

**THIS REPORT IS PROVIDED AS AN EXAMPLE ONLY. ALL PROJECT INFORMATION, NAMES, AND DATES ARE FICTITIOUS. THIS IS NOT INTENDED TO BE A FINAL REPRESENTATION OF THE WORK DONE OR RECOMMENDATIONS MADE BY CALTRANS FOR AN ACTUAL PROJECT.**

*Long Form - Storm Water Data Report*



Dist-County-Route: 03-Sac-5  
 Post Mile Limits: 0.0/17.2  
 Project Type: Pavement Rehabilitation  
 Project ID (or EA): 03-XXXXXX  
 Program Identification: 201.120  
 Phase:  PID  
 PA/ED  
 PS&E

Regional Water Quality Control Board(s): Central Valley (Region 5, South)

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: \_\_\_\_\_

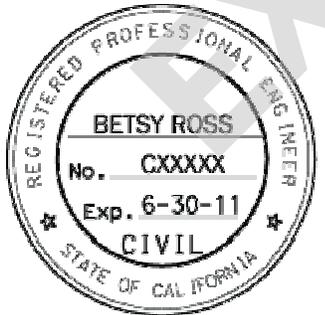
Total Disturbed Soil Area: 11.8 acres Risk Level: 2  
 Estimated: Construction Start Date: January 2011 Construction Completion Date: December 2013  
 Notification of Construction (NOC) Date to be submitted: December 2010

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.*

Betsy Ross 10/08/10  
 [Betsy Ross, PE], Registered Project Engineer/Landscape Architect Date

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



[Stamp Required for PS&E only]

George Washington 10/08/10  
 [George Washington], Project Manager Date  
Paul Revere 10/08/10  
 [Paul Revere), Designated Maintenance Representative Date  
Horatio Gates 10/08/10  
 [Horatio Gates), Designated Landscape Architect Representative Date  
Friedrich Wilhelm von Steuben 10/08/10  
 [Friedrich Wilhelm von Steuben), District/Regional Design SW Coordinator or Designee Date



## STORM WATER DATA INFORMATION

### 1. Project Description

This proposed Roadway Rehabilitation project is along Interstate 5 in Sacramento County from the San Joaquin County line (PM 0.0) to Florin Road IC (PM 17.2). The project was divided into four segments based on the pavement rehabilitation strategy being utilized. Below is the outline of the proposed scope of work for each segment:

#### *Segment 1 - PM 0.0 to PM3.5*

Pavement grinding, random slab replacement, and dowel bar retrofit.

#### *Segment 2 - PM 3.5 to PM 13.0*

Random slab replacements, crack and seat the existing PCC pavement and overlay with asphalt concrete.

#### *Segment 3 - PM13.0 to PM15.7*

Replace lane #2. Rehabilitate lanes #1 and 3 (grind, PCC slab replacement, overlay). Reconstruct and re-grade median and place concrete median barrier for traffic staging purposes.

#### *Segment 4 - PM 15.7 to PM 17.2*

Random slab replacements, crack and seat the existing PCC pavement and overlay with asphalt concrete. Reconstruct paved median for traffic staging.

The total disturbed soil area (DSA) is 11.8 acres. The DSA includes the added impervious areas, areas of median that are being re-graded to eliminate the need for a median ditch and construction staging areas. This calculation does not include shoulder backing or slab replacement. This project adds approximately 0.8 acres of new impervious area, resulting mainly from traffic staging in the median. The existing impervious area is 150 acres and the impervious area after the project is completed is 150.8 acres.

This project is entirely within the City and County of Sacramento Municipal Separate Storm Sewer System (MS4) permit area.

## 2. Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

The Central Valley Regional Water Quality Control Board (CVRWQCB) has jurisdiction within the project limits.

### Hydrologic Units

The project area is located in three hydrologic sub-areas; Hydrologic Unit Number 544.00 at the Sacramento/San Joaquin county line (start of project to PM 1.018), Hydrologic Unit Number 510.00 (PM 1.018 to PM 6.018 and PM 11.018 to end of project) and Hydrologic Unit Number 519.11 (PM 6.018 to 11.018).

### Receiving Water Bodies

The direct receiving water bodies are Morrison Creek and the Mokelumne River at the northern and southern ends of the project. In between, project runoff is conveyed in a series of roadway drainage channels that eventually discharge to unnamed streams, most of which ultimately discharge to the eastern portion of the Sacramento-San Joaquin Rivers' Delta. A small portion of the flow is directed to the City of Sacramento's Sump 90, located west of I-5 and Morrison Creek, where it is pumped through the levee and into the Sacramento River. This stretch of the Sacramento River, however, is downstream of the I Street Bridge in downtown Sacramento, which is defined as being part of the Delta in the CVRWQCB's Basin Plan for Region 5.

### Beneficial Uses

The Basin Plan for the RWQCB does not list any beneficial uses for Morrison Creek, but does provide beneficial uses for the Mokelumne River and the Delta:

- Municipal domestic supply (Delta Only)
- Agriculture irrigation and stock watering
- Industry process and service supply (Delta only)
- Contact recreation and other noncontact recreation
- Canoeing and rafting (Mokelumne only)
- Warm freshwater habitat
- Cold freshwater habitat (COLD)
- Warm and cold migration (MIGR)

- Warm spawning and Cold Spawning (SPWN)
- Wildlife habitat
- Navigation (Delta only)

[Proposed 2006 CWA Section 303\(d\) List](#)

Table 1 shows the project receiving water bodies on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments.

Table 1. Receiving Water Bodies on 303(d) List

Receiving Water Body	303(d) Listed Pollutant	Potential Source	TMDL Completion Date
Delta Waterways (eastern portion)	Chlorpyrifos	Agriculture, Urban Runoff/Storm Sewers	2006
	DDT	Agriculture	2011
	Diazinon	Agriculture, Urban Runoff/Storm Sewers	2006
	Exotic Species	Source Unknown	2019
	Group A Pesticides	Agriculture	2011
	Mercury	Resource Extraction	2006
	Unknown Toxicity	Source Unknown	2019
Morrison Creek	Chlorpyrifos	Source Unknown	2004
	Diazinon	Agriculture	2003
Mokelumne River	Copper	Resource Extraction	2020
	Zinc	Resource Extraction	2020

[Climate](#)

The climate is mild with temperatures ranging from lows in the upper 30s in January and highs in the low 90s in July. The rainy season has been defined by Caltrans as October 15 to April 15. The average monthly precipitation ranges from 0.04 inches in July to 3.74 inches in January. Rainfall intensities based on the Sacramento City Rain Gauge are 0.73 inches/hour for a 10-year return and 1.03 inches/hour for a 100-year return period.

[Topography](#)

The project corridor begins in agricultural land that is being rapidly developed for commercial and residential purposes, and extends into the metropolitan Sacramento area. Over 85 percent of the highway along this corridor is on either cut or fill soils. The terrain is

generally flat. Elevations range from sea level to 14 feet with no hills or mountains within the project area.

### Soil Characteristics

The Natural Resources Conservation Service (NRCS) identifies the soils in the project vicinity as mainly Hydrologic Soil Group (HSG) D with a few areas of HSG C. According to the as-built plans for the original highway construction, over 85 percent of the highway along this corridor is on either cut or fill soils. There will be short (3 to 5 ft wide) fill slopes associated with the construction of this project and will be made as flat as possible, not exceeding 4:1 (H:V).

### Groundwater Information

Test borings for the Hood/Franklin Rd. O.C., Elk Grove Blvd. O.C., Beach Lake Bridge, Route 51160 S.O.H., Florin Rd. O.C., show the ground water to be from 6.0 feet to 32.5 feet below original grade (OG).

### Erosion Potential

The NRCS Web Soil Survey was used to estimate the erodibility of the site. The erosion factor K within the project area ranges from 0.24 to 0.43, with a weighted average of 0.32.

