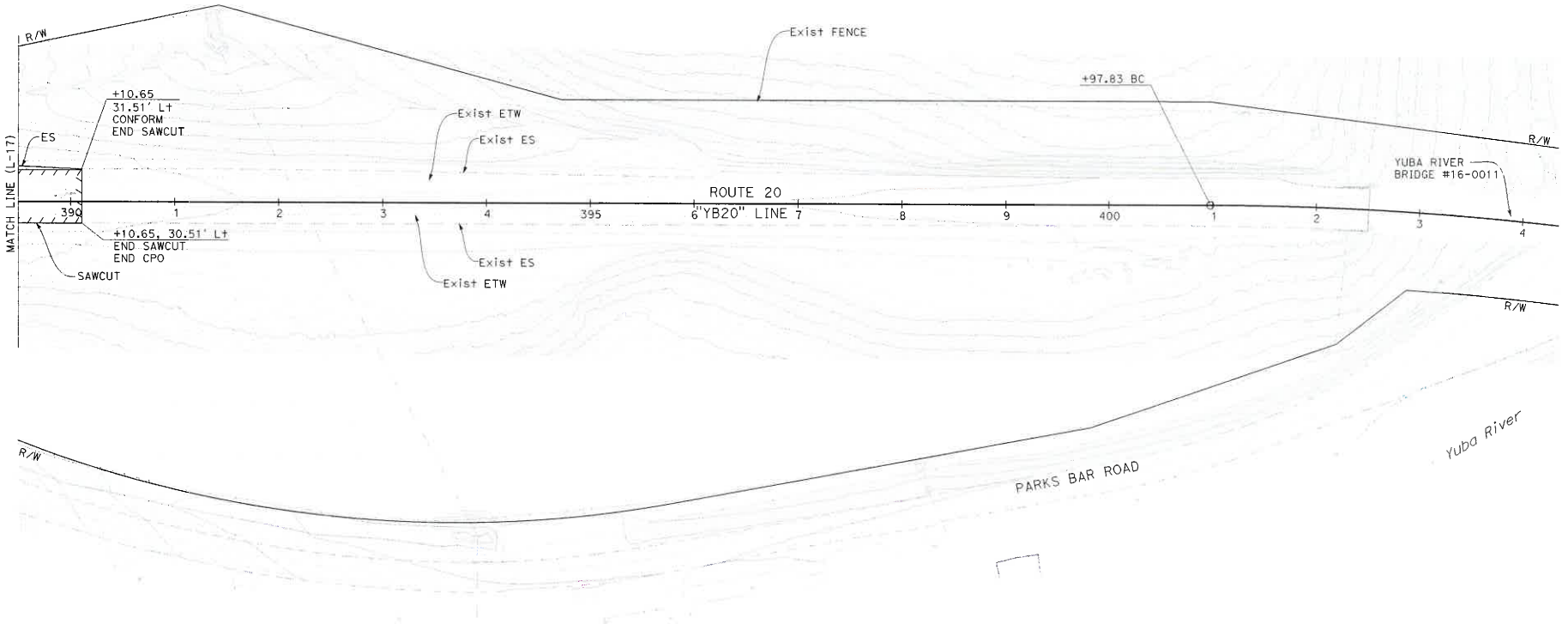
REGISTERED PROFESSIONAL ENGINEER
STEVEN E. ROBINSON
No. 73207
Exp. 12/31/16
CIVIL
STATE OF CALIFORNIA

Wood Rodgers Inc.
3301 C Street, Suite 100-B
Sacramento, CA 95816

NOTES:

1. SEE NOTES AND LEGEND ON SHEET L-1



LAYOUT
SCALE: 1"=50'

L-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
Caltrans	MARK RAYBACK	STEVEN ROBINSON	SANFORD WONG		

LAST REVISION 00-00-00 | DATE PLOTTED => &DATE | TIME PLOTTED => &TIME

BORDER LAST REVISED 7/2/2010 | USERNAME => &USER | DGN FILE => &REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 03120000264

Attachment E

Material Recommendation

DEPARTMENT OF TRANSPORTATION
DISTRICT 3
703 B STREET
MARYSVILLE, CA 95901
PHONE (530) 741-4233
FAX (530) 741-4245
TTY 711
www.dot.ca.gov/dist3

Serious drought.
Help save water!

April 24, 2015

Mr. Sanford Wong
Associate
Wood Rogers
3301 C St. Bldg. 100-B
Sacramento, CA 95816

Dear Mr. Wong:

As requested in an email to Girmay Beyene dated February 17, 2015, a structural section recommendation has been made for the above referenced project. A deflection study was performed in April 2015. Mechanistic–Empirical design method was used to determine the new structural section recommendation. The following assumptions have been made:

R-value = 30 (Historical records)
TI_{10} = 9.0 (from Traffic Data)
TI_{20} = 10.0 (from Traffic Data)

STRUCTURAL SECTION RECOMMENDATIONS

Mainline – New Structural Section **TI_{20} = 10.0**

Option 1:	0.20' RHMA-G
	0.15' HMA-A
	1.15' AB (Class 2)
	1.50' Total
Option 2:	0.35' HMA-A
	1.15' AB (Class 2)
	1.50' Total

Existing Pavement **TI_{10} = 9.0**

Tolerable deflection is 0.015' with the 80th percentile deflection at 0.023'. Existing pavement requires 0.20' HMA-A overlay or 0.15' RHMA-G overlay to meet the ten-year Traffic Index. However, there is a current project in construction that will place a 0.20' RHMA-G followed by a 0.10' RHMA-O overlay. This will bring the pavement to the required structural capacity.

MATERIALS SPECIFICATIONS

Rubberized Hot Mix Asphalt –Type G (RHMA-G) - Shall conform to section 39 of the Standard Specifications and the Special Provisions.

Hot Mix Asphalt –Type A (HMA-A) - Shall conform to section 39 of the Standard Specifications and the Special Provisions.

Aggregate Base (AB) – Class 2 – shall conform to section 26 of the Standard Specifications.

Asphalt Binder – Asphalt binder used for RHMA-G and HMA-A shall be grade PG 64-16 and shall conform to sections 39 and 92 of the Standard Specifications.

Paint Binder – shall conform to sections 39, 92 and 94 of the Standard Specifications.

If you have any questions please contact me at (530) 741-5176.

Sincerely,

Julia E. Rockenstein

JULIA E. ROCKENSTEIN
Assistant District Materials Engineer

EA 03-0A570

Mainline - New Structural Section

Option 1:	0.10' RHMA-0	<= added since 4/24/15 recommendation
	0.20' RHMA-G	
	0.15' HMA-A	
	1.15' AB (Class 2)	
	1.60' Total	
Option 2:	Do not use.	

Attachment F

Traffic Management Plan

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

serious drought.
Help Save Water!

To: SANDAY WONG
Project Engineer
Wood Rodgers

Date: March 3, 2015

File: 03-0A570K
#0300020593
03-Yub-20-PM 13.3/R17.8

From: SAM BATAKJI
TMP Coordinator
D3- Office of Transportation Management Planning

Subject: Transportation Management Planning (TMP) Data Sheet

Background

This resurfacing, restoration and rehabilitation (3R) project is on SR 20, a 2-lane, 2-way conventional highway located in Yuba County 12 miles east of Marysville.

The project proposes to rehabilitate SR 20 from Marysville Road to the Yuba River Bridge. Work will include widening the shoulders to eight feet, widening Dry Creek Bridge to accommodate standard shoulders, upgrade metal beam guardrail (MBGR) to current standards, replace culverts and place rock slope protection (RSP), shoulder backing, and realigning the non-standard horizontal curves in the section between Stacey Ann Drive and Sicard Flat Road.

For Traffic volumes refer to **Table-1**

Table-1: Traffic Volumes
(2013 Traffic Volumes on California State Highways)

Location Description	Type of Roadway	Peak-Hour (vph) (both directions combined)	AADT (vpd)
03-Yub-20-PM 13.3/R17.8	2-lane, 2-way	800	7,600

Truck traffic on SR 20 within the project limits averages 6.6% of the total AADT.

Recommendations

- On SR 20 a minimum of one paved traffic lane, not less than 11 ft wide, shall be open for use by public traffic with one-way traffic control using flaggers, in accordance with Standard Plan Sheet T13. Lane and shoulder closures will be allowed during daytime hours on weekdays, but may be restricted during peak commute hours.
- When implementing one-way (reversible) traffic control, advance flaggers are recommended in areas where there is inadequate approaching sight distance.
- Delays during reversible traffic control shall not exceed 10 minutes.
- Access to cross streets and driveways shall be maintained during construction.
- Pedestrian and bicycle access must be maintained during construction
- When closure includes an intersection or close enough, flaggers will be deployed to control all legs of the intersection.
- For bridge widening, it is recommended that half width stage construction be utilized during construction along with k-rail.
- When k-rail is used as a separation barrier between the work zone and the traveled way, there is no closure time restriction.
- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days, designated holidays and the day preceding designated holidays, and when construction operations are not actively in progress.
- Work at this location may require the assistance of COZEEP, but a full time COZEEP presence is not anticipated.
- Coordinating with adjacent projects within, or nearby the project limits will be required to avoid conflicts.
- Portable changeable message signs (PCMS) will be required in the direction of traffic during construction for each lane or shoulder closure and must be placed 7 days prior to any closure.
- Specifications, detailed lane closure charts and cost estimate will be developed for the final TMP prior to P&E.

Cost

- For estimating purposes, use $2,500 per working day that requires traffic control, these items include: Traffic Control System, Portable Changeable Message Signs and Maintain Traffic.
- Additionally, COZEEP is estimated at $1,000 per working day and $2,000 per working night whenever CHP involvement is needed during construction operations.
- If there is a change in the scope of the project or the order of work (schedule), please advise the TMP unit so that the data sheet may be revised.

P & E Requirement

To complete a TMP for this project, please provide the following to the Office of Traffic Management Planning at least three months prior to P&E: project description, title sheet, typical cross sections, layout sheets, construction cost estimates, number of working days, project schedule, and a contact person.

List of Attachments:

- TMP Checklist

Attachment G

Right of Way Data Sheet

California State Transportation Agency

RIGHT OF WAY DATASHEET

EA: 0A570
PROJECT NO.: 03 0002 0593
LOCATION: 03-YUB-20-PM 13.3/R17.6
DESCRIPTION: Yuba 20 Shoulder Widening

DATE: 7/7/2017
DATASHEET TYPE: Revision

1. Right of Way Cost Estimate:

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost	$3,184,835	5%	$3,466,047
B. Appraisal Fees Estimate	$90,000	N/A	$90,000
C. Mitigation Acquisition & Credits	$3,312,750	5%	$3,605,256
D. Project Development Permit Fees	$41,500	5%	$45,164
Subtotal	$6,629,085		$7,206,467
E. Utility Relocation (State's Share)	**$180,000**	5%	$195,893
(Owner's Share: $350,000)			
F. Relocation Assistance (RAP)	$375,000	5%	$408,111
G. Clearance/Demolition	$250,000	5%	$272,074
H. Title & Escrow	$57,000	5%	$62,033
I. Total Estimated Right of Way Cost	$7,491,085	**Rounded**	**$8,145,000** *
J. Phase 4 estimated expenses			
Railroad	$0		
Construction Contract Work	$0		

2. Current Date of Project Approval (PA&ED) August 1, 2017

Current Date of Right of Way Certification April 1, 2019

3. Parcel Data:

Type		Dual/Appr
X	0	
A	0	
B	29	
C	3	0
D	3	0
RR	0	
Total	**35**	

Excess 4

Utilities	
U4 - 1	2
- 2	1
- 3	0
- 4	0
U5 - 7	0
- 8	0
- 9	3

Railroad	
C&M Agreement	0
Service Contract	0
Easements	0
Rights of Entry	0
Clauses	0

Areas:	
R/W	39.71 AC
TCE	10.35 AC
Excess	6.86 AC
Mitigation	N/A

Mitigation	
Impacts	1
Parcels	0
Credits	0
Lump Sum	0
Env PTE	75

Misc. R/W Work	
RAP Displacees	5
Clear/Demo	5
PTE Construct	N/A
Condemnation	4
USA Involvement	No

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

It is anticipated that there will be five full acquisitions, along with partial acquisitions from commercial, residential and agricultural properties. TCEs are also anticipated for some of the locations, along with four excess land parcels.

5. **Are any properties acquired for this project expected to be rented, leased, or sold?**

Yes X No _____

Excess land parcels are expected to be sold.

6. **Are RAP displacements required?**

Yes X No _____

No. of single family 5 No. of business/nonprofit 0

No. of multi-family 0 No. of farms 0

Based on Draft/Final Relocation Impact Statement/Study dated January 21, 2016

X Sufficient replacement housing will be available without last resort housing.

_____ Sufficient replacement housing will not be available without last resort housing.

7. **Is there an effect on assessed valuation?**

Yes X No _____ Not Significant _____

Excess land generated form this project will need to be sold.

8. **Are there any items of Construction Contract Work?**

Yes X No _____

Driveway conforms will be required.

9. **Are utility facilities or rights of way affected?**

Yes X No _____

Names of Utility Companies requiring verification only.

None.

Names of Utility Companies requiring involvements.

AT&T, PG&E - Electric, Browns Valley Irrigation District (BVID).

Additional information concerning Utility Involvement on this project.

Based on mapping and information received, potholing money will be added to this estimate due to the nature of the proposed work. Since new right of way is being acquired for the project, several utilities will require involvements. Estimate is based on the assumption of worse case scenario. An updated Datasheet should be requested when further conflicts are identified.

10. **Are railroad facilities or rights of way affected?**

Yes _____ No X Phase 4 Capital **$0**

11. **Are USA Lands or Rights Affected?**

Yes _____ No X Phase 4 Capital **$0**

Agencies Involved:

US Forest Service _____ BLM _____ Army Corps of Engineers _____

National Parks _____ BIA _____ Veterans Administration _____

US Fish & Wildlife _____ GSA _____ _____

Rights or Permissions to acquire:

Easement _____ Special Use Permit _____ Courtesy Letter _____

Right of Way Grant _____ Cooperative Work Agreement _____ Cost Recovery _____

Mineral Agreement _____ Letter of Concurrence _____ Timber Sale _____

There is no USFS involvement.

12. **Is an RE Office required for the project?**

Yes _____ No X

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

Yes _____ None Evident X

14. Are there material borrow and/or disposal sites required?

No __X__ Optional _____ Mandatory _____

15. Are there potential relinquishments and/or abandonments?

Yes __X__ No _____

Existing alignment may be relinquished or abandoned after the realignment is complete.

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

Yes _____ No __X__

17. What type of mitigation is required for the project?

Mitigation is anticipated on this project, and permit fees are estimated. Values were provide by the Project Manager and Environmental Coordinator.

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

Yes __X__ No _____

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

Right of Way Lead Time will require a minimum of **21** months after we receive first appraisal maps, utility conflict maps, necessary environmental clearances and freeway agreements have been approved and obtained. Additionally a minimum of **18** months will be required after receiving the last appraisal map to Right of Way for certification.

20. Assumptions and limiting Conditions: (Check boxes that apply.)

- ☑ Transportation facilities have not been sufficiently designed to determine the damages to any of the remainder parcels affected by the project.
- ☑ Design will secure necessary encroachment permits from local agencies, Reclamation Districts, Central Valley Flood Protection Board, etc. in advance of construction.
- ☑ This estimate is based off of preliminary Environmental information.
- ☑ Utility lead time begins after PA&ED is met and we have received conflict maps.
- ☑ If the contractor requires a staging area, Standard Specifications (Sections 5-1.32) indicates that the contractor will be responsible for securing locations for staging and storage.
- ☑ Easements for relocated utilities are not accounted for in this estimate.
- ☑ Excess land parcels will be generated from this project.

Evaluation Prepared By:

Right of Way: _____ Date _____

HARDEEP PANNU
Associate Right of Way Agent

Recommended: _____ Date _____

DOUGLAS BORTZ
Senior Right of Way Agent
Project Coordination Branch
Marysville

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 to be complete and current.