### Risk Assessment

The R factor was determined from the EPA's "Rainfall Erosivity Factor Calculator" to be 85.46. The soil erodibility factor was determined by taking a weighted average of the project erosion factors from the NRCS Web Soil Survey, yielding a value of 0.32. The length-slope factor was determined using existing cross-section information considering the length and slope of all existing slopes to be disturbed and yielded a value of 0.46. These calculations can be found in the attachments.

The product of these values (R, K and LS) is 13. Because this value is less than 15, the project is classified as having a low sediment risk. See the attachments for the sediment risk factor input values.

The receiving water risk is classified as high because the Mokelumne River and the Delta both have the beneficial uses of SPWN, COLD and MIGR. A GIS map prepared by Caltrans was used to verify the high receiving water risk, which is shown in the attachments. Although the GIS map shows only portions of the project as having a high receiving water risk, Chris Allen, the District Storm Water Coordinator, confirmed on September 7, 2010 that the project team should treat the entire project as having a high receiving water risk.

The combined low sediment risk and high receiving water risk results in the project being classified as Risk Level 2. The requirements for Risk Level 2 projects are summarized in Section 6 of this report.

### Measures for Avoiding or Reducing Potential Storm Water Impacts

There are minimal slope stabilization concerns because most of the work proposed for this project will be contained within the existing roadway footprint and the slopes are mild. All DSAs will consist of median re-grading areas, where both the proposed and existing surfaces will have slopes of less than 10 percent. All of these areas will ultimately be re-paved.

The project design allows for the ease of maintaining all best management practices (BMPs), and has been scheduled to minimize soil-disturbing work during the rainy season.

### Land Use

Between PM 0.0 and 9.4, the existing land is primarily agricultural. From PM 9.4 to 15.0, land use remains primarily agricultural on the west side of I-5, with some residential development on the east side. Beyond PM 15.0, land use consists of a mix of residential and commercial development as I-5 enters the metropolitan Sacramento area.

### Right-of-Way Requirements

All work and BMPs will be within Caltrans R/W.

### 3. Regional Water Quality Control Board Agreements

Rose Lorenzo, the CVRWQCB representative sent a letter dated October 5, 2010 to the Project team and Chris Allen, the District Storm Water Coordinator, confirming that there are no permits, negotiated understandings or agreements required with the CVRWQCB pertaining to this project.

### 4. Proposed Design Pollution Prevention BMPs to be used on the Project.

### Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

The proposed improvements increase the impervious area within the project limits. This increase will have a negligible impact on downstream flow due to the small addition of impervious area compared with the drainage areas of the receiving waterbodies (0.8 acres compared with 138,559 acres for Morrison Creek and 289,458 acres for the Delta).

Segments 1 and 2 do not change velocity or volume of downstream flows because the work in these areas involves only roadway rehabilitation and replacement of impervious area. Segments 3 and 4 do not significantly increase the velocity and volume of downstream flows, but slightly modify the local drainage along the roadway. Currently, stormwater from the traveled way in these areas sheet flows to the outside shoulders and into roadside ditches. The median areas outside the traveled way drain to inlets along the paved median ditch and ultimately discharge to the same roadside ditches. To allow for proper staging, the median areas for Segments 3 and 4 will be overlaid or reconstructed to conform to the traveled way elevations and allow for stormwater from the median to sheet flow to the outside shoulders. While the direction of flow along the median will be modified, the overall drainage patterns will not change because all flows from the roadway (traveled way and

median) still combine at the roadside ditches. None of these ditches will have a flow velocity of greater than 4 feet per second in a 25-year storm. Detailed calculations can be found in the project Drainage Report.

This project utilizes low impact development (LID) efforts to maintain or restore pre-project hydrology, as well as provide overall water quality improvement of discharges. These LID efforts are incorporated in the development and placement of permanent BMPs to the maximum extent practicable. LID measures incorporated into this project that improve water quality include:

- Graded slopes to blend with the natural terrain at 4:1 (H:V) and flatter slopes and decreasing quantities of dikes for sheet flow to vegetated areas which provide water quality benefits and promote infiltration;
- Maintaining existing vegetated areas with ESA fencing.

This project will only result in work within the existing roadway footprint and will not encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability.

#### [Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3](#)

While the project results in a soil disturbance of 11.8 acres, no significant slope disturbance is anticipated for this project. The soil disturbed for segments 3 and 4 is mainly a result of the reconstruction of median areas extending from the median edge of travel way to the concrete median barrier. These areas are all proposed to be paved and none will have a slope steeper than 5 percent. The proposed shoulder backing slopes to accommodate the overlay thickness and the existing slopes are all 4:1 (H:V) or flatter. As a result, no slope or surface protection systems are necessary. The RUSLE2 summary sheet is included in the attachments.

#### [Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4](#)

The drainage patterns will not be significantly altered for this project, and there will be no significant increase in flows due to an added impervious area of less than one acre spread out over several miles.

For segments 1 and 2, the drainage pattern will not be altered. Runoff within the traveled way will continue to sheet flow to the outside shoulders and roadside drainage ditches. The median area drainage will remain the same as in the existing condition, with flow from median drain inlets periodically conveyed through culverts to the roadside drainage ditches and channels (PM 0.0 to PM 13 .0, south of Morrison Creek). For segments 3 and 4, from north of Morrison Creek to the end of the project limits, the drainage pattern will be slightly altered. The median will be reconstructed to allow for sheet flow along the traveled way to the edge of shoulder, and the existing median drainage inlets will be capped and abandoned.

This project proposes to cap and abandon existing drainage inlets. Existing cross drains that no longer receive runoff will also be abandoned. Detailed calculations documenting the changes in ditch flows and velocities can be found in the Drainage Report. The small changes of flow does not result in any velocities greater than 4 feet per second, and the existing roadside ditches are able to convey flows with adequate freeboard per section 860 of the Highway Design Manual.

#### Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Existing vegetation is preserved to the maximum extent practicable. The project involves minimum clearing and grubbing because the majority of the project is currently paved. In some locations, an approximately 5 foot wide swath is re-graded with shoulder backing at 4:1 (H:V) or shallower for newly placed asphalt concrete overlay. These areas do not contain any environmentally sensitive areas.

#### 5. Proposed Permanent Treatment BMPs to be used on the Project

This project is not required to consider treatment BMPs because the added impervious area is less than 1 acre; see the attached Evaluation Documentation Form.

#### 6. Proposed Temporary Construction Site BMPs to be used on Project

As presented in Section 2 of this Report, this project is classified as Risk Level 2. This section presents the temporary construction site BMP strategy to be implemented for this project to meet both current Caltrans criteria and the requirements presented in the CGP.

#### Storm Water Pollution Prevention Plan

The project has a DSA of 11.8 acres. Because this project disturbs more than one acre of soil, a Storm Water Pollution Prevention Plan (SWPPP) must be submitted for this project by the Contractor prior to the start of construction. The SWPPP shall include a Construction Site Monitoring Program (CSMP) that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH.

#### Rain Event Action Plan

Risk Level 2 projects are required to prepare a Rain Event Action Plan (REAP). The number of REAPs anticipated for this project is shown in Table 2. The quantities for REAPs are based on precipitation data from a National Oceanic and Atmospheric Administration station in Sacramento. Calculations are included in the attachments of this report.

#### Construction Site BMP Strategy

The construction work for this project is scheduled to cover three years. The project specifications state that the scheduling of earth-disturbing construction activities will not occur during an anticipated rain event. To mitigate any potential runoff or run-on within the

project area, construction site BMPs will be installed prior to the start of construction or as early as feasibly possible during construction.

Since construction is scheduled for three years, there is potential for erosion to occur on existing and newly formed slopes. Multiple mobilization Move-In/Move-Out locations are proposed for the project to implement temporary erosion control and construction site measures throughout the project.

Temporary Hydraulic Mulch (Bonded Fiber Matrix) will be placed on any exposed disturbed soils, stockpiles of soils and unprotected slopes that may be susceptible to erosion from either runoff or wind. Temporary cover is also used to protect DSAs from erosion. This additional measure to protect DSAs is necessary when a rain event has the potential to occur before vegetation and mulch are established.

Temporary fiber rolls will be utilized as a sediment control measure to minimize both sediment-laden sheet flows and concentrated flows from discharging offsite.

Gravel bag berms will be placed around stockpiles of loose soil to prevent sediment from entering paved areas or from disturbing construction. The berms will also be used in coordination with soil stabilization measures to protect DSAs and slopes where there is potential for sediment-laden runoff.

Temporary drainage inlet protection prevents sediment from entering current or proposed storm drains. Drainage inlet protection Type 5, "Sediment Filter Bag," is excluded from the acceptable drainage inlet protection types due to the difficulty of maintaining the filter bag.

Offsite tracking of sediment is limited by placing stabilized construction entrances and tire washes in combination with regular street sweeping and vacuuming. Stabilized construction roadways are used to provide access for construction activities. Street sweeping is also utilized to remove tracked sediment.

Concrete wastes are managed through the use of concrete washout facilities. Various waste management, materials handling, and other housekeeping items are used throughout the duration of the project. Stockpiles of various kinds are maintained with the appropriate BMPs.

The design of all Construction BMPs complies with the design requirements found in the Caltrans *Storm Water Quality Handbooks: Construction Site Best Management Practices (BMPs) Manual*.

The construction BMP strategies outlined above were discussed in a meeting with Jake Luby, the Caltrans Construction Storm Water Coordinator, on September 29, 2010. Mr. Luby concurred with the strategy listed above. Costs have been estimated per the Unit Cost method outlined in Appendix F of the PPDG. Unit prices were estimated using the methods outlined in Section F.6.3 in Appendix F of the PPDG.

**Storm Water Sampling and Analysis**

This project is required to perform stormwater sampling at all discharge locations. Numeric Action Levels are applicable to this project because the project is Risk Level 2. Storm water sampling and analysis requirements are specified in the project Special Provisions. This project has 19 discharge points. The estimated costs for sampling related items were estimated per the Caltrans “Estimating Guidance for CGP.”

**Table 2: Quantities for Construction Site BMPs**

BEES	Temporary BMPs - PPDG Appendix C	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit
	<b>Temporary Soil Stabilization</b>				
074037	Move-In/Move-out (Temporary Erosion Control)	07-485	No	6	EA
074040	Temp. Hydraulic Mulch (Bonded Fiber Matrix)	07-381	No	20,000	ft <sup>2</sup>
074034	Temporary Cover	07-395	Yes	20,000	ft <sup>2</sup>

BEES	Temporary Sediment Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit
074029	Temp. Silt Fence	07-430	Yes	3000	ft
074028	Temporary Fiber Roll	07-420	Yes	5000	ft
074031	Temporary Gravel Bag Berm	07-470	No	1500	ft
074041	Street Sweeping	07-360	No	1	LS
074038	Temp. Drainage Inlet Protection	07-490	Yes	64	EA

BEES	Temporary Wind Erosion Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit

BEES	Temporary Tracking Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit
074033	Stabilized Constr. Entrance/Exit	07-480	Yes	6	EA

**Table 2: Quantities for Construction Site BMPs**

BEES	Temporary Waste Management Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit
CSM*	Material Delivery and Storage	07-346	No		LS
CSM*	Material Use	07-346	No		LS
CSM*	Stockpile Management	07-346	No		LS
CSM*	Spill Prevention and Control	07-346	No		LS
CSM*	Solid Waste Management	07-346	No		LS
CSM*	Hazardous Waste Management	07-346	No		LS
CSM*	Contaminated Soil Management	07-346	No		LS
	Concrete Waste Management	07-346	No		LS
074043	Temp. Concrete Washout Bin	07-407	No	6	EA
	Grinding PCC (Displ of PCC Pavemt Grooving & Grinding Residues)	42-600	No		LS
CSM*	Sanitary/Septic Waste Managemt	07-346	No		LS
CSM*	Liquid Waste Management	07-346	No		LS
CSM*	Water Conservation Practices	07-346	No		LS
CSM*	Paving & Grinding Operations				LS
	Pavements	S5-250	No		ft <sup>2</sup>
CSM*	Illicit Connection/Illegal Discharge Detection and	07-346	No		LS
CSM*	Potable Water/Irrigation	07-346	No		LS
CSM*	Vehicle and Equipment Cleaning	07-346	No		LS
CSM*	Vehicle and Equipment Fueling	07-346	No		LS
CSM*	Vehicle and Equipmt Maintenance	07-346	No		LS
CSM*	Concrete Curing	07-346	No		LS
CSM*	Concrete Finishing	07-346	No		LS
CSM*	<b>*Construction Site Management</b>	07-346	No	1	LS

BEES	Miscellaneous Items	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit
074019	Water Pollution Control (SWPPP)	07-345	No	1	LS
066595	Water Pollution Control Maintenance Sharing			1	LS
066596	Additional Water Pollution Control			1	LS
066597	Storm Water Sampling and Analysis		No	1	LS
074056	Rain Event Action Plan			109	EA
074057	Storm Water Annual Report			3	EA
074058	Storm Water Sampling and Analysis Day			72	EA

### 7. Maintenance BMPs (Drain Inlet Stenciling)

Drain inlet stenciling is not required because pedestrian traffic is prohibited within the project limits. Aubrey Griffin, the Caltrans Maintenance Area Manager, sent an email to the Project team and George Washington, the Project Manager, on October 7, 2010 confirming that no additional maintenance BMPs are required based on the proposed layout.

### Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Construction Site BMP Consideration Form
- RUSLE2 Summary Sheet
- Risk Level Determination Documentation
- SWDR Tracking Form

### Supplemental Attachments

*Note: Supplemental Attachments are to be supplied during the SWDR approval process; where noted, some of these items may only be required on a project-specific basis.*

- Storm Water BMP Cost Summary
- Checklist SW-1, Site Data Sources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- Checklists CS-1, Parts 1–6 (Construction Site BMPs)
- Layout Plans Showing Sampling Locations



## Evaluation Documentation Form

DATE: October 2010

Project ID ( or EA): 03-XXXXXX

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs. Go to 2
2.	Is this an emergency project?		✓	If Yes, go to 10. If No, continue to 3.
3.	Have TMDLs or other Pollution Control Requirements been established for surface waters within the project limits? Information provided in the water quality assessment or equivalent document.	✓		If Yes, contact the District/Regional NPDES Coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 9 or 4. <i>FWS</i> (Dist./Reg. SW Coordinator initials) If No, continue to 4.
4.	Is the project located within an area of a local MS4 Permittee?	✓		If Yes. ( <i>Sacramento County</i> ), go to 5. If No, document in SWDR go to 5.
5.	Is the project directly or indirectly discharging to surface waters?	✓		If Yes, continue to 6. If No, go to 10.
6.	Is it a new facility or major reconstruction?		✓	If Yes, continue to 8. If No, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?	✓		If Yes, continue to 8. If No, go to 10.
8.	Does the project result in a <u>net increase of one acre or more of new impervious surface</u> ?		✓	If Yes, continue to 9. If No, go to 10.  <i>0.8 acres (Net Increase New Impervious Surface)</i>
9.	Project is required to consider approved Treatment BMPs.			See Sections 2.4 and either Section 5.5 or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.
10.	Project is not required to consider Treatment BMPs. <i>FWS</i> (Dist./Reg. Design SW Coord. Initials) <i>BR</i> (Project Engineer Initials)  <i>10/08/10</i> (Date)	✓		Document for Project Files by completing this form, and attaching it to the SWDR.