_____ Date _____

JANEL D. WILSON
Assistant Chief
North Region Right of Way
Marysville

Reviewed By

RW Planning & Management: _____ Date _____

PAUL SLOULIN

Attachment H

FINAL Environmental Document

Attachment I

Cost Estimate

PRELIMINARY
PROJECT COST ESTIMATE

_____ *Cost Estimate*

Project ID:

Type of Estimate :	PA&ED
Program Code :	300020593
Project Limits :	03-YUB-20 (PM 13.3/R17.8)
Description:	This Resurfacing, Restoration, and Rehabilitation (3R) project proposes to rehabilitate State Route (SR) 20 in Yuba County 12 miles east of Marysville from Marysville Road to Yuba River (Parks Bar) Bridge. This project will widen shoulder to standard 8 ft, widen Dry Creek Bridge to accommodate standard shoulder, realign non-standard horizontal curves in the section between Stacey Ann Drive and Sicard Flat Road, and correct vertical curves within the project limits.
Scope :	Pavement rehabilitation, shoulder widening to standard, widen Dry Creek Bridge to standard, Dig-out and repair, seal cracks, horizontal and vertical curve correction for Design Speed= 55 mph, upgrade metal beam guard railing, upgrade dikes, grade fill slope 4:1 or flatter, culvert repair and rehab, rsp, relocate utility within CRZ, and install highway lighting.
Alternative :	Build Alternative with new Dry Creek Bridge (South alignment)

		Current Cost		Escalated Cost
ROADWAY ITEMS	$	30,119,200	$	32,264,440
STRUCTURE ITEMS	$	6,033,000	$	6,208,000
SUBTOTAL CONSTRUCTION COST	$	36,152,200	$	38,472,440
RIGHT OF WAY	$	7,491,085	$	8,145,000
TOTAL CAPITAL OUTLAY COST	$	43,644,000	$	46,618,000
PR/ED SUPPORT	$	-	$	-
PS&E SUPPORT	$	-	$	-
RIGHT OF WAY SUPPORT	$	-	$	-
CONSTRUCTION SUPPORT	$	-	$	-
TOTAL CAPITAL OUTLAY SUPPORT COST*	$	-	$	-
TOTAL PROJECT COST	$	43,650,000	$	46,650,000

If Project has been programmed enter Programmed Amount $ -

Date of Estimate (Month/Year): Month 7 / Year 2017

Estimated Date of Construction Start (Month/Year): / TBD

Number of Working Days: 400 Working Days

Estimated Mid-Point of Construction (Month/Year): Month TBD / Year

Number of Plant Establishment Days: TBD Days

***Estimated** Project Schedule*

PID Approval	4/4/2011
PA/ED Approval	8/1/2017
PS&E	4/1/2018
RTL	5/1/2018
Begin Construction	TBD

Approved by Project Manager

Sutha Suthahar		(530) 741-5408
Project Manager	**Date**	**Phone**

I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	$ 7,084,500
2	Pavement Structural Section	$ 6,012,900
3	Drainage	$ 702,800
4	Specialty Items	$ 920,000
5	Environmental	$ 1,080,000
6	Traffic Items	$ 1,405,000
7	Detours	$ 750,000
8	Minor Items	$ 1,795,600
9	Roadway Mobilization	$ 1,975,100
10	Supplemental Work	$ 1,585,600
11	State Furnished	$ 320,000
12	Contingencies	$ 3,928,600
13	Overhead	$ 2,559,100
	TOTAL ROADWAY ITEMS	**$ 30,119,200**

Estimate Prepared By _____
Name and Title Date Phone

Estimate Reviewed By _____
Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160102	Clearing & Grubbing	LS	1	x	40,000.00	=	$	40,000
170101	Develop Water Supply	LS	1	x	15,000.00	=	$	15,000
190101	Roadway Excavation	CY	130,500	x	35.00	=	$	4,567,500
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190160	Rock Excavation (Controlled Blasting)	CY	87,000	x	20.00	=	$	1,740,000
190161	Rock Excavation	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198010	Imported Borrow	CY	27,000	x	20.00	=	$	540,000
190185	Shoulder Backing	TON	5,200	x	35.00	=	$	182,000
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS	$	7,084,500

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
398300	Remove Base and Surfacing	CY	9,500	x	15.00	=	$	142,500
398200	**Cold Plane Asphalt Concrete Pavement**	SQYD	39,600	x	4.00	=	$	158,400
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260203	**Class 2 Aggregate Base**	CY	38,000	x	45.00	=	$	1,710,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
390011	Prepaving Inertial Profiler	LS	1	x	6,000.00	=	$	6,000
390020	Prepaving Grinding Day	EA	15	x	9,000.00	=	$	135,000
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	**Hot Mix Asphalt (Type A)**	TON	9,000	x	95.00	=	$	855,000
390136	Minor Hot Mix Asphalt	TON	10	x		=	$	-
39013X	**Rubberized Hot Mix Asphalt (Open Graded)**	TON	10,400	x	110.00	=	$	1,144,000
390137	**Rubberized Hot Mix Asphalt (Gap**	TON	13,000	x	105.00	=	$	1,365,000
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
394073	**Place Hot Mix Asphalt Dike**	LF	14,000	x	3.00	=	$	42,000
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	**Tack Coat**	TON	650	x	700.00	=	$	455,000
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strengtl	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS	$	6,012,900

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
510090	Structural Concrete, Box Culvert	CY	110	x	1,000.00	=	$	110,000
510092	Structural Concrete, Headwall	CY	20	x	1,000.00	=	$	20,000
510094	Structural Concrete, Drainage Inlet	CY	22	x	1,850.00	=	$	40,700
610103	12" Alternative Pipe Culvert	LF	26	x	150.00	=	$	3,900
610108	18" Alternative Pipe Culvert	LF	1,280	x	90.00	=	$	115,200
610112	24" Alternative Pipe Culvert	LF	780	x	100.00	=	$	78,000
610117	30" Alternative Pipe Culvert	LF	560	x	130.00	=	$	72,800
610121	36" Alternative Pipe Culvert	LF	210	x	170.00	=	$	35,700
610125	42" Alternative Pipe Culvert	LF	110	x	175.00	=	$	19,250
610128	48" Alternative Pipe Culvert	LF	75	x	220.00	=	$	16,500
705307	12" Alternative Flared End Section	EA	2	x	400.00	=	$	800
705311	18" Alternative Flared End Section	EA	26	x	450.00	=	$	11,700
705315	24" Alternative Flared End Section	EA	12	x	500.00	=	$	6,000
705319	30" Alternative Flared End Section	EA	6	x	800.00	=	$	4,800
705321	36" Alternative Flared End Section	EA	2	x	1,200.00	=	$	2,400
705323	42" Alternative Flared End Section	EA	2	x	1,300.00	=	$	2,600
705325	48" Alternative Flared End Section	EA	1	x	1,500.00	=	$	1,500
710366	Concrete Invert Paving	CY	40	x	800.00	=	$	32,000
710132	Remove Culvert	LF	840	x	30.00	=	$	25,200
710150	Remove Inlet	EA	2	x	800.00	=	$	1,600
710152	Remove Headwall	EA	2	x	1,200.00	=	$	2,400
721017	Rock Slope Protection (Facing, Method B)	CY	400	x	180.00	=	$	72,000
729011	Rock Slope Protection Fabric (Class 8)	SQYD	970	x	10.00	=	$	9,700
750001	Miscellaneous Iron and Steel	LB	7,200	x	2.50	=	$	18,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	702,800

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
080050	Progress Schedule (Critical Path Method)	LS	1	x	20,000.00	=	$	20,000
141120	Treated Wood Waste	LB	12,000	x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
70030	Lead Compliance Plan	LS	1	x	10,000.00	=	$	10,000
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
839752	Remove Guardrail	LF	1,400	x	10.00	=	$	14,000
800001	Fence (*Type BW, Metal Post*)	LF	20,000	x	15.00	=	$	300,000
832005	Midwest Guardrail System	LF	2,000	x	50.00	=	$	100,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF	50	x	120.00	=	$	6,000
839543	Transition Railing *(Type WB-31)*	EA	4	x		=	$	-
839566	Terminal System (Type CAT)	EA		x		=	$	-
839585	Alternative Flared Terminal System	EA	8	x	2,500.00	=	$	20,000
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Wildlife Crossing	LS	1	x	450,000	=	$	450,000
XXXXXX	Some Item	LS		x		=	$	-

TOTAL SPECIALTY ITEMS	$	920,000

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS		x		=	$	-
071325	TEMPORARY REINFORCED SILT FENCE	LF		x		=	$	-
160110	Temporary High-Visibility Fence	LF	10,000	x	8.00	=	$	80,000

Subtotal Environmental $ *80,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
20XXXX	Highway Planting	LS	1	x	400,000.00	=	$	400,000
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS	1	x	25,000.00	=	$	25,000
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Landscape and Irrigation $ *425,000*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS	1	x	20,000.00	=	$	20,000
130200	Prepare WPCP	LS		x		=	$	-
130300	Prepare SWPPP	LS	1	x	10,000.00	=	$	10,000
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Contı	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Some Item (Temporary BMPs)	LS	1	x	450,000.00	=	$	450,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	50,000.00	=	$	50,000
066596	Additional Water Pollution Control**	LS	1	x	20,000.00	=	$	20,000
066597	Storm Water Sampling and Analysis***	LS	1	x	20,000.00	=	$	20,000
066916	Annual Construction General Permit Fee	LS	1	x	5,000.00	=	$	5,000
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) $ *575,000*

*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.

TOTAL ENVIRONMENTAL $ 1,080,000

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	30,000.00	=	$	30,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS	1	x	200,000.00	=	$	200,000
XXXXX	Radar Speed Feedback Sign	LS	1	x	15,000.00	=	$	15,000

Subtotal Traffic Electrical $ 245,000

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
141103	Remove Yellow Thermoplastic Traffic Stripe (	LF	22,000	x	0.50	=	$	11,000
846020	Remove Painted Traffic Stripe	LF	56,300	x	0.50	=	$	28,150
846025	Remove Painted Pavement Marking	SQFT	500	x	1.00	=	$	500
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	175,000.00	=	$	175,000
XXXXX	Some Items (Roadside Sign)	LS	1	x	75,000.00	=	$	75,000

Subtotal Traffic Signing and Striping $ 339,650

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	500,000.00	=	$	500,000
120120	Type III Barricade	EA	20	x	100.00	=	$	2,000
120159	Temporary Traffic Stripe (Paint)	LF	89,221	x	1.00	=	$	89,221
120182	Portable Delineator	EA	770	x	30.00	=	$	23,100
128650	Portable Changeable Message Signs	LS	1	x	70,000.00	=	$	70,000
129000	Temporary Railing (Type K)	LF	6,600	x	20.00	=	$	132,000
129100	Temp. Crash Cushion Module	EA		x		=	$	-
120129	Traffic Plastic Drum	EA		x		=	$	-
129100A	Temporary Crash Cushion (ADIEM)	EA	4	x	1,000.00	=	$	4,000
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling $ 820,321

TOTAL TRAFFIC ITEMS $ 1,405,000

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$	-
07XXXX	Temporary Drainage	LS		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
1286XX	Temporary Signals	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198050	Embankment	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
XXXXXX	Some Item (Temporary Detour Roadway)	LS	1	x	750,000.00	=	$	750,000

TOTAL DETOURS	**$**	**750,000**
SUBTOTAL SECTIONS 1-7	$	17,955,200

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items						
ADA Items				0.0%	$	-
8B - Bike Path Items						
Bike Path Items				0.0%	$	-
8C - Other Minor Items						
Other Minor Items				0.0%	$	-
Total of Section 1-7	$	17,955,200	x	10.0%	= $	1,795,520

TOTAL MINOR ITEMS	**$**	**1,795,600**

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	19,750,800	x	10%	= $	1,975,080

TOTAL MOBILIZATION	**$**	**1,975,100**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS	1	x	8,000.00	=	$	8,000
066063	**Traffic Management Plan - Public Inform**	LS	1	x	10,000.00	=	$	10,000
066090	**Maintain Traffic**	LS	1	x	225,000.00	=	$	225,000
066094	**Value Analysis**	LS	1	x	20,000.00	=	$	20,000
066204	Remove Rock & Debris	LS		x		=	$	-
066222	Locate Existing Cross-Over	LS		x		=	$	-
066670	**Payment Adjustments For Price Index Fl**	LS	1	x	200,000.00	=	$	200,000
066700	Partnering	LS		x	50,000.00	=	$	-
066866	Operation of Existing Traffic Management S	LS		x		=	$	-
066920	**Dispute Review Board**	LS	1	x	15,000.00	=	$	15,000
XXXXXX	Some Item			x		=	$	-
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$	515,000
	Total Section 1-8	$	19,750,800		3%	= $		592,524

TOTAL SUPPLEMENTAL WORK	**$**	**1,585,600**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	20,000.00	=	$20,000
066105	**RE Office**	LS	1	x	150,000.00	=	$150,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	**Water Expenses**	LS	1	x	50,000.00	=	$50,000
066062A	**COZEEP Expenses**	LS	1	x	100,000.00	=	$100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	19,750,800	0%	= $	-

TOTAL STATE FURNISHED	**$320,000**

SECTION 12: TIME-RELATED OVERHEAD

Estimated Time-Releated Overhead (TRO) Percentage (0% to 10%) = 10%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	400	X	6397.75	=	$2,559,100

TOTAL TIME-RELATED OVERHEAD	**$2,559,100**

SECTION 13: CONTINGENCY

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

Total Section 1-11	$	26,190,600	x	15%	=	$3,928,590

TOTAL CONTINGENCY	**$3,928,600**

II. STRUCTURE ITEMS

Bridge 1 (Total)

DATE OF ESTIMATE	04/14/16	00/00/00	00/00/00
Bridge Name	Dry Creek Bridge (New)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	16-0010	57-XXX	57-XXX
Structure Type	CIP Prestressed Concrete Box	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	64.33 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	338.33 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	21765 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	5.50 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	Abut=Spread, Pier=Pile	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$268.32	$0.00	$0.00

COST OF EACH STRUCTURE	**$5,840,000.00**	**$0.00**	**$0.00**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0.00	$0.00	$0.00

COST OF EACH STRUCTURE	**$0.00**	**$0.00**	**$0.00**

TOTAL COST OF BRIDGES	**$5,840,000.00**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1]	**$5,840,000.00**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, ..., etc

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,	$	3,316,335
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	3,312,750
C)	C1)	Utility Relocation (State Share)	$	0
	C2)	Potholing (Design Phase)	$	0
D)		Railroad Acquisition	$	0
E)		Clearance / Demolition	$	250,000
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	375,000
G)		Title and Escrow	$	57,000
H)		Environmental Review	$	0
I)		Condemnation Settlements 0% (Items G & H applied to items A + B)	$	0
J)		Design Appreciation Factor 0%	$	0
K)		Utility Relocation (Construction Cost)	$	180,000
L)		**TOTAL RIGHT OF WAY ESTIMATE**		**$7,491,085**

(Excluding Item #8 - Hazardous Waste)

M)	**TOTAL R/W ESTIMATE:**	**Escalated**	**$8,145,000**

N)	**Right of Way Support**	$	0

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] _____ Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ -	0.00%
PS&E (PS)											$ -	0.00%
R/W (RW)											$ -	0.00%
CONSTRUCTION (CM)											$ -	0.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ -**	0.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$43,644,000**
Total Capital Outlay Support Cost:	**$0**
Overall Percent Support Cost:	**0.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	7	/	2017
Estimated Date of Construction Start (Month/Year)	0	/	TBD
Number of Working Days	400	WD	
Estimated Mid-Point of Construction (Month/Year)	0	/	TBD

YEAR	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	FUTURE
FORECASTED ESCALATION	0.0%	3.5%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

ESCALATED CONSTRUCTION COSTS	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	FUTURE	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 30,119,200	$ 31,173,372	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440	$ 32,264,440
STRUCTURE ITEMS	$ 6,066,000	$ 6,208,000	$ 6,400,000	$ 6,592,000	$ 6,763,000	$ 6,763,000	$ 6,763,000	$ 6,763,000	$ 6,763,000	$ 6,763,000	$ 6,763,000	$ 6,763,000
SUBTOTAL	$ 36,185,200	$ 37,381,372	$ 38,664,440	$ 38,856,440	$ 39,027,440	$ 39,027,440	$ 39,027,440	$ 39,027,440	$ 39,027,440	$ 39,027,440	$ 39,027,440	**$ 39,027,440**

Approved by: _____ Project Control Engineer

_____ Date

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: **JALWAT AHMAD**
Task Order Manager
Office of Marysville Design
DISTRICT 3

Date: August 22, 2016

File: 03-Yub-20-PM 13.90
Dist-EA: 03-0A570
Project ID: 03 0002 0593
Dry Creek Bridge (Replace)
Br No. 16-0053

From: **JEFF SIMS**
Branch Chief
Office of Bridge Design North - Branch 1
Division of Engineering Services
MS 9-4/8I

Subject: General Plan Distribution

Attached for your review and comment is one copy of the reduced General Plans for the above referenced project.

The estimated structure cost, including time related overhead, mobilization and contingencies, is as follows:

Structure Name	Br. No.	Estimated Cost
Dry Creek Bridge (Replace)	16-0053	$5,840,000

The following table summarizes the projected total structure cost:

Year	Escalation Rate	Escalated Cost
2017	3.30%	$6,033,000
2018	2.90%	$6,208,000
2019	3.10%	$6,400,000
2020	3.00%	$6,592,000
2021	2.60%	$6,763,000

The escalated structure cost is provided for informational purposes only and does not replace annual cost updates as required by Department policy.

The General Plan and associated cost estimate for new structure and removal of the existing bridge were based on the following assumptions:

1. Construction within the limits defined as "Dry Creek waterway" will only take place between June 1 and October 31. Please refer to attached working day estimate.
2. The cost of the Temporary Railing Type K and traffic control is not included in the structure estimate.
3. The structure estimate includes $666,000 risk range for assumed abutment foundations. Final foundation type will be determined after foundation investigations have been completed and risk eliminated.

PLEASE FORWARD A COPY OF THE GENERAL PLANS TO ANY INTERESTED FUNCTIONAL UNIT IN THE DISTRICT.

If you have any questions or if you need additional information regarding this memo, please contact Daniel Sessions (916) 227-5663 or myself at (916) 227-8497.

c: Laura Luce, Status & Tracking Branch
Roy Galarpe, Branch Chief, Structure Office Engineer Cost Estimating
Craig Whitten, Branch Chief, Structure Office Engineer Specifications
Gudmund Setberg, Bridge Design Office Chief
Sutha Suthahar, District Project Manager
Aaron Daniels, District Project Engineer
Robert Polgar, District Task Order Manager
Quincy Wong, Branch Chief, Bridge Architecture & Aesthetics
David Fowkes, Bridge Architecture & Aesthetics
John Babcock, Structure Construction Assistant Deputy Division Chief
Tony English, Structure Construction
Hernan Perez, Preliminary Investigations Branch Chief
Abbas Abghari, Branch Chief, Geotechnical Services
Abubakarr Barrie, Geotechnical Services
Joel Magana, Branch Chief, Structure Hydraulics & Hydrology
Genaro Doria, Structure Hydraulics & Hydrology
Nancy Bruton, Program Advisor, Structure Maintenance & Investigations
Erol Kaslan, Office Chief, Structure Maintenance & Investigations
Mark Rayback, Wood Rogers Consultant Project Senior
Sandy Wong, Wood Rogers Consultant Project Engineer
Steven Robinson, Wood Rogers Consultant Project Engineer

Attachment J

Storm Water Data Sheet

(Signed Cover Sheet)

APPENDIX E — Long Form - Storm Water Data Report

Dist-County-Route: 03-Yuba-20
Post Mile Limits: 13.3/R17.8
Project Type: Resurfacing, Restoration, and Rehabilitation (3R)
Project ID (or EA): 0300029593 (EA 03-0A5700)
Program Identification: 2016 SHOPP
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): Central Valley

Is the Project required to consider Treatment BMPs? Yes ☒ No ☐
If yes, can Treatment BMPs be incorporated into the project? Yes ☒ No ☐
If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to the projects RTL date. List RTL Date:

Total Disturbed Soil Area: 52.2 acres Risk Level: 3
Estimated: Construction Start Date: June 2018 Construction Completion Date: September 2021
Notification of Construction (NOC) Date to be submitted: April 2018

Erosivity Waiver	Yes ☐	Date:	No ☒
Notification of ADL reuse (if Yes, provide date)	Yes ☒	Date:	No ☐
Separate Dewatering Permit (if yes, permit number)	Yes ☐	Permit #	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.