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

## Construction Site BMP Consideration Form

DATE: October 2010

Project ID (or EA): 03-XXXXXX

Project Evaluation Process for the Consideration of Construction Site BMPs

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION
1.	Will construction of the project result in areas of disturbed soil as defined by the Project Planning and Design Guide (PPDG)?	✓		If Yes, Construction Site BMPs for Soil Stabilization (SS) will be required. Complete CS-1, Part 1. Continue to 2. If No, Continue to 3.
2.	Is there a potential for disturbed soil areas within the project to discharge to storm drain inlets, drainage ditches, areas outside the right-of-way, etc?	✓		If Yes, Construction Site BMPs for Sediment Control (SC) will be required. Complete CS-1, Part 2. Continue to 3.
3.	Is there a potential for sediment or construction related materials and wastes to be tracked offsite and deposited on private or public paved roads by construction vehicles and equipment?	✓		If Yes, Construction Site BMPs for Tracking Control (TC) will be required. Complete CS-1, Part 3. Continue to 4.
4.	Is there a potential for wind to transport soil and dust offsite during the period of construction?	✓		If Yes, Construction Site BMPs for Wind Erosion Control (WE) will be required. Complete CS-1, Part 4. Continue to 5.
5.	Is dewatering anticipated or will construction activities occur within or adjacent to a live channel or stream?		✓	If Yes, Construction Site BMPs for Non-Storm Water Management (NS) will be required. Complete CS-1, Part 5. Continue to 6.
6.	Will construction include saw-cutting, grinding, drilling, concrete or mortar mixing, hydro-demolition, blasting, sandblasting, painting, paving, or other activities that produce residues?	✓		If Yes, Construction Site BMPs for Non-Storm Water Management (NS) will be required. Complete CS-1, Parts 5 & 6. Continue to 7.
7.	Are stockpiles of soil, construction related materials, and/or wastes anticipated?	✓		If Yes, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Complete CS-1, Part 6. Continue to 8.
8.	Is there a potential for construction related materials and wastes to have direct contact with precipitation; stormwater run-on, or stormwater runoff; be dispersed by wind; be dumped and/or spilled into storm drain systems?	✓		If Yes, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Complete CS-1, Part 6. Continue to 9.
9.	End of checklist.	✓		Document for Project Files by completing this form, and attaching it to the SWDR.

*Betsy Padd*

*10/08/10*

PE to initialize after concurrence with Construction (PS&E only)

Date



Project: 03-Sac-5 Pavement Rehabilitation

Location: PM 0.0/17.2

**Site Characteristics**

CLIMATE		SOIL		TOPOGRAPHY	
Rainfall Erosivity (R):	17	Soil type:	Sacramento County, Ca\134 DIERSSEN SANDY CLAY LOAM, DRAINED, 0 TO 2 PERCENT SLOPES\DIERSSEN sandy clay loam 85%	Slope % factor (S):	5
		Soil erodibility (K):	0.32 (Weighted Average for entire Project)	Slope length factor (L):	50

**RUSLE2 Program Runs**

PROJECT PHASE	RUSLE2	COVER (C) and PRACTICE (P)		OUTPUT	
	Run no.	Management (Vegetation type / % cover / BMP)	Permeable Barrier	Soil loss (t/ac/yr)	Sediment delivery (t/ac/yr)
Pre-Project	1	Existing Undisturbed Vegetative Cover\Mixed Grass and shrubs, existing, 25 to 35 pct Canopy Cover	N/A	5.05	5.05
Construction with no BMPs	2	Highly disturbed\Construction With Temporary Practices\Construction With No Practices\bare fill slope, smooth	N/A	13.8	13.8
Construction with BMPs	3	Highly disturbed\Construction With Temporary Practices\Erosion Control Blankets and Mulch Materials\Hydraulic Mulch, BFM 3400 lbs/ac	None	1.05	1.05
Post-Construction	4	Highly disturbed\Post Construction Cut / Fill Surfaces\Practices Without Vegetation\Hydraulic Mulch, BFM 3400 lbs/ac	None	5.05	5.05



Risk Level Determination Documentation

## Rainfall Erosivity Factor Calculator for Small Construction Sites

### Facility Information

Facility Name: I-5 Rehabilitation (PM 0.0/17.2)

Start Date: 01/01/2011

End Date: 12/31/2013

Latitude: 38.3754

Longitude: -121.4756

### Erosivity Index Calculator Results

AN EROSIIVITY INDEX VALUE OF **85.46** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **01/01/2011 - 12/31/2013**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements.**

Source: EPA < <http://cfpub.epa.gov/npdes/stormwater/lew/lewcalculator.cfm> >



K Factor, Rock Free—Sacramento County, California, San Joaquin County, California, and Yolo County, California

### K Factor, Rock Free

K Factor, Rock Free— Summary by Map Unit — Sacramento County, California				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
114	Clear Lake clay, partially drained, 0 to 2 percent slopes, frequently flooded	.32	239.2	3.3%
115	Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes	.32	789.3	10.9%
116	Columbia sandy loam, partially drained, 0 to 2 percent slopes	.32	19.0	0.3%
127	Cosumnes silt loam, partially drained, 0 to 2 percent slopes	.43	85.7	1.2%
133	Dierssen sandy loam, drained, 0 to 2 percent slopes	.32	53.4	0.7%
134	Dierssen sandy clay loam, drained, 0 to 2 percent slopes	.32	981.8	13.6%
135	Dierssen clay loam, deep, drained, 0 to 2 percent slopes	.32	692.1	9.6%
137	Durixeralfs, 0 to 1 percent slopes	.24	5.2	0.1%
138	Durixeralfs-Galt complex, 0 to 2 percent slopes	.24	442.6	6.1%
141	Egbert clay, partially drained, 0 to 2 percent slopes	.28	557.1	7.7%
142	Egbert clay, partially drained, 0 to 2 percent slopes, frequently flooded	.28	211.0	2.9%
143	Egbert-Urban land complex, partially drained, 0 to 2 percent slopes	.28	114.9	1.6%
150	Fluvaquents, 0 to 2 percent slopes, frequently flooded		17.7	0.2%
151	Galt clay, leveled, 0 to 1 percent slopes	.24	119.3	1.6%
152	Galt clay, 0 to 2 percent slopes	.24	320.0	4.4%
154	Galt-Urban land complex, 0 to 2 percent slopes	.24	60.0	0.8%
169	Laugenour loam, partially drained, 0 to 2 percent slopes	.37	12.0	0.2%
190	Pits		10.4	0.1%
206	Sailboat silt loam, partially drained, 0 to 2 percent slopes	.43	38.2	0.5%
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	.37	601.9	8.3%
214	San Joaquin silt loam, 0 to 3 percent slopes	.37	520.9	7.2%
217	San Joaquin-Galt complex, leveled, 0 to 1 percent slopes	.37	166.3	2.3%
218	San Joaquin-Galt complex, 0 to 3 percent slopes	.37	22.6	0.3%

## Long Form - Storm Water Data Report

K Factor, Rock Free—Sacramento County, California, San Joaquin County, California, and Yolo County, California

K Factor, Rock Free— Summary by Map Unit — Sacramento County, California				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
219	San Joaquin-Urban land complex, 0 to 2 percent slopes	.37	118.4	1.6%
222	Scribner clay loam, partially drained, 0 to 2 percent slopes	.32	194.0	2.7%
225	Tinnin loamy sand, 0 to 2 percent slopes	.17	24.4	0.3%
230	Valpac loam, partially drained, 0 to 2 percent slopes	.37	78.3	1.1%
238	Xerarents-San Joaquin complex, 0 to 1 percent slopes		66.6	0.9%
247	Water		191.3	2.6%
<b>Subtotals for Soil Survey Area</b>			<b>6,753.8</b>	<b>93.2%</b>
<b>Totals for Area of Interest</b>			<b>7,244.7</b>	<b>100.0%</b>

K Factor, Rock Free— Summary by Map Unit — San Joaquin County, California				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
138	Cosumnes silty clay loam, drained, 0 to 2 percent slopes	.37	228.6	3.2%
148	Dello clay loam, drained, 0 to 2 percent slopes, overwashed	.28	22.1	0.3%
153	Egbert silty clay loam, partially drained, 0 to 2 percent slopes	.28	6.3	0.1%
222	Reiff fine sandy loam, 0 to 2 percent slopes, occasionally flooded	.37	21.0	0.3%
234	Sailboat silt loam, drained, 0 to 2 percent slopes	.43	104.5	1.4%
243	Scribner clay loam, partially drained, 0 to 2 percent slopes	.32	108.0	1.5%
<b>Subtotals for Soil Survey Area</b>			<b>490.5</b>	<b>6.8%</b>
<b>Totals for Area of Interest</b>			<b>7,244.7</b>	<b>100.0%</b>

K Factor, Rock Free— Summary by Map Unit — Yolo County, California				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
W	Water		0.7	0.0%
<b>Subtotals for Soil Survey Area</b>			<b>0.7</b>	<b>0.0%</b>
<b>Totals for Area of Interest</b>			<b>7,244.7</b>	<b>100.0%</b>

K Factor Calculations  
Source: Web Soil Survey

Map Unit Symbol	Rating	Acres in AOI	Rating*AOI
114	0.32	239.2	76.544
115	0.32	789.3	252.576
116	0.32	19	6.08
127	0.43	85.7	36.851
133	0.32	53.4	17.088
134	0.32	981.8	314.176
135	0.32	692.1	221.472
137	0.24	5.2	1.248
138	0.24	442.6	106.224
141	0.28	557.1	155.988
142	0.28	211	59.08
143	0.28	114.9	32.172
151	0.24	119.3	28.632
152	0.24	320	76.8
154	0.24	60	14.4
169	0.37	12	4.44
206	0.43	38.2	16.426
213	0.37	601.9	222.703
214	0.37	520.9	192.733
217	0.37	166.3	61.531
218	0.37	22.6	8.362
219	0.37	118.4	43.808
222	0.32	194	62.08
225	0.17	24.4	4.148
230	0.37	78.3	28.971
Total		6467.6	2044.533

Average

**0.32**



## Long Form - Storm Water Data Report

Alignment	Station	Length - L	Slope - S	L x S	Length - L	Slope - S	L x S	Total L	Avg S
		(ft)	(ft/ft)		(ft)	(ft/ft)		(ft)	(ft/ft)
"B1"	800+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	810+00	20	0.06	1.200	20	0.05	1.000	40	0.06
"B1"	820+00	20	0.04	0.800	20	0.06	1.200	40	0.05
"B1"	830+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	840+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	850+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	860+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	870+00	20	0.06	1.200	20	0.07	1.400	40	0.07
"B1"	880+00	20	0.04	0.800	20	0.05	1.000	40	0.05
"B1"	890+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	900+00	20	0.05	1.000	20	0.04	0.800	40	0.05
"B1"	910+00	20	0.05	1.000	20	0.06	1.200	40	0.06
"B1"	920+00	20	0.07	1.400	20	0.05	1.000	40	0.06
"B1"	930+00	20	0.05	1.000	20	0.05	1.000	40	0.05
"B1"	940+00	20	0.04	0.800	20	0.04	0.800	40	0.04
"B1"	950+00	18	0.04	0.720	18	0.06	1.080	36	0.05
"B1"	960+00	16	0.05	0.800	16	0.05	0.800	32	0.05
"B1"	970+00	14	0.04	0.560	14	0.05	0.700	28	0.05
"B1"	980+00	12	0.04	0.480	12	0.04	0.480	24	0.04
"B1"	990+00	10	0.06	0.600	10	0.06	0.600	20	0.06
Average:								<b>37.00</b>	<b>0.0505</b>

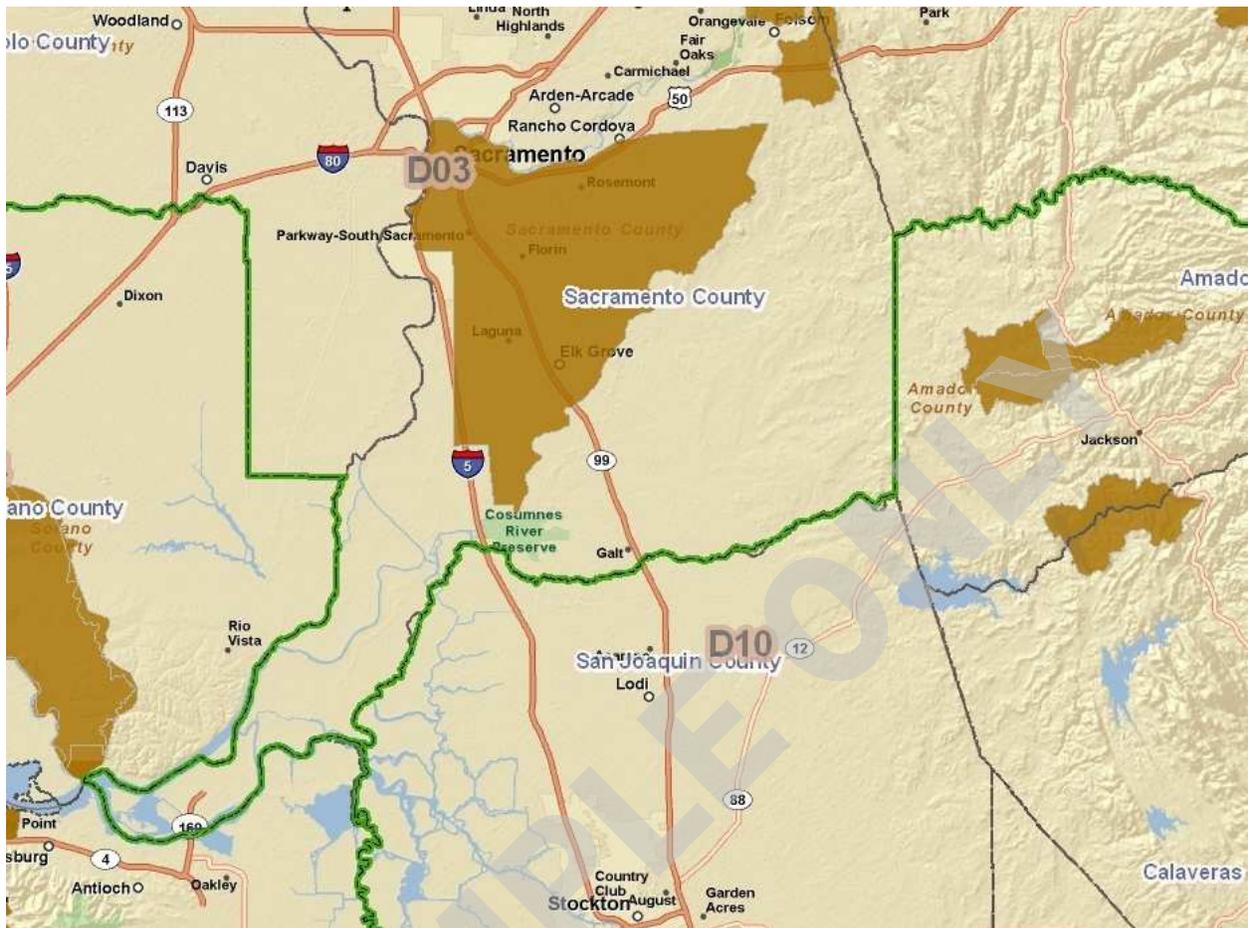
		Average Watershed Slope (%)							
Sheet Flow Length (ft)									
	0.2	0.5	1.0	2.0	3.0	4.0	5.0	6.0	
<3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	