Allan Laca, Registered Project Engineer/Landscape Architect — 5/16/2016 Date

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

Nadarajah Suthahar, Project Manager — 5/23/2016 Date

Brian Toepfer, Designated Maintenance Representative — 5/23/16 Date

Jeff Pietrzak, Designated Landscape Architect Representative — 5/25/16 Date

(Stamp Required for PS&E only) *Wes Faubel, District/Regional Design SW Coordinator or Designee* — 6/2/16 Date

Attachment K

Programming Sheet

PROGRAMMING SHEET

07/13/2017

EFIS ID: 0300020593 EA:03-0A570 County: YUB Route: 020 PostMile: 13.30/R17.60

Project Manager: BARRIGA, FERMIN B PM Assistant: TAKHER, MUNDEEP K Project Nickname: Browns Valley Rehab
Project Description - Long: ABOUT 12 MILES EAST OF MARYSVILLE FROM MARYSVILLE ROAD TO YUBA RIVER BRIDGE 16-11
Work Description - Long: Shoulder Widening
PPNO: 9579 Program: shopp RTP: No Funding Candidate: No PROGRAM YR: 2019 Working Days: 320
Open for Time: Yes Subprogram: Roadway Rehabilitation CT Status: APL RMP: RMP Date:
10 Yr SHOPP: No AADD: Yes Dist Category: SHOPP MAJOR FED Aid Eligible: PE Only (G13)

MS	MS Description	MS Date	
M000	ID NEED	01/10/2011	(A)
M010	APPROVE PID	04/04/2011	(A)
M015	PROG PROJ	12/09/2014	(A)
M020	BEGIN ENVIRO	02/19/2015	(A)
M040	BEGIN PROJ	01/11/2015	(A)
M120	CIRC DPR & DED EXT	05/17/2017	(A)
M200	PA & ED	08/01/2017	(T)
M221	RECEIVE COMPLETE BRIDGI	11/30/2015	(A)
M224	R/W REQTS	11/13/2015	(A)
M225	REGULAR R/W	06/27/2016	(A)
M265	FINAL R/W REQTS	04/01/2017	(T)
M275	GENERAL PLANS	08/22/2016	(A)
M310	DESIGN SAFETY REVIEW	12/01/2017	(T)
M315	95% CONST REVIEW COMPL	02/15/2018	(T)
M377	PS&E TO DOE	01/15/2018	(T)
M378	DRAFT STRUC PS&E	12/01/2017	(T)
M380	PROJ PS&E	04/01/2018	(T)
M410	R/W CERT	04/01/2019	(T)
M460	RTL	04/15/2019	(T)
M470	FUND ALLOCATION	07/15/2019	(T)
M480	HQ ADVERT	08/31/2019	(T)
M490	BIDS OPEN	10/31/2019	(T)
M495	AWARD	11/30/2019	(T)
M500	APPROVE CONTRACT	12/29/2019	(T)
M600	CONTRACT ACCEPT	12/01/2021	(T)
M700	FINAL REPORT	12/01/2022	(T)
M800	END PROJ EXP	12/01/2023	(T)
M900	FINAL PROJ CLOSEOUT	09/01/2026	(T)

Capital Cost Estimates

	Amount $k	EST Date
Roadway	28,831	05/12/17
Structures	5,482	05/12/17
Const Total	34,313	
ROW	8,145	05/12/17
Total	42,458	

Env Doc: IS, CE (NEPA),

Funding Info ($k)

Fund Source	PA&ED	PS&E	ROW	CON	ROW Cap	CON CAP
2010201.120	**3,700**	**2,210**	**2,300**	**0**	**0**	**0**
2020201.120	**0**	**0**	**0**	**0**	**6,800**	**0**
Grand Total:	**3,700**	**2,210**	**2,300**	**0**	**6,800**	**0**

Capital Cost Estimates

	2019
CC Escalation %:	4.20%
CC Escalated $:	35,754
ROW CAPITAL:	8,145
TOTAL:	43,899

PROJECT SUPPORT COSTS

Phase / Escalation Rate	PRIOR ACT $	2018 FTC	2019 (3.00%)	2020 (3.00%)	2021 (3.00%)	2022 (3.00%)	Future (3.00%)	Total	Sup/Cap
0	**3,508**	**761**	**0**	**0**	**0**	**0**	**0**	4,269	9.72%
1	**1,068**	**1,455**	**223**	**0**	**0**	**0**	**0**	2,746	6.25%
2	**537**	**675**	**589**	**98**	**101**	**104**	**311**	2,416	5.50%
3	**0**	**0**	**1,097**	**2,475**	**2,538**	**1,543**	**411**	8,066	18.37%
						TOTAL SUPPORT COSTS:		17,497	39.86%
						TOTAL PROJECT COSTS:		61,396	

PROJECT SUPPORT PYs

	Division	PRIOR ACT PYs	2018 FTC PYs	2019 FTC PYs	2020 FTC PYs	2021 FTC PYs	2022 FTC PYs	Future FTC PYs	Total PYs
		0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.23
	TOTALS:	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.23
03	ESR	0.47	0.04	0.00	0.00	0.00	0.00	0.00	0.51
03	ADMN	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05
03	CONS	0.10	0.06	3.15	6.83	6.81	4.36	1.09	22.39
03	ENVM	1.70	1.50	0.00	0.00	0.00	0.00	0.00	3.20
03	ESRV	0.35	0.79	0.13	0.02	0.02	0.02	0.01	1.34
03	MTCE	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
03	PPM	0.67	1.40	0.45	0.29	0.29	0.29	0.44	3.84
03	PRJD	2.01	0.82	0.02	0.02	0.02	0.01	0.00	2.91
03	RWLS	1.93	2.43	1.98	0.33	0.33	0.33	1.09	8.42
03	SURV	3.78	1.79	1.43	1.30	1.29	0.62	0.31	10.52
03	TO41	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15
03	TO5	5.59	0.17	0.14	0.00	0.00	0.00	0.00	5.90
03	TO8	0.00	1.36	0.02	0.00	0.00	0.00	0.00	1.37
03	TROP	0.45	0.24	0.05	0.09	0.09	0.04	0.00	0.95
03	**TOTALS:**	17.24	10.64	7.37	8.88	8.86	5.67	2.94	61.59
59	GS	2.25	0.12	0.04	0.09	0.09	0.04	0.01	2.63
59	METS	0.02	0.04	0.09	0.20	0.20	0.09	0.01	0.65
59	OE	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.18
59	PPM	0.06	0.05	0.01	0.00	0.00	0.00	0.00	0.12
59	SCON	0.03	0.05	0.55	1.21	1.21	0.55	0.04	3.64
59	SDSN	1.21	2.08	0.14	0.04	0.04	0.02	0.01	3.54
59	SP&I	0.24	0.24	0.02	0.02	0.02	0.01	0.00	0.56

EFIS ID: 0300020593 EA:03-0A570 County: YUB Route: 020 PostMile: 13.30/R17.60

	Division	PRIOR ACT PYs	2018 FTC PYs	2019 FTC PYs	2020 FTC PYs	2021 FTC PYs	2022 FTC PYs	Future FTC PYs	Total PYs
59	**TOTALS:**	3.81	2.58	1.03	1.56	1.56	0.71	0.07	11.32
PROJECT TOTALS:		**21.27**	**13.22**	**8.40**	**10.44**	**10.41**	**6.39**	**3.00**	**73.14**

Comments:

Attachment L

Risk Management Registrar

EA 03-0A570 03-0A570 YUB 20 Shoulder Widening - ACTIVE RISK REGISTER

Risk 002 Cultural Resource Impacts RBS: Environmental Owner: Kristen Stubblefield Updated: 6-20-2016

Description: As a result of cultural resources known in the area, delays to the schedule may occur. Based on previous projects within this project locations, cultural resources were identified and phase 2 testing required.

Status: 5 known Cultural resources have been identified across 6 parcels; working with CT design on avoidance measures; 3 Court PTEs assumption to test - proceeding with declarations on that assumption; High probability of phase two testing on at least 2 of the surveyed sites.

Response Options: Identified cultural resources such as Native American shall be avoided. Explore revising design to avoid these resource locations and protect with ESA fencing

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	60%	$ 4,490,000	$ 580,000	0 Days	0 Days
Most Likely					
Pessimistic	100%	$ 8,980,000	$ 1,160,000	0 Days	0 Days

Assessment Notes: Based on known resources, 2nd phase testing will be required on this project - exact number of sites that need testing is still underway; this will impact schedule

Risk 003 Right of Way Certification RBS: R/W Owner: Poppea Darling Updated: 1-25-2017

Description: Lead time requested in December 2015 estimate is 31 months from delivery of first appraisal map to RW Certification. RW Certification is at risk due to number/complexity of parcels and insufficient lead time for condemnation. Appraisal maps were delayed until January 2017 due to Value Analysis Study which reduces lead time to 16 months. Condemnation can only be initiated after PA&ED of 8/1/17.

Status: PA&ED has been moved out to 8/1/17 due to cultural resource studies. Early acquisition request submitted to HQ RW on 6/9/16. Early acquisition assumes no condemnation as we cannot start condemnation until after PA&ED.

Response Options: Request early acquisition and deliver appraisal maps early.

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	60%	$ 3,100,000	$ 0	0 Days	0 Days
Most Likely					
Pessimistic	100%	$ 6,200,000	$ 0	0 Days	0 Days

Assessment Notes:

Risk 007 Re-work due to advancing the design was in advance of the environme RBS: Design Owner: Robert Polgar Updated: 6-15-2016

Description: Typically the design is not as far along as the environmental process. The design and environmental progress is typically very close to each other. But for this project, Design is progress is way ahead of the environmental process. As a result of design being way ahead of environmental, there may be some re-work as a result of the environmental process findings. For instance, the environmental could find native American sites within the proposed alignment which could trigger re-work for the GAD, DIB 78, and other tasks that have already been approved.

Status: Avoidance

Response Options: To avoid re-work utility easements, TCEs, and access roads should be considered during PA&ED and included in the study limits.

Coordinate closely with the environmental sub-consultant once Caltrans gets them onboard for this project. Work closely with them for identify environmental constraints.

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	20%	$ 3,100,000			
Most Likely					
Pessimistic	39%	$ 6,200,000			

Assessment Notes:

Risk 008 Brown Valley Irrigation District (BVID) Recapture Project RBS: Design Owner: N. Sutha Suthahar Updated: 6-15-2016

Description: BVID has a recapture project at the west end of Dry Creek Bridge in the Yuba County Park that could conflict with the realignment of SR 20. Based on discuss with BVID the design for the future water recapture project is complete but BVID does not have construction funding identified. Construction funding has not been identified.

Status: Mitigation.

If impacts, assume BVID improvement will require redesign. Redesign will be paid by Caltrans.

Based on schedule, this project will be constructed in advanced of BVID recapture project.

Response Options: CT PM coordinate with BVID and Yuba County on their proposed project. Coordinate with these agency and develop a mitigation plan.

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	40%	$ 449,000	$ 755,000	0 Days	0 Days
Most Likely					
Pessimistic	59%	$ 2,245,000	$ 1,510,000	0 Days	0 Days

Assessment Notes:

Risk 009 Utility Easement Requirements RBS: R/W Owner: Poppea Darling Updated: 1-25-2017

Description: Utility easements may be required. Locations have not been determined yet.

Status: Conflict maps have been submitted to PG&E as of 1/20/17 with response requested by 3/31/17. Still need conflict maps for Browns Valley Irrigation District and AT&T.

Response Options: Relocation plans to be completed by April 2017. RWE to map easements by May 2017.

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	20%	$ 310,000	$ 151,000	0 Days	0 Days
Most Likely					
Pessimistic	39%	$ 1,550,000	$ 755,000	0 Days	0 Days

Assessment Notes:

Risk 010 Cultural Phase II testing may be required RBS: EnvironmentalOwner: Kristen Stubblefield Updated: 3-13-2017

Description: Based on the outcome of the cultural study, this project may require Cultural Phase II. This will impact the project schedule. Based on past history, there are 12 resources within the right of way.

Status:

Response Options: Early identification of any potential Cultural phase II. The project should complete Cultural Phase I to identify any potential Cultural Phase II resources.

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	40%	$ 449,000	$ 755,000	0 Days	0 Days
Most Likely					
Pessimistic	59%	$ 2,245,000	$ 1,510,000	0 Days	0 Days

Assessment Notes:

Risk 011 Env RBS: EnvironmentalOwner: Kristen Stubblefield Updated: 3-13-2017

Description: As a result of [definite cause], [uncertain event] may occur, which would lead to [effect on objective(s)].

Status:

Response Options:

Impacts:

		Costs (dollars)		Delays (days)	
	Probability	Capital	Support	Development	Construction
Optimistic	%				
Most Likely					
Pessimistic	%				

Assessment Notes:

Attachment M

Landscape Architecture Assessment Sheet

NORTH REGION
PRE - LANDSCAPE ARCHITECTURE ASSESSMENT SHEET (OVERSIGHT)
03-LAND-0002 (Rev. x/xx)

TO: Sandy Wong **FROM:** Dan Brewer **Unit/Senior:** Jeff Pietrzak **Project Manager:** Sutha Suthahar	**DISTRICT:** 03 **DATE:** 11/06/15 **EA:** 03-0A5700 **EFIS:** 0300020593	**CO:** Yuba	**RTE:** 20	**PM:** 13.3/R17.8

CONTRACT SEPARATION: TBD

☐ Roadside work as part of roadway work EA

☐ Roadside work for roadway project to follow under separate EA

PROJECT: Yuba 20 3R, Bridge Widening, & Realignment

FUNDING SOURCE: SHOPP

PROJECT MILESTONE: ☐ PID ☒ PA&ED ☐ PS&E

PROJECT COST (In thousands):

DISTRICT (x1000) $23,420 **STRUCTURES (x1000)** $3,550

PROJECT DESCRIPTION

This Resurfacing, Restoration, and Rehabilitation (3R) project proposes to rehabilitate State Route (SR) 20 in Yuba County 12 miles east of Marysville from Marysville Road to Yuba River (Parks Bar) Bridge. Proposed work includes widening shoulders to the 8 feet standard, widening Dry Creek Bridge to accommodate standard shoulder, realigning non-standard horizontal curves in the section between Stacey Ann Drive and Sicard Flat Road, and correcting vertical curves within the project limits.

Work tasks will include digging-out and repairing, sealing cracks, horizontal and vertical curve correction for a design speed of 55 mph, upgrading metal beam guard railing, upgrading dikes, grading fill slopes to 4:1 or flatter, culvert repairs and rehabilitation, installing RSP, relocating utilities within the CRZ, and installing highway lighting.

Please note that this document is a Pre - LAAS and is intended to communication Caltrans priorities for Landscape Architectural issues on this project. The primary goal of this Pre-LAAS is to provide the 0-phase consultant, Wood Rodgers, with the Caltrans LAAS document format and enough project background and Landscape Architecture Program policy, standard, and strategy information to complete a full LAAS document. That document, must include preliminary design plans that indicate the locations of, materials proposed, and material quantities for permanent erosion control measures, restoration and mitigation planting (with temporary and/or permanent irrigation as required) measures, roadside safety measures (as required), roadside vegetation management treatments measures, context sensitivity measures, and aesthetic treatment measures as well as cost estimates for these items.

Wood Rodgers will need to provide preliminary design plan sheets in a .dgn format that include:

- permanent erosion control strategies for cut slope locations,
- permanent erosion control strategies for fill slope locations,
- landscape restoration and planting strategies for the obliterated segments of the existing highway, and
- context sensitive/architectural treatments for the bridge and any other structural elements.

As determined by the PDT through the PAED process, Wood Rodgers may need to provide additional preliminary strategies in the same format to address the following:

- biological revegetation and
- visual impact mitigation.

SCENIC HIGHWAY STATUS ☐ Officially Designated ☐ Eligible ☒ Not Designated

HIGHWAY PLANTING/IRRIGATION BACKGROUND INFORMATION

LANDSCAPE FREEWAY STATUS	☐ Yes	☒ No	
WARRANTED HIGHWAY PLANTING	☐ Yes	☒ No	
(E) H2O & POWER AVAILABLE	☐ Yes	☒ No	Where: _____
(E) IRRIGATION IMPACTED	☐ Yes	☒ No	Where: _____
COOP. MAINT. AGREEMENTS	☐ Yes	☒ No	
ADJ. TO OUTDOOR ADVERTISING	☐ Yes	☒ No	

AREA (Ft^2/ACRE) FOR HIGHWAY PLANTING: To be determined by PAED consultant Wood Rodgers.