## Long Form - Storm Water Data Report

	A	B	C
1	<b>Sediment Risk Factor Worksheet</b>		<b>Entry</b>
2	<b>A) R Factor</b>		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	<a href="http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm">http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm</a>		
5	<b>R Factor Value</b>		85.46
6	<b>B) K Factor (weighted average, by area, for all site soils)</b>		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	<a href="#">Site-specific K factor guidance</a>		
9	<b>K Factor Value</b>		0.32
10	<b>C) LS Factor (weighted average, by area, for all slopes)</b>		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	<a href="#">LS Table</a>		
13	<b>LS Factor Value</b>		0.46
14			
15	<b>Watershed Erosion Estimate (=R<sub>x</sub>K<sub>x</sub>LS) in tons/acre</b>		12.579712
16	<b>Site Sediment Risk Factor</b>		<b>Low</b>
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water Risk GIS Map



Source: Caltrans

		Combined Risk Level Matrix		
		Sediment Risk		
Receiving Water Risk	Low	Low	Medium	High
	Low	Level 1	Level 2	
High	Level 2		Level 3	

Project Sediment Risk: **Low**  
 Project RW Risk: **High**  
 Project Combined Risk: **Level 2**

Source: State Water Resources Control Board

EXAMPLE ONLY



Report Date	Dist EA	District	EA	County	Route	Beg PM	End PM	Descrip	Phase	LongSWDR	PhaseRptDate	Exempt	TBMP	Pollution Program	Land Disturbance Acreage	AddImpArea	PercentTreated	MS4Area	MS4ClCo	Water Bodies Affected	Criteria	BioStrip	BioSwale	Detention	Infiltration	InfilTrench	GSRD	TST	DryWeath	MedFilter	MCTT	WetBasin	Const Start	Const Comp	SWComment	
10/8/2010	03-XXXX	3	XXXXXX	Sac	5	0	17.2	Paveme	PS&E	TRUE	10/8/2010	FALSE	FALSE	SWPPP	11.8	0.8	0	TRUE	Sacramen	Morrison Creek, Mokelui	N/A	0	0	0	0	0	0	0	0	0	0	0	0	1/1/2011	12/31/2013	

EXAMPLE ONLY

**EXAMPLE ONLY**

Long Form - Storm Water Data Report

Storm Water BMP Cost Summary – PS&E Phase

THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Temporary Construction Site BMPs

BEES	Temporary BMPs - PPDG Appendix C	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost (\$)
	<b>Temporary Soil Stabilization</b>						
074037	Move-In/Move-out (Temporary Erosion Control)	07-485	No	6	EA	100	\$ 600
074040	Temp. Hydraulic Mulch (Bonded Fiber Matrix)	07-381	No	20,000	ft <sup>2</sup>	0.12	\$ 2,400
074034	Temporary Cover	07-395	Yes	20,000	ft <sup>2</sup>	1	\$ 12,000
<b>Subtotal Soil Stabilization BMPs</b>							<b>\$ 15,000</b>

BEES	Temporary Sediment Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
074029	Temp. Silt Fence	07-430	Yes	3000	ft	\$3	\$ 9,000
074028	Temporary Fiber Roll	07-420	Yes	5000	ft	\$4	\$ 20,000
074031	Temporary Gravel Bag Berm	07-470	No	1500	ft	\$4	\$ 6,000
074041	Street Sweeping	07-360	No	1	LS	\$10,000	\$ 10,000
074038	Temp. Drainage Inlet Protection	07-490	Yes	64	EA	\$200	\$ 12,800
<b>Subtotal Sediment Control BMPs</b>							<b>\$ 57,800</b>

BEES	Temporary Wind Erosion Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
							\$ -
<b>Subtotal Wind Erosion Control BMPs</b>							<b>\$ -</b>

BEES	Temporary Tracking Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
074033	Stabilized Constr. Entrance/Exit	07-480	Yes	6	EA	2,500	\$ 15,000
<b>Subtotal Tracking Control BMPs</b>							<b>\$ 15,000</b>

BEES	Temporary Waste Management Control	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
CSM*	Material Delivery and Storage	07-346	No		LS		\$ -
CSM*	Material Use	07-346	No		LS		\$ -
CSM*	Stockpile Management	07-346	No		LS		\$ -
CSM*	Spill Prevention and Control	07-346	No		LS		\$ -
CSM*	Solid Waste Management	07-346	No		LS		\$ -
CSM*	Hazardous Waste Management	07-346	No		LS		\$ -
CSM*	Contaminated Soil Management	07-346	No		LS		\$ -
	Concrete Waste Management	07-346	No		LS		\$ -
074043	Temp. Concrete Washout Bin	07-407	No	6	LS	1,500	\$ 9,000
	Grinding PCC (Displ of PCC Pavemt Grooving & Grinding Residues)	42-600	No		LS		\$ -
CSM*	Sanitary/Septic Waste Managemt	07-346	No		LS		\$ -
CSM*	Liquid Waste Management	07-346	No		LS		\$ -
<b>Subtotal Waste Management &amp; Materials Handling BMPs</b>							<b>\$ 9,000</b>

## Long Form - Storm Water Data Report

### Temporary Construction Site BMPs (cont'd)

BEES	Temporary Non-Storm Water Management	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
CSM*	Water Conservation Practices	07-346	No		LS		\$ -
CSM*	Paving & Grinding Operations				LS		\$ -
	Pavements	S5-250	No		ft <sup>2</sup>		\$ -
CSM*	Illicit Connection/Illegal Discharge Detection and	07-346	No		LS		\$ -
CSM*	Potable Water/Irrigation	07-346	No		LS		\$ -
CSM*	Vehicle and Equipment Cleaning	07-346	No		LS		\$ -
CSM*	Vehicle and Equipment Fueling	07-346	No		LS		\$ -
CSM*	Vehicle and Equipmt Maintenance	07-346	No		LS		\$ -
CSM*	Concrete Curing	07-346	No		LS		\$ -
CSM*	Concrete Finishing	07-346	No		LS		\$ -
CSM*	<b>*Construction Site Management</b>	07-346	No	1	LS	12,000	\$ 12,000
<b>Subtotal Non-Storm Water Management</b>							<b>\$ 12,000</b>

BEES	Miscellaneous Items	SSP/nSSP (#, Y or N)	STD. Det. (Y or N)	Quantity	Unit	Unit Cost (\$/Unit)	Cost
074019	Water Pollution Control (SWPPP)	07-345	No	1	LS	33,100	\$ 33,100
066595	Water Pollution Control Maintenance Sharing			1	LS	40,000	\$ 40,000
066596	Additional Water Pollution Control			1	LS	3,200	\$ 3,200
066597	Storm Water Sampling and Analysis		No	1	LS	3,200	\$ 3,200
074056	Rain Event Action Plan			109	EA	500	\$ 54,500
074057	Storm Water Annual Report			3	EA	2,000	\$ 6,000
074058	Storm Water Sampling and Analysis Day			72	EA	3,036	\$ 218,594
<b>Subtotal Miscellaneous Items</b>							<b>\$ 358,594</b>

<b>Total Construction Site BMP Costs</b>							<b>\$ 467,394</b>
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**Notes:**

Refer to calculations on following sheet for breakdown of cost estimate  
 Estimate is based on \$10M total project cost

## Long Form - Storm Water Data Report

### Routine Quarterly Monitoring (Equation 1)

36 months	/	3	+	1			13 inspections
19 discharges	+	4 additional discharges					23 discharges
					Total		\$ 100 /hour
							\$ 29,900

### Prepare Storm Water Pollution Prevention Plan (Table F-6)

Total Estimated Construction Cost	\$ 10,000,000
Prepare SWPPP Base Cost	\$ 3,200
Routine Quarterly Monitoring Cost	\$ 29,900
Total	\$ 33,100

### Prepare Storm Water Pollution Prevention Plan (Table F-6)

Prepare WPCP Cost	\$ -
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### Storm Water Annual Report

1 report/year	x	3 years	x	\$2000/ea	\$ 6,000
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### REAP (Storms Generating ≥ 0.10 inches)

36.2 rainy days/year	x	3 years			109 days
36.2 rainy days/year	x	0 subsequent months	÷	12 subsequent months/year	0 days
					109 days
					109 REAPs
				\$500 per REAP	\$ 54,500

### Storm Water Monitoring Cost (Equation 3)

M Value					3
23.9 rainy days/year	x	3 years			72 days
23.9 rainy days/year	x	0 subsequent months	÷	12 subsequent months/year	0 days
					72 days
Daily cost to perform sampling and analysis					\$ 3,000
Equipment Maintenance Cost					\$ 2,583
					\$ 217,683

Unit Price: \$ 3,036.03

Source: Project Planning and Design Guide, Appendix F.6.3



National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Climatography  
of the United States  
No. 20  
1971-2000**

U.S. Department of Commerce  
National Oceanic & Atmospheric Administration  
National Environmental Satellite, Data,  
and Information Service

**Station: SACRAMENTO AP, CA**      **WWS Call Sign: SAC**      **Elevation: 15 Feet**      **Lat: 38° 30'N**      **Lon: 121° 30'W**  
**Climate Division: CA 2**      **COOP ID: 047630**

Month	Precipitation (inches)										Precipitation Probabilities (1)													
	Precipitation Totals					Mean Number of Days (3)					Probability that the monthly/annual precipitation will be equal to or less than the indicated amount													
	Means/Medians(1)		Extremes			Daily Precipitation					Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution													
Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	
Jan	3.84	3.63	3.05	1967	21	9.14	1978	.16	1984	10.5	6.8	2.4	.8	.28	.53	1.02	1.55	2.14	2.82	3.63	4.67	6.10	8.52	10.92
Feb	3.54	3.13	2.63	1986	17	9.95	1998	.20	1995	9.1	6.3	2.6	.8	.35	.61	1.09	1.58	2.12	2.72	3.43	4.32	5.54	7.56	9.55
Mar	2.80	2.43	1.85	1982	31	8.13	1995	.05	1994	9.4	6.2	1.9	.3	.22	.40	.76	1.15	1.58	2.07	2.66	3.41	4.44	6.18	7.89
Apr	1.02	.85	2.17	1958	2	4.21	1983	.00	1985	4.9	2.8	.6	.1	.06	.16	.31	.46	.62	.80	1.00	1.25	1.60	2.16	2.71
May	.53	.25	1.35	1990	27	2.98	1998	.00+	1992	2.9	1.3	.3	.1	.00	.00	.00	.03	.10	.21	.36	.58	.90	1.51	2.14
Jun	.20	.04	1.14	1993	4	1.26	1993	.00+	1996	1.2	.5	.1	@	.00	.00	.00	.00	.01	.06	.12	.21	.35	.58	.82
Jul	.05	.00	.77	1974	8	.79	1974	.00+	2000	2	.1	@	.0	**	**	**	**	**	**	**	**	**	**	**
Aug	.06	.00	.65	1965	11	.65	1976	.00+	2000	4	.2	.0	.0	.00	.00	.00	.00	.00	.00	.00	.00	.05	.20	.37
Sep	.36	.08	1.79	1989	16	2.78	1989	.00+	1999	1.5	.9	.2	@	.00	.00	.00	.00	.00	.07	.21	.39	.65	1.10	1.55
Oct	.89	.72	3.77	1962	13	2.61	1982	.00+	1995	3.6	1.8	.7	.2	.00	.00	.11	.24	.39	.57	.79	1.08	1.48	2.18	2.89
Nov	2.19	1.66	2.42	1970	28	6.27	1973	.00	1995	7.2	4.5	1.6	.5	.04	.16	.43	.73	1.08	1.50	2.00	2.65	3.57	5.13	6.69
Dec	2.45	2.51	2.87	1955	19	6.39	1996	.00	1989	8.2	4.8	1.9	.4	.13	.36	.73	1.09	1.48	1.90	2.40	3.02	3.86	5.25	6.60
Ann	17.93	16.17	3.77	1962	13	9.95	1998	.00+	Aug 2000	59.1	36.2	12.3	3.2	8.04	9.63	11.84	13.63	15.31	16.99	18.80	20.87	23.47	27.42	30.98

+ Also occurred on an earlier date(s)  
# Denotes amount of a trace  
@ Denotes mean number of days greater than 0 but less than .05  
\*\* Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals  
(2) Derived from station's available digital record: 1941-2001  
(3) Derived from 1971-2000 serially complete daily data  
Complete documentation available from: [www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

*36.2 - 12.3 = 23.9*

## Checklist SW-1, Site Data Sources

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
<ul style="list-style-type: none"> <li>Florin, CA Map, Contour Interval 5 ft, Elevation Data USGS 1 arc-second NED, 1 meter vertical precision.</li> </ul>	Version 1978, Current as of 1980
Hydraulic	
<ul style="list-style-type: none"> <li>California State University, Sacramento. <i>Water Quality Planning Tool</i>. &lt;<a href="http://stormwater.water-programs.com/">http://stormwater.water-programs.com/</a>&gt;</li> </ul>	Accessed August 2010
Soils	
<ul style="list-style-type: none"> <li>US Dept. of Agriculture (USDA), Natural Resources Conservation Service (NRCS). Web Soil Survey. <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a></li> <li>Caltrans. <i>Draft Geotechnical and Material Memorandum</i>.</li> </ul>	Accessed October 2009 August 2010
Climatic	
<ul style="list-style-type: none"> <li>California Department of Transportation. <i>Statewide Storm Water Management Plan</i>. CTSW-RT-02-008</li> </ul>	May 2003
Water Quality	
<ul style="list-style-type: none"> <li>State Water Resources Control Board. <i>2006 State Water Resources Control Board 303(d) List for Water Quality Limited Segments</i>.</li> <li>California Department of Transportation. <i>Storm Water Management Program District 3 Work Plan, Fiscal Year 2010-2011</i>. CTSW-RT-10-182-42.1</li> <li>California State Water Resources Control Board (SWRCB). <i>National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities</i>. NPDES Number CAS000002.</li> </ul>	USEPA Approval Date June 28, 2007 April 1, 2010 September 2, 2009
Other Data Categories	
<ul style="list-style-type: none"> <li>California Department of Transportation. <i>Storm Water Quality Handbooks—Construction Site Best Management Practices (BMPs) Manual</i>.</li> <li>Project Planning Design Guide, Storm Water Quality Handbooks. Caltrans State of California, Department of Transportation.</li> </ul>	March 2003 July 2010



## Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Storm Water Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR.

- |  |  |  |
|--|--|--|
| 1. Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).   | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 2. For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 3. Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas. | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 4. Determine the RWQCB special requirements, including TMDLs, effluent limits, etc.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 5. Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies.   | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 6. Determine if a 401 certification will be required.  | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 7. List rainy season dates.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 8. Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 9. If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.  | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 10. Determine contaminated soils within the project area.  | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 11. Determine the total disturbed soil area of the project.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 12. Describe the topography of the project site.   | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 13. List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor's staging yard, work from barges, easements for staging, etc.).  | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 14. Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?   | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 15. Determine if a right-of-way certification is required.   | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 16. Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches.   | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |
| 17. Determine if project area has any slope stabilization concerns.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 18. Describe the local land use within the project area and adjacent areas.  | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA            |
| 19. Evaluate the presence of dry weather flow.   | <input type="checkbox"/> Complete            | <input checked="" type="checkbox"/> NA |



## Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR.