NORTH REGION
PRE - LANDSCAPE ARCHITECTURE ASSESSMENT SHEET (OVERSIGHT)
03-LAND-0002 (Rev. x/xx)

EROSION CONTROL BACKGROUND INFORMATION

SOIL DISTURBANCE	☒ Yes	☐ No
CONCENTRATED FLOW AREAS	☒ Yes	☐ No
SLOPE LOCATIONS	☒ Yes	☐ No
SLOPES > 2:1	☒ Yes	☐ No

AREA (Ft^2/ACRE) FOR EROSION CONTROL: To be determined by PAED consultant Wood Rodgers.

MITIGATION BACKGROUND INFORMATION

PROJECT BIOLOGIST		Contact Date: TBD
BIOLOGICAL REVEG. REQUIRED	☐Yes ☐No ☒TBD	Applicable Permits: TBD
VISUAL IMPACT MIT. REQUIRED	☐Yes ☐No ☒TBD	
UNIT TASKED w/ BIO. REVEG.	☐ Landscape Architecture ☐ Stewardship	

PLANT COUNT FOR MITIGATION PLANTING: To be determined by the A&E environmental document consultant.

ROADSIDE MAINTENANCE SAFETY NEEDS: TBD

- ☐ Paving of Extended Gore Areas
- ☐ Paving of Maintenance Vehicle Pullouts (MVPs)
- ☐ Paving of Narrow Areas
- ☐ Other _____

http://www.dot.ca.gov/hq/LandArch/policy/pdf/design_for_safety.pdf

ROADSIDE VEGETATION MANAGEMENT TREATMENT NEEDS

- ☒ Under New Guardrail Locations and Signs:
- ☒ Around New Sign Locations

CONTEXT SENSITIVITY

- ☒ It is determined that the project may involve consideration of community and local involvement. This includes modifications to the bridge (such as bridge railing) over Dry Creek near Yuba County's Hammon Grove Park. Wood Rodgers has contacted the Public Works Director for the County.
- ☐ No foreseen issues with community and local involvement

http://www.dot.ca.gov/hq/oppd/context/index.htm

CONSIDER ADDITIONAL AESTHETIC TREATMENT FOR:

- ☐ Sound Wall
- ☒ Retaining Wall - retaining walls may be required to reduce right of way needs, but are not yet identified.
- ☒ Bridge Structure - as described in CONTEXT SENSITIVITY
- ☐ Other _____

NORTH REGION
PRE - LANDSCAPE ARCHITECTURE ASSESSMENT SHEET (OVERSIGHT)
03-LAND-0002 (Rev. x/xx)

HIGHWAY PLANTING COST INFORMATION:

☐ Highway Planting	$
☐ Irrigation	$
☐ _____-year Plant Establishment	$
☐ Inert Materials	$_____
HIGHWAY PLANTING SUBTOTAL	**$ TBD - not anticipated at this time.**

EROSION CONTROL COST INFORMATION:

☒ Soil Stabilization (BFM, Hydroseed, Compost, etc.)	$
☒ Sediment Control (RECP, Fiber Rolls, etc.)	$
☒ Soil Building (Incorporate Materials, Duff, etc.)	$
☒ Steep Slope (Wire Blanket, Cellular Confinement, etc.)	$_____
EROSION CONTROL SUBTOTAL	**$ TBD**

MITIGATION PLANTING COST INFORMATION:

☒ Landscape Architecture Tasked Biological Reveg.	$
☒ Visual Impact Mitigation Planting	$_____
MITIGATION SUBTOTAL	**$ TBD**

ROADSIDE MAINTENANCE SAFETY COST INFORMATION:

☒ Paving	$_____
SAFETY SUBTOTAL	**$ TBD**

ROADSIDE VEGETATION MANAGEMENT TREATMENT COST INFORMATION:

☒ Guard Rail	$
☒ Signs	$_____
VEGETATION SUBTOTAL	**$ TBD**

AESTHETIC COST INFORMATION:

☒ Retaining Wall	$
☒ Bridge Structure	$_____
AESTHETIC SUBTOTAL	**$ TBD**
TOTAL	**$ TBD**

NOT DESCRIBED IN LAAS ESTIMATE

1) Tree removal costs associated with "Clearing and Grubbing".
2) Temporary erosion control/ water pollution control.
3) Contour grading/benching/surface roughening.

NORTH REGION
PRE - LANDSCAPE ARCHITECTURE ASSESSMENT SHEET (OVERSIGHT)
03-LAND-0002 (Rev. x/xx)

PREPARED BY: _____ DATE: 11/10/15

CONCURRED BY: _____ DATE: 11/20/15
(Project Manager)

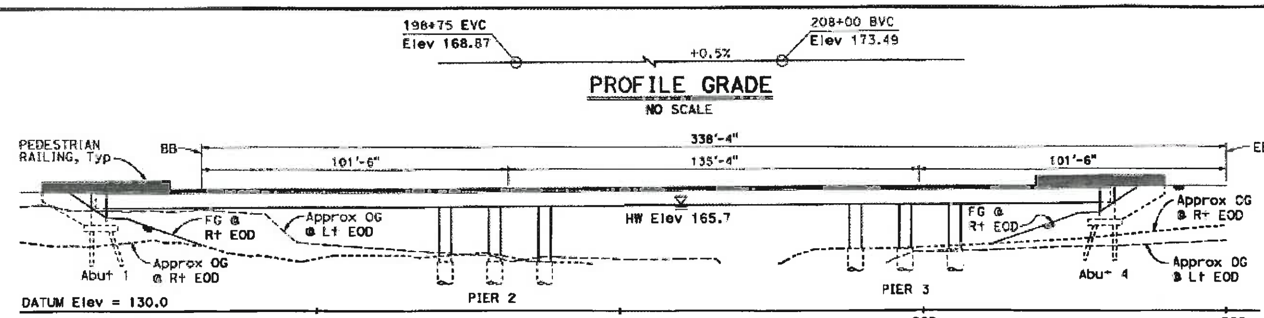
APPROVED BY: _____ DATE: 11/30/15
(Landscape Architecture or Engineering Services Branch Chief)

Attachment N

Dry Creek Bridge Advance Planning Study

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF STRUCTURES

DIST	COUNTY	ROUTE	POST MILE
03	Yub	20	13.90



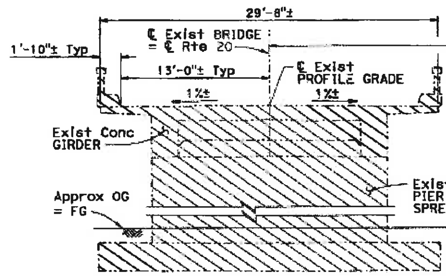
ELEVATION
1" = 40'

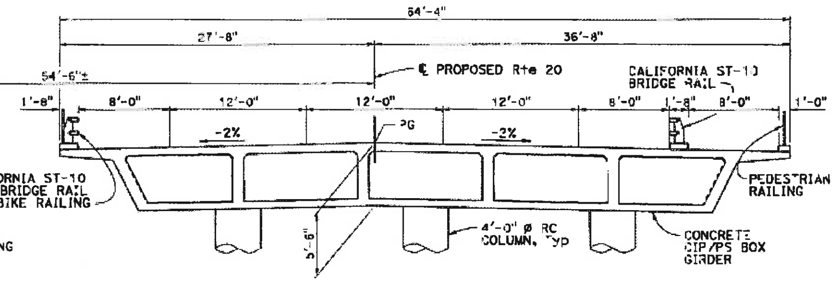
NOTES:

1. Abutment 1 and 4 to be founded on HP piles, 40ft assumed.
2. CIDH piles with permanent casings embedded to bedrock and rock sockets assumed at Pier 2 and Pier 3.
3. Existing wing walls, cut-off walls and slope paving details symmetrically similar for both sides of Existing Bridge shall be removed.
4. Traffic will utilize existing bridge during construction, stage construction will not be required.
5. High water elevation shown assumes profile grade will be raised to avoid conflicts with soffit.

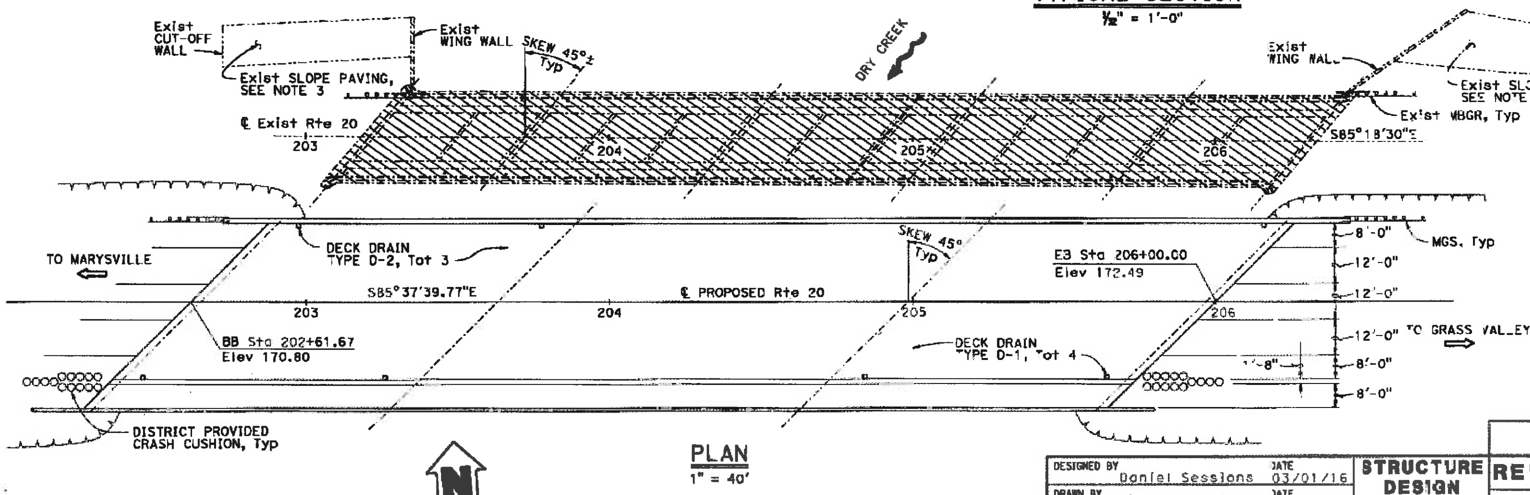
LEGEND:

- Indicates Existing Structures to be removed





TYPICAL SECTION
½" = 1'-0"



PLAN
1" = 40'

DATE OF ESTIMATE		3/21/16
BRIDGE REMOVAL	=	$376,300
STRUCTURE DEPTH	=	5'-6"
LENGTH	=	338'-4"
WIDTH	=	64'-4"
AREA	=	21,766 ft²
COST/SQFT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	$251.86/ft²
TOTAL COST	=	$5,432,000
PRELIMINARY WORKING DAYS	=	320 (Two Seasons)

DESIGNED BY	Daniel Sessions	DATE	03/01/16
DRAWN BY	Jie Tang	DATE	03/01/16
CHECKED BY	Jeff Sims	DATE	03/07/16
APPROVED		DATE	

STRUCTURE DESIGN BRANCH 1

ALTERNATIVE 3

REVISED PLANNING STUDY

DRY CREEK BRIDGE (REPLACE)

UNIT: 3576 | BRIDGE No. 16-10

SCALE: AS SHOWN | PROJECT No. & PHASE: 0300020533

CONTRACT No.: 03-0A570

ORIGINAL SCALE IN INCHES 0 1 2 3

FILE => 16-10-aps03.dgn

USERNAME => s134008 DATE PLOTTED => 13-APR-2016 TIME PLOTTED => 10:09

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 08-09-10)

Attachment O

Geotechnical Report

Memorandum

Serious drought.
Help Save Water!

To: **Reza Mahallati**
Senior Materials and Research Engineer
Office of Geotechnical Design North, Branch A
Division of Engineering Services

Date: July 1, 2016

File: 03-YUB-20-13.3
Project: 0300020593

Attn: Chris Koepke

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES-MS#5

Subject: Results of Seismic Refraction Survey for Yuba 20 (3R) Shoulder Widening

Introduction

This memorandum summarizes the results of a seismic refraction survey to assist in the design of a shoulder widening and realignment project. The seismic refraction method was employed to determine engineering characteristics of the material within the proposed new alignment. The seismic line locations were determined in consultation with the project geologist based on field visits with this office to identify where material needed to be sampled. Locations were evaluated for rippability, earthwork factor, depth to bedrock, and velocity structure.

Results and Discussion

Geology

The site is located within the Smartville Ophiolite complex. Bedrock at the site consists of mafic volcanic rocks (basalt) metamorphosed into greenstone. Greenstone is pervasive throughout the site and is quarried east of the site on the north bank of the Yuba River. Our interpretations of site lithology in this report are based descriptions provided in Jennings (1977) and our observations of existing road cuts. No drilling has occurred on the project to this date.

Results

Plates 1 and 2 show locations of the seismic lines. GPS was used to locate the proposed alignment. The area is comprised of rolling hills with valley oaks, often being used for grazing and agriculture. A total of 12 seismic lines were surveyed in this portion of the project. Two seismic lines were acquired at local county parks, Lines 1 and 2 were on State right-of-way, and the remainder were on private property. Brush cutting was required at the county park locations but generally the sites were open enough to avoid having to cut brush. Establishing proposed alignment with GPS required advanced preparation and coordination with District engineers.

Seismic Line 1

Seismic Lines (SL) 1 and 2 were surveyed inside state right-of-way beginning about station 170+00. SL1 sampled the south cut and SL-2 sampled the north cut. At this location the existing roadway is proposed to be widened on both sides and the roadway lowered in elevation. SL1 is 144 m (472 ft) long. Plate 3 shows the processed model for SL 1. The model shows the profile of the ground surface and associated velocity structure below it. The upper velocity unit (V1) is shown as the area above the green arcs and below the ground surface. The measured seismic velocity for this unit is 400 m/s (1300 ft/s). The thickness averages 2.6 m (8.5 ft). The material is interpreted as rocky colluvium. Our field observations of the cut at SL-1 identified greenstone boulders up to 1.0 m (3.3 ft) on longest dimension within V1. Processed seismic data show bedrock below existing road grade, confirming the rock seen in V1 consists of boulders within the colluvium. The boulders are not rippable. Boulders in V1 significantly larger than 1.0 m (3.3 feet) on longest dimension may be too large to remove without reduction. The second velocity unit (V2) averages 4.5 m (14.8 ft) but pinches to almost zero in two locations. The measured seismic velocity of V2 is 980 m/s (3225 ft/s). This material is interpreted as weathered greenstone. V2 may also contain large unrippable boulders or less-weathered, unrippable blocks. The third velocity unit, V3, is interpreted as greenstone. The measured seismic velocity is 3750 m/s (12,300 ft/s). This material is not rippable. The proposed road grade profile shows construction will mainly involve V1 and V2. At this location, we do not anticipate V3 will be encountered during excavation to proposed grade.

Seismic Line 2

SL 2 is 253 m (830 feet) long. Plate 4 shows the processed model for SL 2. The model shows V1 averages 4.2 m (13.8 ft) thick and has a seismic velocity of 400 m/s (1300 ft/s). This material is interpreted as rocky colluvium containing boulder sized greenstone rocks as large as 3 m (9.8 ft). Although the zone indicates easy ripping, boulders within it will not be rippable and will require reduction for removal. V2 ranges in thickness from 1.8 m to 12 m (5.9 ft to 39.4 ft), has a velocity of 980 m/s (3225 ft/s), and will experience easy to moderately difficult ripping. V2 may be a weathered greenstone and may also contain large unrippable boulders or less-

weathered, unrippable zones. V3 has a velocity of 4420 m/s (14,500 ft/s) and is unrippable. The proposed road grade elevation here is at the bottom of V1 or the upper portion of V2. At this location, we do not anticipate V3 will be encountered during excavation to proposed grade.

Seismic Line 3

SL 3 is on private property. Project stationing is approximately 318+80 to 323+59. Plans call for a through cut at this location. The proposed new road grade elevation is 120.7 m (396 ft) at about 317+60 and 128.6 m (422 ft) at 324+50. The model for SL 3 is shown on Plate 5. The seismic velocity for the upper (V1) unit is 400 m/s (1300 ft/s). It is interpreted as rocky colluvium. The model shows that V1 averages 3 m (9.8 ft) thick but almost pinches out at the top of the ridge. Exposed rocks where V1 pinches out are within V2. V2 varies in thickness but measures about 5.8 m (19 ft) in the northwestern one-third and thickens to 11.6 m (38 ft) for the remainder of the profile. The V2 velocity is 1260 m/s (4125 ft/s) and is interpreted as weathered greenstone, based on observations of the existing cut. The seismic velocity of V3 is 2080 m/s (6825 ft/s) and is not rippable. Rock type is greenstone. The elevation of the unrippable material is higher than proposed road grade except for the southeastern section, so blasting should be anticipated throughout the profile except for the area from 322+50 to the end of the line at 323+80.

Seismic Line 4

SL 4 lies within state right-of-way at about project station 312+40 to 313+97. Plate 6 shows the processed model for SL 4. The model indicates V1 has a seismic velocity of 460 m/s (1500 ft/s) and averages 2.3 m (7.5 ft) thick. It is interpreted as colluvium. The second layer V2 has a thickness of 7.0 m (23.0 ft) and a velocity of 1250 m/s (4100 ft/s) and is interpreted as weathered greenstone based on exposures in the existing roadway cut. The third layer is bedrock with a measured seismic velocity of 3050 m/s (10,000 ft/s) and is not rippable. The rock type is greenstone. Proposed new road grade elevation will be 115.2 m (377.94 ft) at project station 312+50, 386.33 ft at station 314+00, and 385.44 ft at station 314+50. Seismic data indicates the roadway will be within Layer 2 of the profile, making the material moderately difficult to rip.

Seismic Line 5

Seismic Line 5 was all on private property. The seismic line was located along the new alignment beginning at about station 333+60 to 344+75. Plate 7 shows the processed model for SL 5. This seismic line is 340 m (1115 ft) long. This property is grazed by cattle; associated compaction of the V1 material resulted in a relatively fast V1 seismic velocity of 600 m/s (1975 ft/s) throughout the property. The upper layer shows an undulating refractor, ranging in thickness from 1.0 m (3.3 ft) to 2.4 m (7.9 ft). The layer is easily ripped and is interpreted as colluvium. V2 varies in thickness from 3.2 m (10.5 ft) on the west to as thick as 16.5 m (54.1 ft) from project station 340+50 to the end of the line. This unit averages about 8-10 m (26.2 to 32.8

ft) thick and has a measured seismic velocity of 1450 m/s (4750 ft/s), which is moderately difficult to difficult to rip. The inferred rock type is weathered greenstone. The third unit (V3) is not rippable. The measured seismic velocity of V3 is 3670 m/s (12,050 ft/s). The unit is interpreted as greenstone. Project plans call for road grade elevation at station 333+60 to be 137.9 m (452.44 ft), and at station 344+82 to be 132.9 m (436 ft). Most of the construction will occur within Layer 2 of the model, which is expected to exhibit moderately difficult to difficult ripping. However, according to the model, V3 material may be encountered from approximately station 341+75 to 342+25. Design elevation for road grade here is about 136.3 m (447.05 ft).

Seismic Line 6

Seismic Line 6 was located by the project geologist to characterize an area planned for placement of fill (see Plate 2). Here, V1 averages 3.9 m (12.8 ft) thick. It is interpreted as colluvium. Calculated earthwork factor for surficial soils indicates compaction may occur from fill loading. We recommend sampling this material for analysis of the consolidation characteristics of the surficial soil. The measured seismic velocity for V1 is 460 m/s (1500 ft/s). V2 averages about 6.0 m (19.7 ft) thick. Its measured seismic velocity is 1250 m/s (4100 ft/s). Rock type is weathered greenstone. V3 appears to be weathered greenstone based on its seismic velocity of 2750 m/s (9025 ft/s). Minor surface water was noted flowing at a topographic low point along this line.

Seismic Line 7

Seismic Line 7 is located entirely on private property along a proposed through cut. Plate 2 shows its location. The approximate project stationing is 347+80 to 350+95. The model for Seismic Line 7 is shown on Plate 9. The upper layer (V1) is colluvium and averages 2.5 m (8.2 ft) thick and has a seismic velocity of 650 m/s (2125 ft/s). Range cattle appear to have compacted the soil significantly. The middle unit, V2, varies in thickness from 3.0 m (9.8 ft) on the western third to 8.0 m (26.2 ft) through the rest of the profile. The measured seismic velocity for V2 is 1380 m/s (4525 ft/s), which will be moderately difficult to difficult to rip. The inferred rock type is weathered greenstone. The bedrock unit, V3, measures 3800 m/s (12,475 ft/s) and is not rippable. This unit is inferred to be greenstone.

At this location, cuts are proposed in excess of 9.1 m (30 ft). The design calls for a road grade elevation of 122 m (400 ft) at station 350+50. The profile for SL 7 identifies unrippable material at elevation 125.7 m (412.39 ft). Layer 3 material may be encountered during construction from station 348+50 to the end of the cut. Blasting or other means of mechanical reduction should be anticipated for rock removal within that segment.

Seismic Line 8

SL 8 was located roughly normal to SL 7, and crosses at 52.5 m (172 ft) along SL 7. It was acquired to evaluate velocity structure normal to the alignment of the proposed through cut. Plate 10 shows the processed model for SL 8. Seismic structure in SL 8 is similar to that in SL 7. The upper unit averages 2.3 m (7.5 ft) thick and has a seismic velocity of 540 m/s (1775 ft/s) and will be easily ripped. The material is interpreted as colluvium. V2 averages about 10 m (32.8 ft) thick and has a seismic velocity of 1280 m/s (4200 ft/s), which is moderately difficult ripping. The inferred rock type is weathered greenstone. V3 is not rippable, having a seismic velocity of 3000 m/s (9850 ft/s). The inferred rock type is greenstone. Most or all construction will involve V1 and V2 at this location.

Seismic Line 9

Seismic Line 9 was established to investigate a structural high shown on Seismic Line 5 at about project station 342+20. With unrippable material close to the surface on Seismic Line 5, we decided to acquire another line to better understand the structure. Plate 2 shows the location of Seismic Line 9. Location was approximately 25 m (82.0 ft) south of Seismic Line 5. Layer 1 is colluvium about 3.0 m (10 ft) thick and having a velocity of 600 m/s (1975 ft/s). The second layer ranges in thickness from 6.1 m to 16.5 m (20 ft to 54 ft), has a velocity of 1240 m/s (4075 ft/s), and is interpreted as weathered greenstone. Layer 3 is unrippable greenstone with a velocity of 3800 m/s (12,475 ft/s). The northern end of Seismic Line 9 supports the trend of the unrippable refractor seen on SL-5.

Seismic Line 10

Seismic Line 10 was also established to assist in verifying the extent of an unrippable structural high identified in Seismic Line 5 (see Plate 2 for location). This was a cross line and located at project station 341+20, about 213 m (699 ft) along SL 5. Layer 1 is colluvium about 4.0 m (13.1 ft) thick. The seismic velocity for Layer 1 is 500 m/s (1650 ft/s). V2 measures 7.5 m (24.6 ft) thick with a velocity of 1250 m/s (4100 ft/s). The inferred rock type is weathered greenstone. The third unit (V3) has a seismic velocity of 5650 m/s (18,525 ft/s) and is inferred to be greenstone.

Seismic Line 11

Seismic Line 11 was located where a culvert is to be extended. Thickness of colluvium and depth to bedrock were of primary interest at this location. Plate 1 shows the location of the seismic line. This profile is just west of the existing culvert by about 4 m (13.1 ft), and was established as close to the existing culvert as was possible. Flowing water in the creek made sampling directly in front of the existing culvert infeasible. The profile shows V1 is 2.2 m (7.2

ft) thick. It is interpreted as colluvium. The measured seismic velocity for V1 is 450 m/s (1475 ft/s); it will be easily ripped. V2 is 4.1 m (13.5 ft) thick with a measured seismic velocity of 1370 m/s (4500 ft/s). Material composition of this layer is not certain, it may be saturated weathered greenstone or saturated construction fill. This layer would be moderately difficult to rip, if the material is assumed to be unsaturated. However, saturation is likely at this location, and since saturation increases P-wave velocity independent of rippability, V2 should be easily ripped here. The bedrock unit is V3. V3 has a seismic velocity of 5700 m/s (18,700 ft/s) and is not rippable. The inferred rock type is greenstone. Depth to unrippable material will be about 5.4 m (17.7 ft) at the culvert location.

Seismic Line 12

Seismic Line 12 was another culvert extension where we used refraction seismic to determine thickness of colluvium and depth to bedrock. Plate 1 shows the location of this seismic line. Access was not possible at the actual location of the extension, but about 5 m (16 ft) to the south, a gravel road enabled us to straddle the existing culvert location. There, V1 measures 1.0 m (3.3 ft) thick and is colluvium. The seismic velocity of V1 is 425 m/s (1400 ft/s). V2 measures 2.5 m (8.2 ft) thick. The calculated seismic velocity of V2 is 750 m/s (2450 ft/s). The inferred rock type is weathered greenstone. Both of the units will be easily removed for construction of the foundation for the culvert. V3 is not rippable. That seismic velocity is 4500 m/s (14,775 ft/s). Depth to unrippable bedrock is 3.6 m (11.8 ft). Inferred rock type is greenstone.

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Table 1. Results of Seismic Refraction Study for Yuba 20 (3R) Shoulder Widening

Seismic Line	Layer	Average Thickness	Velocity	Line Length	Inferred Material	Approximate Project Stationing	Rippability[1] (Earthwork Factor)[2]
SL 1	1	2.6 m (8.5 ft)	400 m/s (1300 ft/s)	144 m (472 ft)	Rocky Colluvium	170+00 to 174+72	ER with NR[3] (0.88)
	2	4.5 m (14.8 ft)	980 m/s (3225 ft/s)		Weathered Greenstone		ER-MD (1.12)
	3	N/A	3750 m/s (12,300 ft/s)		Greenstone		NR (1.47)
SL 2	1	4.2 m (13.8 ft)	400 m/s (1300 ft/s)	253 m (830 ft)	Rocky Colluvium	169+80 to 178+10	ER with NR[3] (0.88)
	2	1.8-12 m (5.9-39.4 ft)	980 m/s (3225 ft/s)		Weathered Greenstone		ER-MD (1.12)
	3	N/A	4420 m/s (14,500 ft/s)		Greenstone		NR (1.51)
SL 3	1	3 m (9.8 ft)	400 m/s (1300 ft/s)	146 m (479 ft)	Rocky Colluvium	318+80 to 323+59	ER (0.88)
	2	5.8-11.6 m (19-38 ft)	1260 m/s (4125 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	2080 m/s (6825 ft/s)		Greenstone		NR (1.31)
SL 4	1	2.3 m (7.5 ft)	460 m/s (1500 ft/s)	48 m (157 ft)	Colluvium	312+40 to 313+97	ER (0.92)
	2	7.0 m (23.0 ft)	1250 m/s (4100 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	3050 m/s (10,000 ft/s)		Greenstone		NR (1.41)
SL 5	1	1.0-2.4 m (3.3-7.9 ft)	600 m/s (1975 ft/s)	340 m (1115 ft)	Colluvium	333+60 to 344+75	ER (0.99)
	2	3.2-16.5 m (10.5-54.1 ft)	1450 m/s (4750 ft/s)		Weathered Greenstone		MD-DR (1.22)
	3	N/A	3670 m/s (12,050 ft/s)		Greenstone		NR (1.46)
SL 6	1	3.9 m (12.8 ft)	460 m/s (1500 ft/s)	48 m (157 ft)	Colluvium	344+00 at a skew to project stationing	ER (0.92)
	2	6.0 m (19.7 ft)	1250 m/s (4100 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	2750 m/s (9025 ft/s)		Greenstone		NR (1.38)

[1] ER = Easily Ripped, MD = Moderately Difficult, DR = Difficult Ripping, NR = Not Rippable
[2] Smith et al, 1972; Stephens, 1978
[3] Non-rippable boulders in colluvium

Table 1. Results of Seismic Refraction Study for Yuba 20 (3R) Shoulder Widening, cont'd

Seismic Line	Layer	Average Thickness	Velocity	Line Length	Inferred Material	Approximate Project Stationing	Rippability[1] (Earthwork Factor)[2]
SL 7	1	2.5 m (8.2 ft)	650 m/s (2125 ft/s)	96 m (315 ft)	Colluvium	347+80 to 350+95	ER (1.01)
	2	3.0-8.0 m (9.8-26.2 ft)	1380 m/s (4525 ft/s)		Weathered Greenstone		MD-DR (1.20)
	3	N/A	3800 m/s (12,475 ft/s)		Greenstone		NR (1.47)
SL 8	1	2.3 m (7.5 ft)	540 m/s (1775 ft/s)	48 m (157 ft)	Colluvium	At 349+60 normal to project stationing	ER (0.96)
	2	10 m (32.8 ft)	1280 m/s (4200 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	3000 m/s (9850 ft/s)		Greenstone		NR (1.41)
SL 9	1	3.0 m (10 ft)	600 m/s (1975 ft/s)	48 m (157 ft)	Colluvium	At 339+50 normal to project stationing	ER (0.99)
	2	6.1-16.5 m (20-54 ft)	1240 m/s (4075 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	3800 m/s (12,475 ft/s)		Greenstone		NR (1.36)
SL 10	1	4.0 m (13.1 ft)	500 m/s (1650 ft/s)	48 m (157 ft)	Colluvium	At 341+20 normal to project stationing	ER (0.94)
	2	7.5 m (24.6 ft)	1250 m/s (4100 ft/s)		Weathered Greenstone		MD (1.18)
	3	N/A	5650 m/s (18,525 ft/s)		Greenstone		NR (1.57)
SL 11	1	2.2 m (7.2 ft)	450 m/s (1475 ft/s)	24 m (79 ft)	Colluvium	182+00 to 182+79	ER (0.91)
	2	4.1 m (13.5 ft)	1370 m/s (4500 ft/s)		Weathered Greenstone		MD (1.20)
	3	N/A	5700 m/s (18,700 ft/s)		Greenstone		NR (1.57)
SL 12	1	1.0 m (3.3 ft)	425 m/s (1400 ft/s)	24 m (79 ft)	Colluvium	192+20 to 193+02	ER (0.90)
	2	2.5 m (8.2 ft)	750 m/s (2450 ft/s)		Weathered Greenstone		ER (1.04)
	3	N/A	4500 m/s (14,775 ft/s)		Greenstone		NR (1.51)

[1] ER = Easily Ripped, MD = Moderately Difficult, DR = Difficult Ripping, NR = Not Rippable
[2]Smith et al, 1972; Stephens, 1978
[3]Non-rippable boulders in colluvium

Rippability

Ripping ability is based on unpublished Caltrans data for a Caterpillar D9 series tractor with a single-tooth ripper. These values are as follows:

Velocity	Rippability
<3440 ft/s (<1050 m/s)	Easily Ripped
3440-4920 ft/s (1050-1500 m/s)	Moderately Difficult
4920-6560 ft/s (1500-2000 m/s)	Difficult Ripping
>6560 ft/s (>2000 m/s)	Not Rippable

Different excavation equipment may experience different results. Penetrating efficacy of the ripping tooth is often more important in predicting ripping success than seismic velocity. Undetected blocks or lenses of high-velocity material may also be present within rippable zones, requiring blasting for excavation. Specific to this project, some of the material that we investigated indicates unrippable blocks exist within rippable matrix. Where that condition exists, blasting or other means of mechanical reduction may be required for removal of the unrippable blocks.

Earthwork Factor

There is an empirical correlation between the seismic velocity of rock and its earthwork factor. The earthwork factor for a highway grading project is the ratio of embankment to excavation volume. A factor of 1.0 indicates no volumetric change from excavation to emplacement. Factors less than or greater than 1.0 indicate compaction and expansion, respectively. Earthwork factors were derived from the velocity data and are summarized in Table 1. Earthwork factors are based on published Caltrans studies (Stephens, 1978) and are extrapolated if necessary.

Data Acquisition and Processing

Seismic refraction data were recorded using an EG&G Smartseis 24-channel seismograph with 14 Hz geophones. The energy source employed was a hammer and striker plate. Refraction data from each shot were stored in the seismograph's memory. Both profile geometry and refraction data were backed up to external memory upon completion of the survey.

Refraction data were processed using GeoGiga Refractor, a commercially available computer application, and were interpreted using the Generalized Reciprocal Method (GRM; Palmer, 1980). The GRM calculates refractor depths for each geophone location using overlapping refraction arrival times from both forward and reverse shots. The GRM method relies on data from both forward and reverse shots, and on the selection of an optimum XY value. XY is defined as the distance of separation, measured at the surface, where forward and reverse seismic waves originate from nearly the same point on the refractor. Two variations of the GRM analysis can be used: the approximate velocity (AP) and the average velocity (AV) methods.

The approximate velocity method is relatively insensitive to optimum XY selection, but this method requires that every refractor above the target be defined. In contrast, the average velocity method is very sensitive to optimum XY selection, but does not require that every refractor above the target be known. Where refraction data are insufficient for GRM interpretation, the refractor can be modeled using the standard intercept-time method of interpretation (ITM), though with comparatively reduced accuracy.

Initial P-wave arrivals were picked utilizing GeoGiga Refractor. Refractor layers were assigned to these picks and then GRM analysis performed. Each GRM model is presented as a velocity section. The type of line drawn on the depth section to represent the refractor depends upon the method used for interpretation. GRM interpretations (AP and AV methods) are drawn as a series of arcs, with each arc representing the solution set for individual refractor locations beneath each geophone. The envelope formed by the locus of interconnecting points near the base of these arcs represents the best-fit model for the refractor.

Profiles in this report are presented in terms of velocity units. A velocity unit is a three-dimensional unit which, due to its elastic properties and density, propagates seismic waves at a characteristic velocity or within a characteristic velocity range. Velocities denoted in this report are expressed in feet per second. At least one velocity is present within a geologic rock unit. In addition, each zone of weathering, or fracturing within that geologic unit, can constitute its own velocity unit. Conversely, when two rock units, such as water-saturated gravel and moderately weathered rock, propagate seismic waves at the same velocity and are adjacent to each other, both units would be part of the same velocity unit. Lastly, discontinuous velocities might result from variation in the degree of alteration in the form of physical and chemical weathering and should be considered in the interpretation of the data.

References

Jennings, C.W., comp., 1977, Geologic Map of California: California Geological Survey, scale 1:750,000. (2010 update by Gutierrez, C. and others.)

Palmer, D., 1980, The generalized reciprocal method of seismic refraction interpretation: Society of Exploration Geophysicists, Tulsa, Oklahoma, 104 p.

Stephens, Elgar, Calculating Earthwork Factors Using Seismic Velocities: report No. FHWA-CA-TL-78-23, 56 p.

Thank you for the opportunity to work on this project. If you have any questions or need additional assistance, please contact Dennison Leeds at (916) 227-1307 or William Owen at (916) 227-0227.

Sincerely,

Dennison Leeds
Engineering Geologist
Geophysics and Geology Branch

William Owen, PGP 1031
Chief, Geophysics and Geology Branch

C: Project File.

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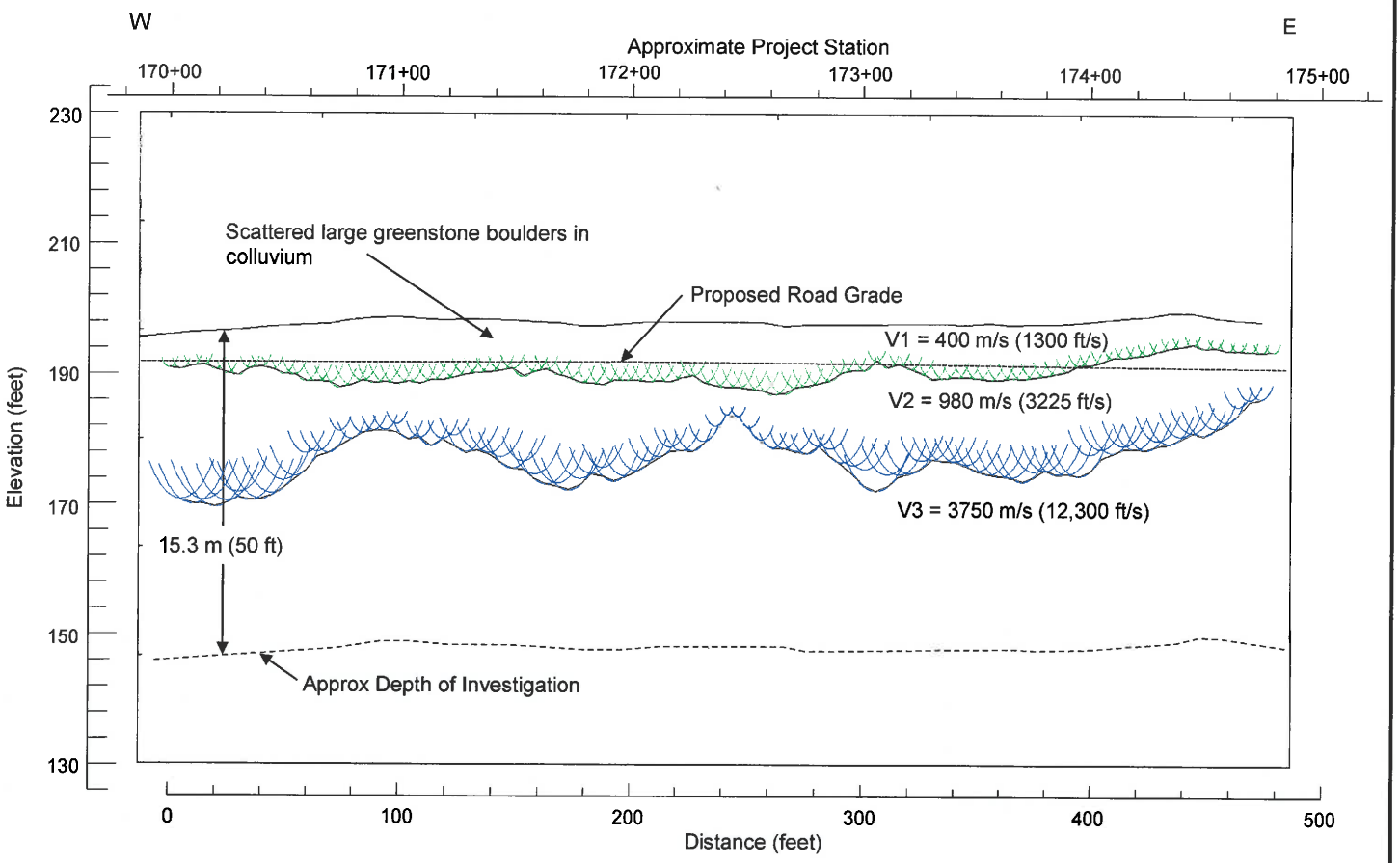
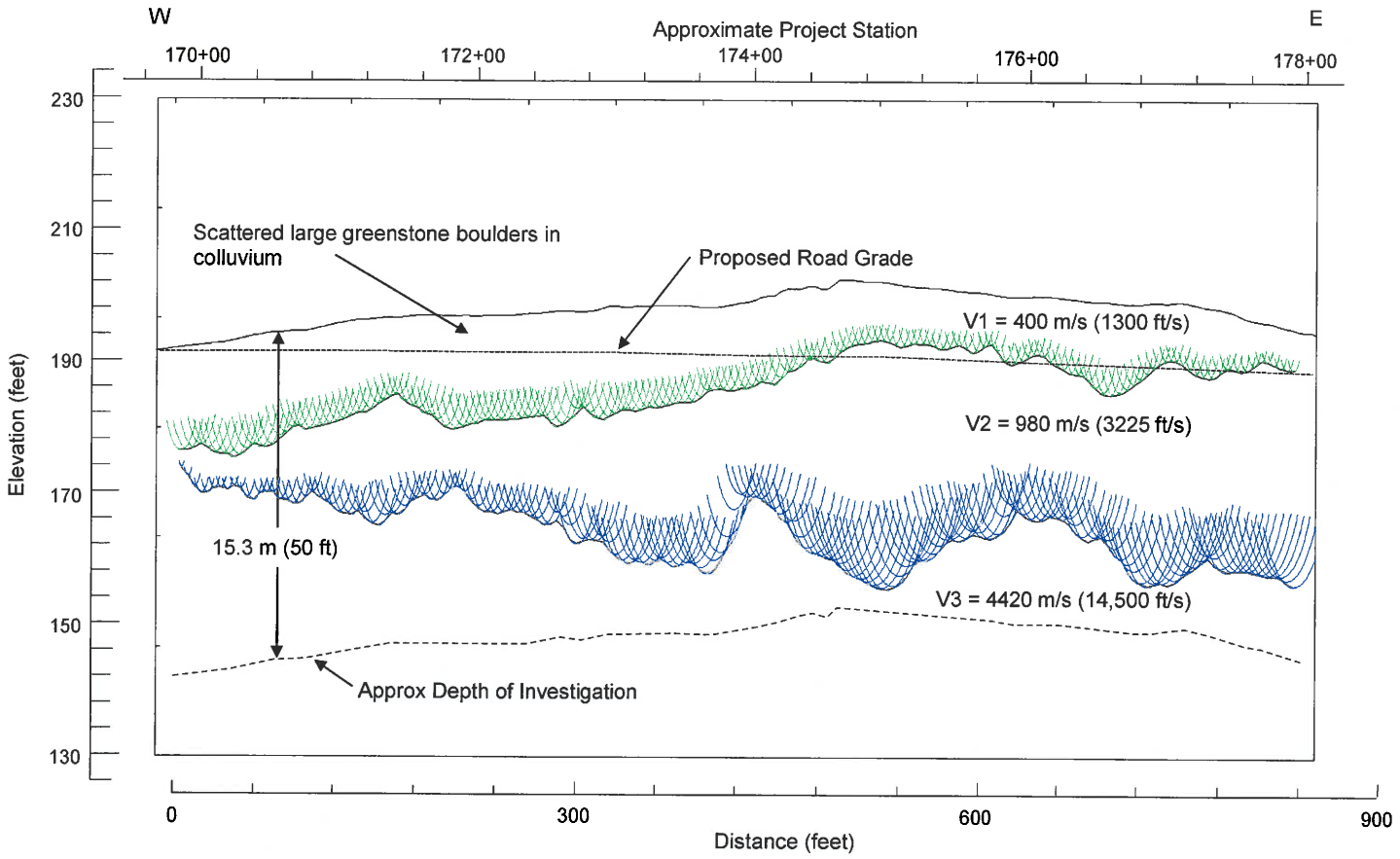
Caltrans **Division of Engineering Services** **Office of Geotechnical Support** **Geophysics and Geology Branch**	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 1
	0300020593	Location Map 1	

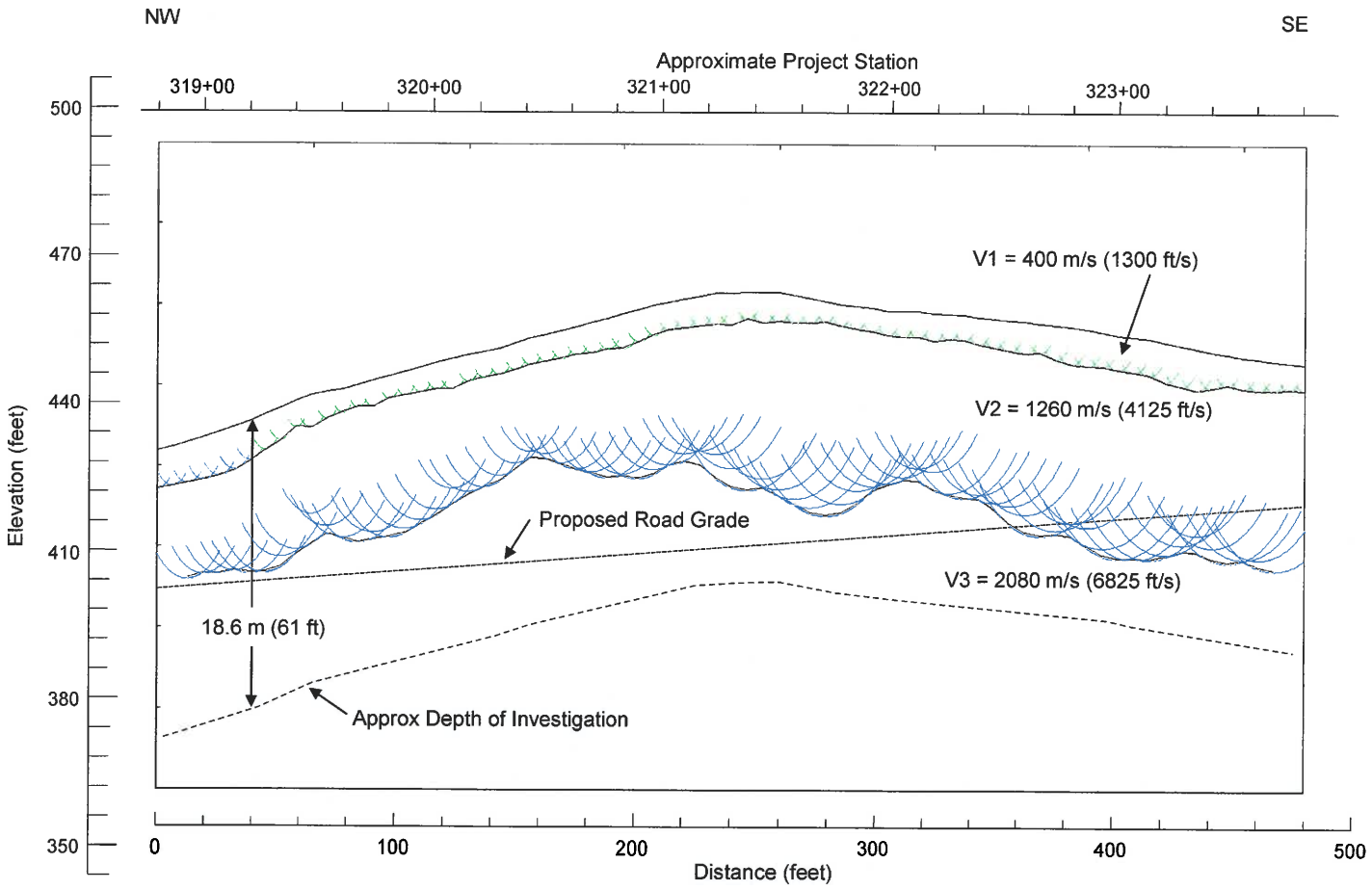
Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 2
	0300020593	Location Map 2	



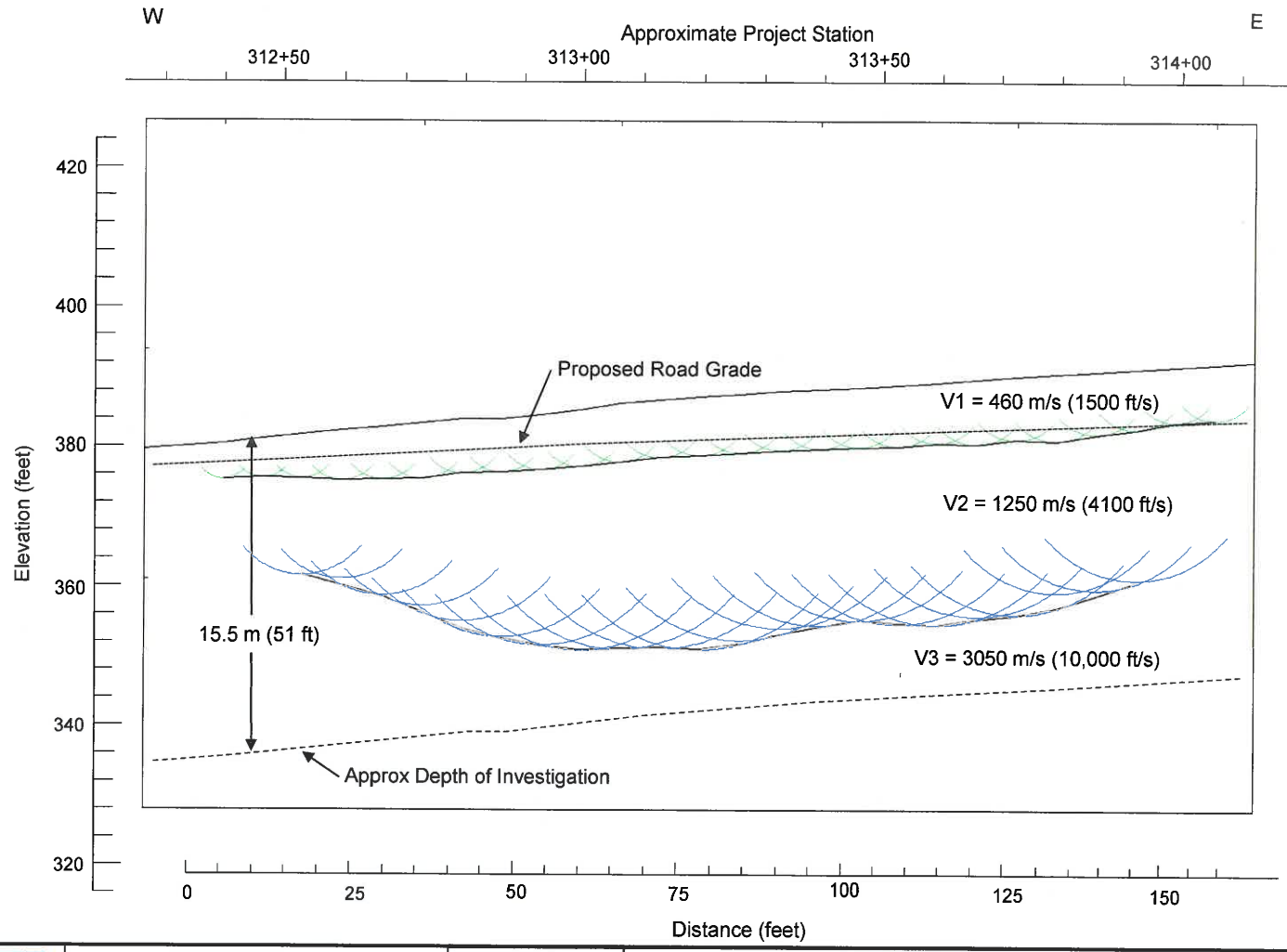
Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 3
	0300020593	Seismic Profile SL 1	



Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 4
	0300020593	Seismic Profile SL 2	



Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 5
	0300020593	Seismic Profile SL 3	



Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 6
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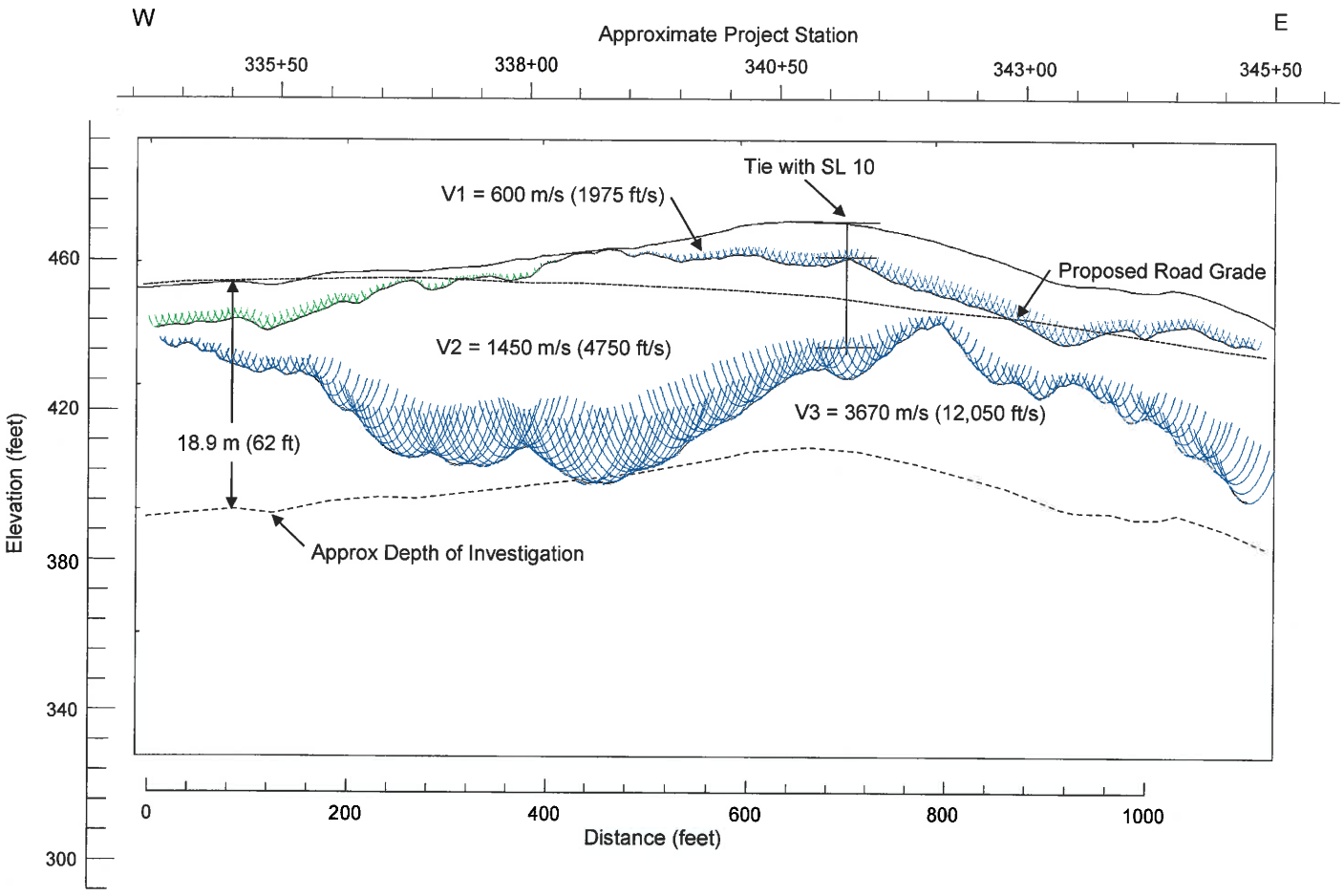
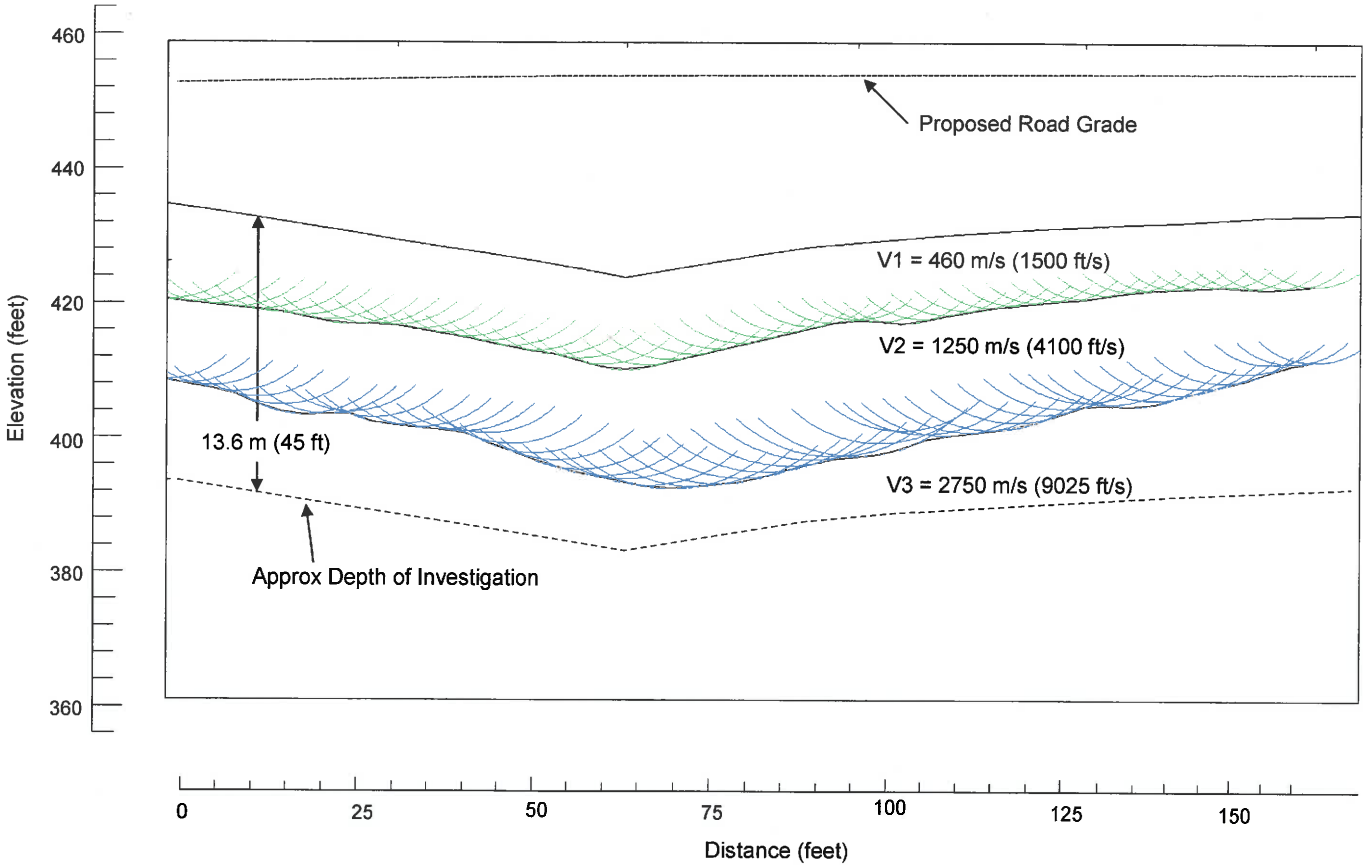


Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 7
	0300020593	Seismic Profile SL 5	

NW SE

Seismic Line at Skew to Project Stationing at Approximately 344+00



Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 8
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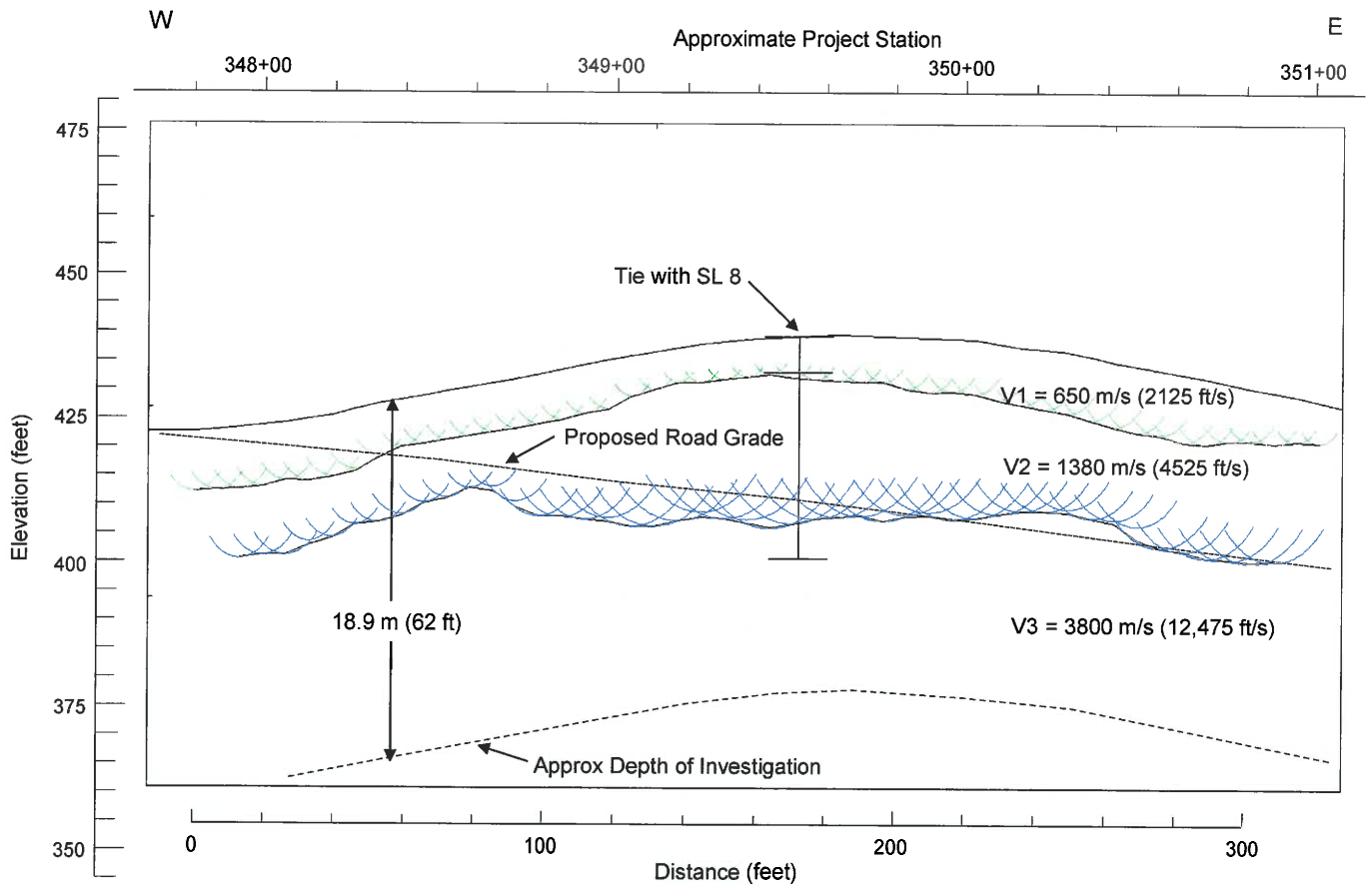

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 9
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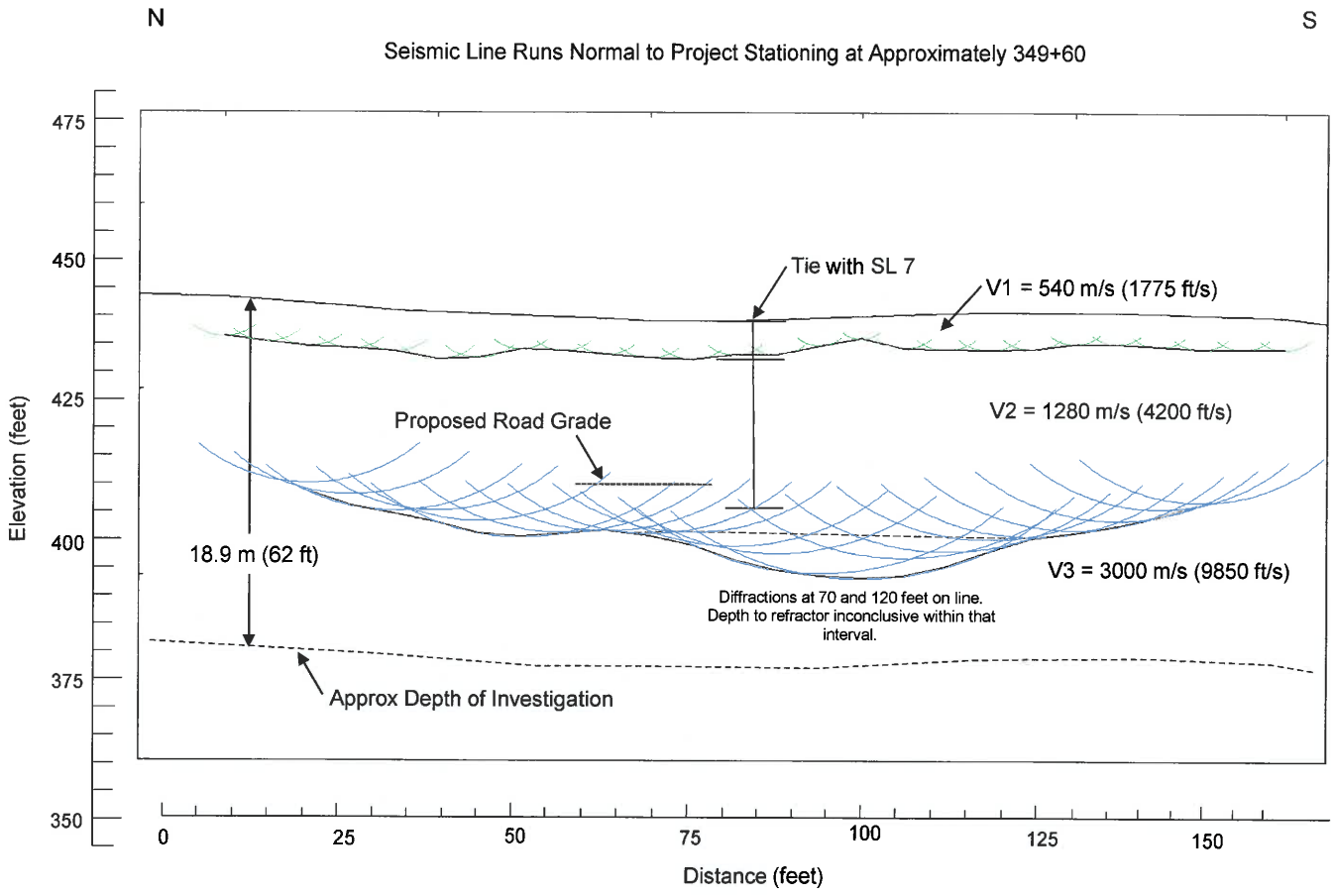

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 10
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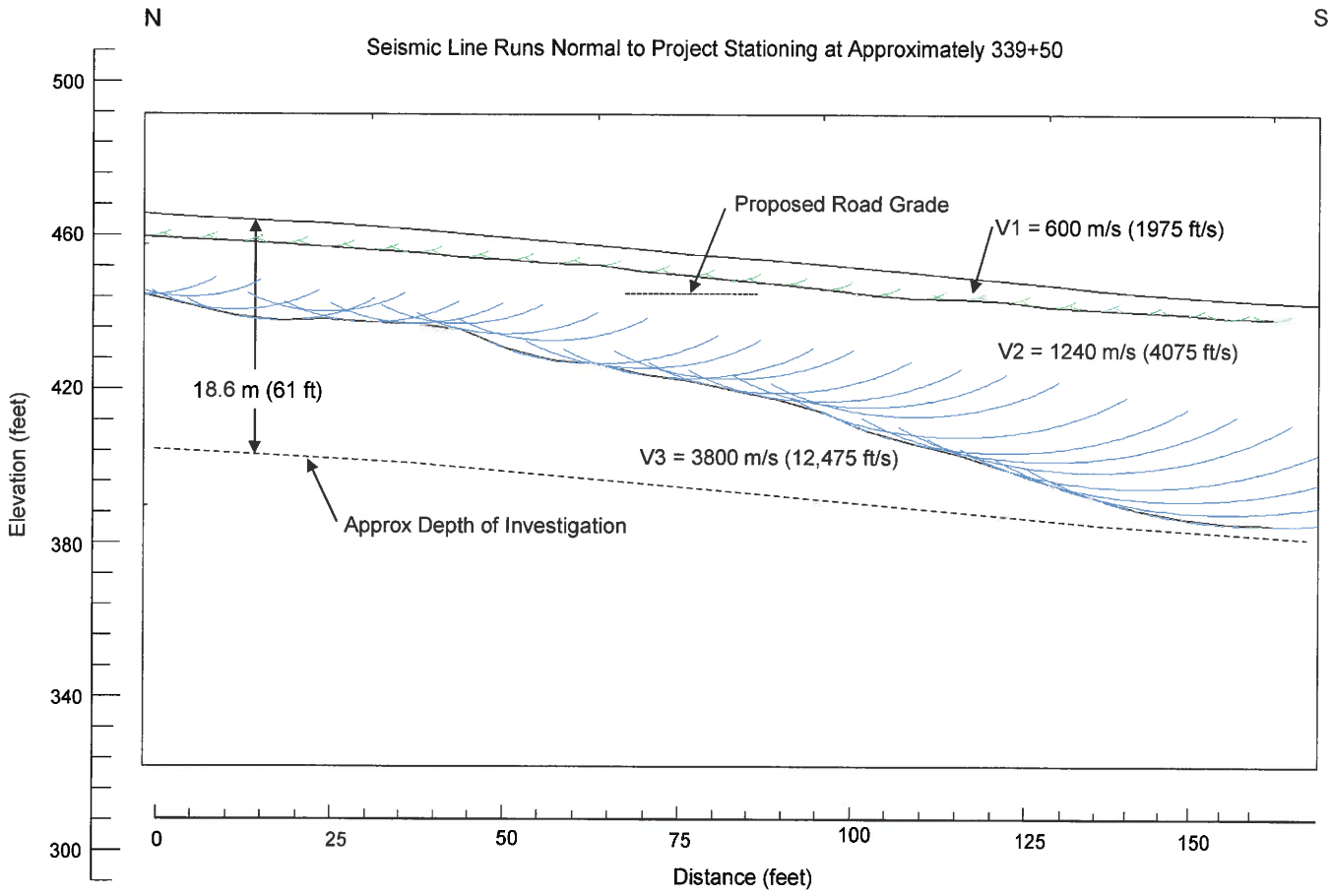

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 11
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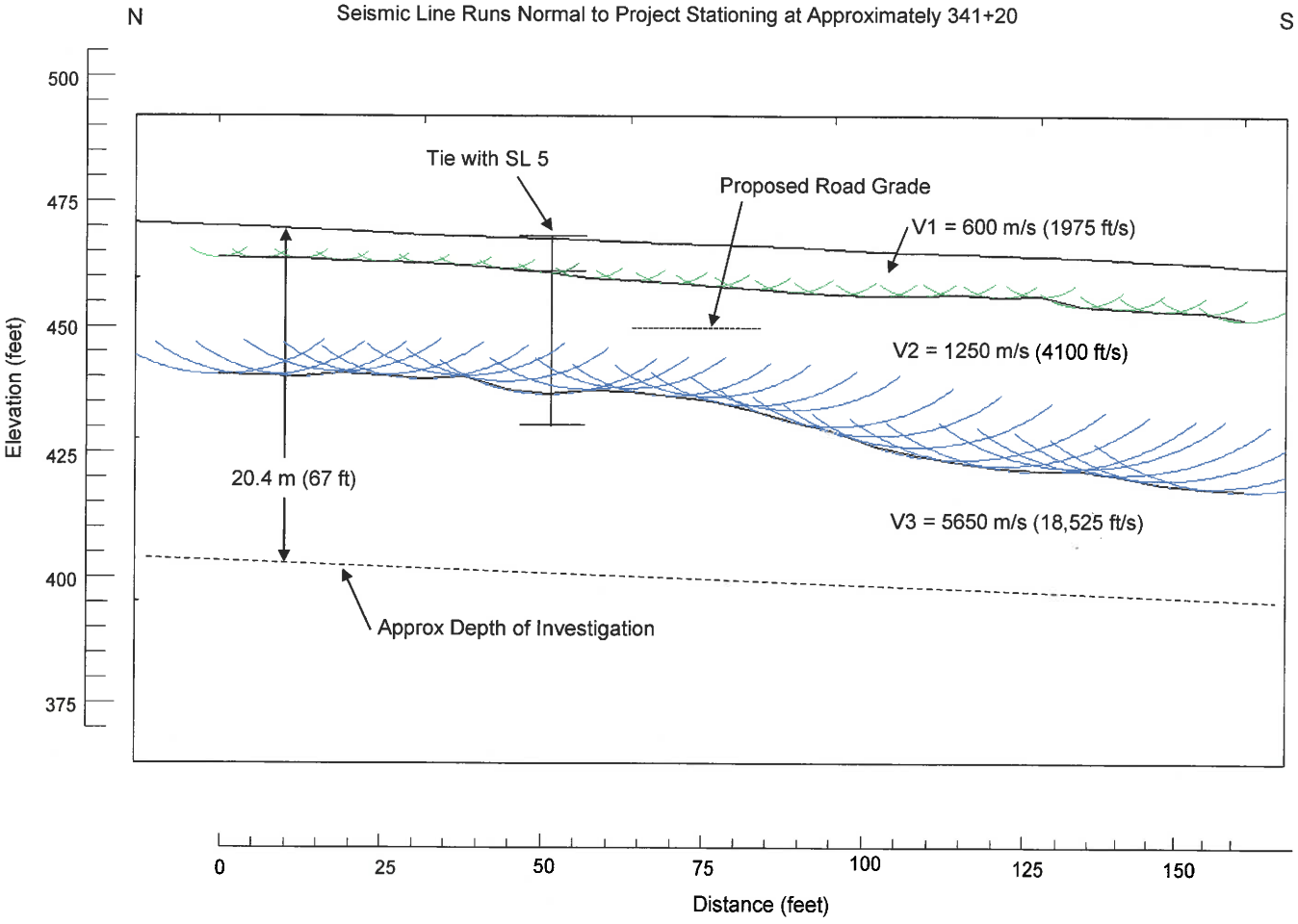

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 12
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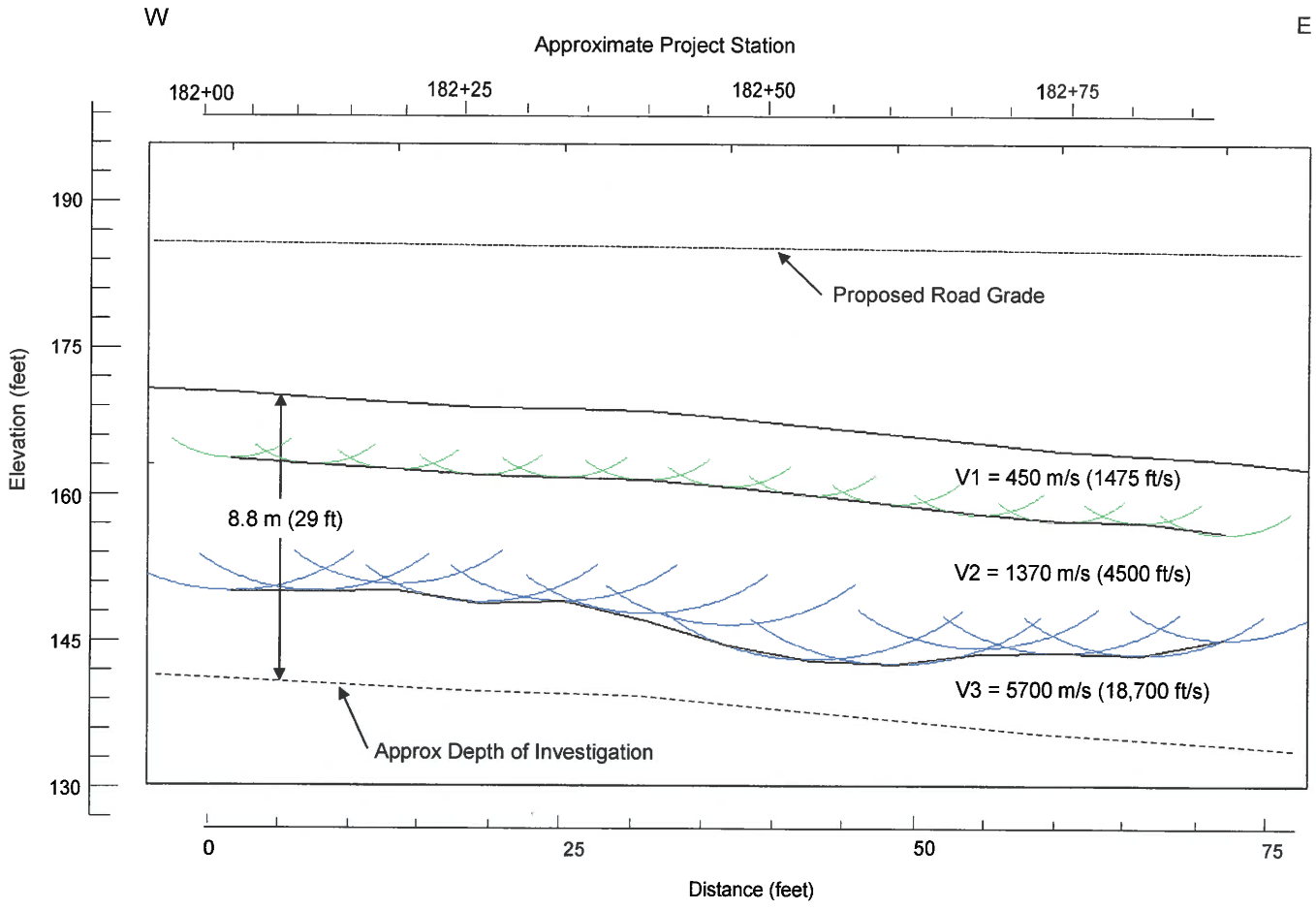

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 13
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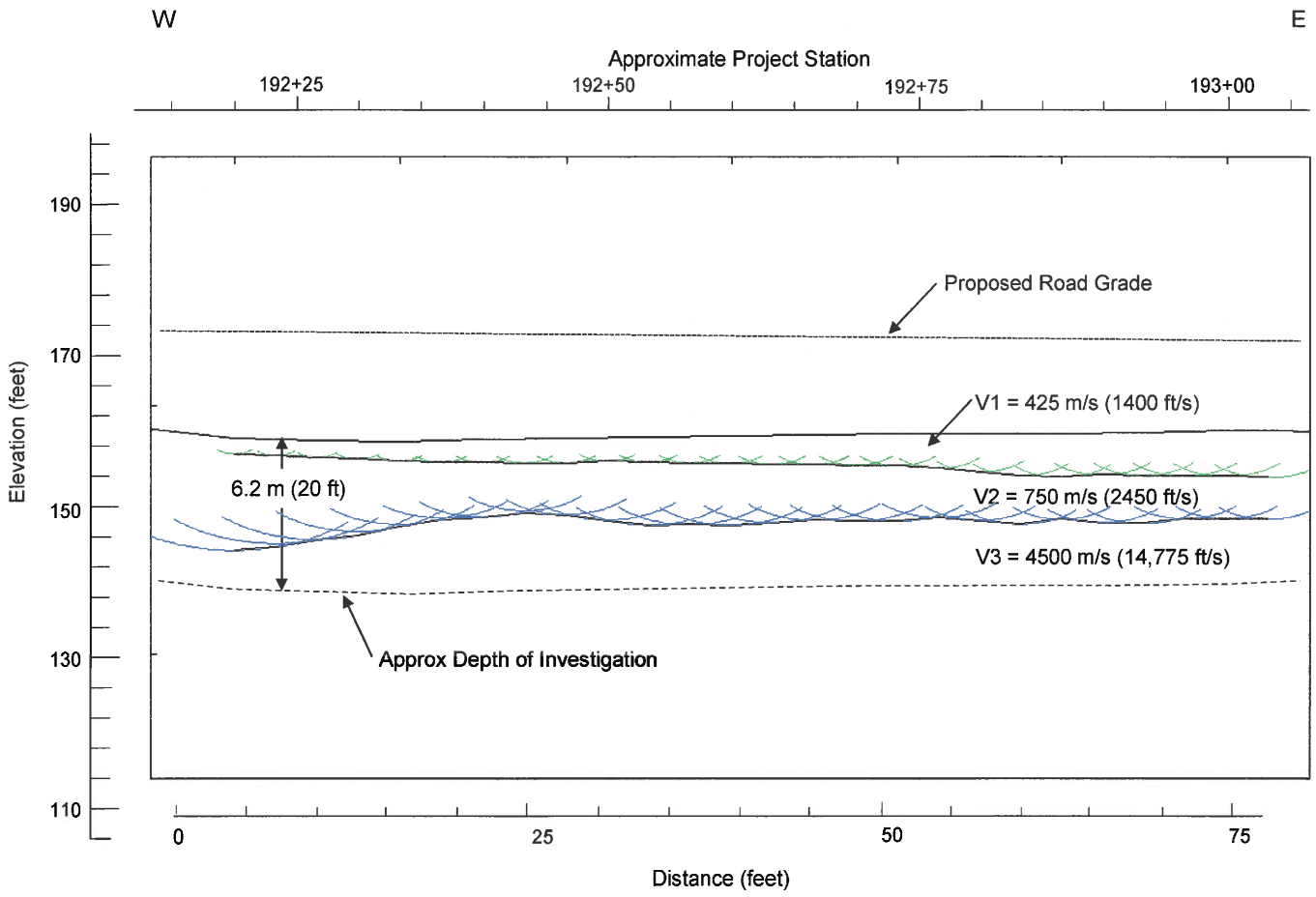

Division of Engineering Services Office of Geotechnical Support Geophysics and Geology Branch	03-0A570	Yuba 20 (3R) Shoulder Widening 03-YU-20-13.3	Plate 14
	0300020593	Seismic Profile SL 12	

Attachment P

Initial Site Assessment

State of California
Memorandum

Business, Transportation and Housing Agency

Date: October 26, 2015

File: Yuba 20, PM 13.3/R17.8
E-FIS 03 0002 0593- 0
EA 03-0A5700

To: **SUSANNE MELIM**
Environmental Management M3

From: **MARIA ALICIA BEYER SALINAS**
Office of Environmental Engineering South - Hazardous Waste

Subject: Hazardous Waste Initial Site Assessment (ISA).

This Capital Preventive Maintenance Project (CAPM SHOPP) project proposes to rehabilitate the pavement on SR 20 in Yuba County from 12 miles Marysville Road to the Yuba River - Parks Bar Bridge No.16-0011 and to bring shoulder widths to standard throughout the rest of the project. No new right of way will be required.

The project work scope involves but is not limited to:

- Realign non-standard horizontal curves (between Stacy Ann Drive & Sicard Flat Road)
- Pavement grinding, ground in rumble strips
- Shoulder widening to eight feet
- Dig outs, crack sealing, saw cutting
- Pavement overlay
- Shoulder backing
- Thermoplastic striping
- New and/or reset metal beam guardrail
- Replace Dry Creek Bridge No. 16-0010
- Excess soil material may be generated

ISA conclusions:

I. Petroleum Hydrocarbons

The hazardous waste investigation was limited to a records review. The potential for petroleum hydrocarbons contamination is not expected within the project study limits.

II. Aerial Deposited Lead (ADL)

Based on the project rural location area, Lead-contaminated soil is not expected to be a hazardous waste. However, no excess material is allowed to leave the project limits without being tested for ADL. Therefore, an ADL survey, sampling and testing is required prior to PS&E.

It is the Project Engineer's responsibility to request to this unit to proceed and execute a Task Order (TO) that needs to be executed at least 4 to 6 months prior to PS&E. **The estimated TO cost is $40,000.**

As of today, without an ADL Site Investigation (SI) being executed, there are three possible scenarios:

- Scenario 1.
  Soil materials excavated from 0.0 ft. to 3.0 ft. below ground surface (bgs) as a whole may be reused on site and or disposed out of the project limits without restrictions.

  Use Standard Special Provision (**SSP)"7-1.02K96) (j) (iii)**_Earth material containing lead"

- Scenario 2.
  Soil excavated from 0.0 ft. to1.0 ft. below ground surface (bgs) may be reused on site. The lead-contaminated soil will be placed only in Caltrans rights of way. Based on total lead concentrations levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will be at least 5 feet above the highest groundwater elevation. Proper Health and Safety procedures will be followed for workers.

  Use **SSP "14-11.3**_Material containing hazardous waste concentrations of ADL."

- Scenario 3.
  Excess generated material. Based on the Total Lead concentration, is a non-RCRA hazardous waste and will be transported and disposed off at a proper landfill.

  Approval of HQ non-standard special provision **(N-SSP**) is required.

* On all scenarios the implementation of a Lead Compliance Plan (LCP) for ADL is required. Once the TO is approved and the ADL SI is executed, then an updated Site Assessment to reflect the SI findings and recommendations will be prepared.

III. Traffic Stripe -Lead/Chromium Based Paint

The Contractor is required to properly manage removed stripe and pavement marking and shall implement a project specific **Lead Compliance Plan** prepared by a Certified Industrial Hygienist (CIH) as required by Cal/OSHA.

Use **SSP 14-11.07** if the project includes separate removal of paint or thermoplastic (yellow or white - mix paint) from the road surface.

Use **SSP 15-1.03B** if yellow paint or yellow thermoplastic paint will be removed while grinding the entire pavement surface and the project will not require the paint or thermoplastic paint to be removed before grinding begins.

Use **SSP 15-2.02C (2)** for removal traffic stripes and pavement markings containing lead, for removal when residue is definitely non-hazardous.

IV. Treated Wood Waste

Treated wood waste (TWW) can occur as posts along metal beam guard railing (MBGR), thrie beam barrier, piles, or roadside signs. These wood products are typically treated with preserving chemicals that may be hazardous (carcinogenic) and include but are not limited to arsenic, chromium, copper, creosote, and pentachlorophenol. The Department of Toxics Substances Control (DTSC) requires that TWW either be disposed as a hazardous waste, or if not tested, the generator may presume that TWW is a hazardous waste.

The Contractor shall prepare a detailed Health, Safety and Work Plan for all site personnel in accordance with the DTSC and CAL-OSHA regulations. Treated wood waste must be disposed in an approved treated wood waste facility.

- **Use SSP 14-010_**Treated wood waste.

Current regulations allow for disposal of untested TWW in either a Class I hazardous waste landfill, or a composite-lined portion of a solid waste landfill unit that meets all requirements applicable to disposal of municipal solid waste and that is regulated by waste discharge requirements issued for discharges of designated waste or TWW.

V. Asphalt Grindings.
No AC grindings may be placed in shoulder backing at locations where erosion or maintenance operations could result in their deposit into waterways. Surplus excavated soil if any shall not be disposed of outside the project limits. Caltrans handling procedures for soil must include Dust Control, Spillage Prevention, and Air Quality Monitoring during construction.

VI. National Emission Standards for Hazardous Air Pollutants "NESHAP" Notification.
Based on the Bridge Inspection Records Information System (BIRIS) Bridge No. 16-0010 was built in1938 and is a concrete built structure. This project proposes to demolish and replace this structure.

Federal regulations as described in 40 CFR part 61, Subpart M, are incorporated into California air quality regulations by California Health and Safety code section 39658(b)(1). Caltrans guidelines require compliance with NESHAP regulations.

The NESHAP regulation is enforced by the EPA and in California by the Air Quality Control Boards. In accordance with the County Air Quality Management District regulations, written notification to the District must take place a minimum of ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not) as defined in the NESHAP regulations. The contractor is responsible to do this Notification in a timely manner.

The Feather River Unified Air Quality management District (AQMD) is a Non-Delegated District. (The "Non-delegated" areas are areas where U.S. EPA has not delegated enforcement of the asbestos NESHAP rules to the local air district.)

- Use N-SSP 14-9.02_Air Quality - NESHAP Notification

A Task Order (TO) must be prepared to execute an ACM's survey prior to PS&E. It is the PE responsibility to request to this office to proceed and conduct the ACM's survey at least 6 months prior to PS&E. Estimated cost is $3,800.

VII. Estimate cost and bid items that need to be included in the BEES:

- $3,000 for Lead Compliance for ADL & Yellow traffic stripe
- The cost for "MBGR removal" must include a full compensation for removing, handling, storing, transporting, and disposing TWW, including personnel training in the contract price paid per linear foot of TWW removal.

The landfill disposal cost of TWW is estimated at $800. This extra disposal cost is in addition to the standard "remove MBGR" cost.

1000 linear feet of MBGR approximately generates 12,903 lbs (6.5 Tons) of TWW ($50 disposing fee/Ton x 6.5 tons) + $200 generator ID fee = $ 525.

If you have any question, please call at me at (530) 741-4580.

cc: Sandy Wong & Mark Rayback - Wood Rodgers Assoc., design consultants
Robert E. Polgar - CT Task Manager Oversight