Options for avoiding or reducing potential impacts during project planning include the following:

1. Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?  Yes  No  NA
2. Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?  Yes  No  NA
3. Can any of the following methods be utilized to minimize erosion from slopes:
  - a. Disturbing existing slopes only when necessary?  Yes  No  NA
  - b. Minimizing cut and fill areas to reduce slope lengths?  Yes  No  NA
  - c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?  Yes  No  NA
  - d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes?  Yes  No  NA
  - e. Avoiding soils or formations that will be particularly difficult to re-stabilize?  Yes  No  NA
  - f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates?  Yes  No  NA
  - g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?  Yes  No  NA
  - h. Rounding and shaping slopes to reduce concentrated flow?  Yes  No  NA
  - i. Collecting concentrated flows in stabilized drains and channels?  Yes  No  NA
4. Does the project design allow for the ease of maintaining all BMPs?  Yes  No
5. Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season?  Yes  No
6. Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts?  Yes  No  NA

## Design Pollution Prevention BMPs

### Checklist DPP-1, Part 1

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

#### Consideration of Design Pollution Prevention BMPs

##### Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

- Will project increase velocity or volume of downstream flow?  Yes  No  NA
- Will the project discharge to unlined channels?  Yes  No  NA
- Will project increase potential sediment load of downstream flow?  Yes  No  NA
- Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?  Yes  No  NA

If Yes was answered to any of the above questions, consider **Downstream Effects Related to Potentially Increased Flow**, complete the DPP-1, Part 2 checklist.

##### Slope/Surface Protection Systems

- Will project create new slopes or modify existing slopes?  Yes  No  NA

If Yes was answered to the above question, consider **Slope/Surface Protection Systems**, complete the DPP-1, Part 3 checklist.

##### Concentrated Flow Conveyance Systems

- Will the project create or modify ditches, dikes, berms, or swales?  Yes  No  NA
- Will project create new slopes or modify existing slopes?  Yes  No  NA
- Will it be necessary to direct or intercept surface runoff?  Yes  No  NA
- Will cross drains be modified?  Yes  No  NA

If Yes was answered to any of the above questions, consider **Concentrated Flow Conveyance Systems**; complete the DPP-1, Part 4 checklist.

##### Preservation of Existing Vegetation

It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects.  Complete

Consider **Preservation of Existing Vegetation**, complete the DPP-1, Part 5 checklist.

## Design Pollution Prevention BMPs

### Checklist DPP-1, Part 2

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

#### Downstream Effects Related to Potentially Increased Flow

1. Review total paved area and reduce to the maximum extent practicable.  Complete
2. Review channel lining materials and design for stream bank erosion control.  Complete
  - (a) See Chapters 860 and 870 of the HDM.  Complete
  - (b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.  Complete
3. Include, where appropriate, energy dissipation devices at culvert outlets.  Complete
4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.  Complete
5. Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges.  Complete

**Design Pollution Prevention BMPs**

**Checklist DPP-1, Part 3**

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5  
 PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

**Slope / Surface Protection Systems**

1. What are the proposed areas of cut and fill? (attach plan or map)  Complete
2. Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows?  Yes  No
3. Were slopes rounded and/or shaped to reduce concentrated flow?  Yes  No
4. Were concentrated flows collected in stabilized drains or channels?  Yes  No
5. Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)?  Yes  No  
 If Yes, District Landscape Architect must prepare or approve an erosion control plan, at the District's discretion.
6. Are new or disturbed slopes > 2:1 (h:v)?  Yes  No  
 If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 2:1 (h:v).
7. Estimate the net new impervious area that will result from this project. 0.8 acres  Complete

**VEGETATED SURFACES**

1. Identify existing vegetation.  Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies.  Complete
3. How long will it take for permanent vegetation to establish?  Complete
4. Minimize overland and concentrated flow depths and velocities.  Complete

**HARD SURFACES**

1. Are hard surfaces required?  Yes  No  
 If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations.  Complete
- Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems.  Complete

## Design Pollution Prevention BMPs

### Checklist DPP-1, Part 4

Prepared by: B. Ross      Date: October 2010      District-Co-Route: 03-Sac-5  
 PM : 0.0/17.2      Project ID (or EA): 03-XXXXXX      RWQCB: Central Valley (5S)

#### Concentrated Flow Conveyance Systems

##### Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, and 835, and Chapter 860 of the HDM.  Complete
2. Evaluate risks due to erosion, overtopping, flow backups or washout.  Complete
3. Consider outlet protection where localized scour is anticipated.  Complete
4. Examine the site for run-on from off-site sources.  Complete
5. Consider channel lining when velocities exceed scour velocity for soil.  Complete

##### Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM.  Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v.  Complete

##### Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM.  Complete

##### Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM.  Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems.  Complete

**Design Pollution Prevention BMPs**

**Checklist DPP-1, Part 5**

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

**Preservation of Existing Vegetation**

1. Review Preservation of Property, Standard Specifications 16.1.01 and 16-1.02 (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation.  Complete
2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans?  Yes  No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling?  Complete
4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas?  Yes  No
5. Are all areas to be preserved delineated on the plans?  Yes  No

EXAMPLE ONLY

<b>Construction Site BMPs</b>	
<b>Checklist CS-1, Part 1</b>	
Prepared by: <u>B. Ross</u>	Date: <u>October 2010</u> District-Co-Route: <u>03-Sac-5</u>
PM : <u>0.0/17.2</u>	Project ID (or EA): <u>03-XXXXXX</u> RWQCB: <u>Central Valley (Region 5)</u>

**Soil Stabilization**

General Parameters

1. How many rainy seasons are anticipated between begin and end of construction? 3
2. What is the total disturbed soil area for the project? (ac) 1.8
  - (a) How much of the project DSA consists of slopes 4:1 (h:v) or flatter? (ac) 1.8
  - (b) How much of the project DSA consists of 4:1 (h:v) < slopes < 2:1 (h:v)? (ac) 0
  - (c) How much of the project DSA consists of slopes 2:1 (h:v) and steeper? (ac) 0
  - (d) How much of the project DSA consists of slopes with slope lengths longer than 20 ft? (ac) 0
3. What rainfall area does the project lie within? (Refer to Table 2-1 of the Construction Site Best Management Practices Manual ) 2
4. Review the required combination of temporary soil stabilization and temporary sediment controls and barriers for area, slope inclinations, rainy and non-rainy season, and active and non-active disturbed soil areas. (Refer to Tables 2-2, and 2-3 of the Construction Site Best Management Practices Manual for Rainfall Area requirements.)  Complete

Scheduling (SS-1)

5. Does the project have a duration of more than one rainy season and have disturbed soil area in excess of 25 acres?  Yes  No
  - (a) Include multiple mobilizations (Move-in/Move-out) as a separate contract bid line item to implement permanent erosion control or revegetation work on slopes that are substantially complete. (Estimate at least 6 mobilizations for each additional rainy season. Designated Construction Representative may suggest an alternate number of mobilizations.)  Complete
  - (b) Edit Order of Work specifications for permanent erosion control or revegetation work to be implemented on slopes that are substantially complete.  Complete

- (c) Edit permanent erosion control or revegetation specifications to require seeding and planting work to be performed when optimal.  Complete

Preservation of Existing Vegetation (SS-2)

6. Do Environmentally Sensitive Areas (ESAs) exist within or adjacent to the project limits? (Verify the completion of DPP-1, Part 5)  Yes  No
- (a) Verify the protection of ESAs through delineation on all project plans.  Complete
- (b) Protect from clearing and grubbing and other construction disturbance by enclosing the ESA perimeter with high visibility plastic fence or other BMP.  Complete
7. Are there areas of existing vegetation (mature trees, native vegetation, landscape planting, etc.) that need not be disturbed by project construction? Will areas designated for proposed treatment BMPs need protection (infiltration characteristics, vegetative cover, etc.)? (Coordinate with District Environmental and Construction to determine limits of work necessary to preserve existing vegetation to the maximum extent practicable.)  Yes  No
- (a) Designate as outside of limits of work (or designate as ESAs) and show on all project plans.  Complete
- (b) Protect with high visibility plastic fence or other BMP.  Complete
8. If yes for 6, 7, or both, then designate ESA fencing as a separate contract bid line item, *if not already incorporated as part of design pollution prevention work (See DPP-1, Part 5).*  Complete

Slope Protection

9. Provide a soil stabilization BMP(s) appropriate for the DSA, slope steepness, slope length, and soil erodibility. (Consult with District/Regional Landscape Architect.)
- (a) Select SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-6 (Straw Mulch), SS-7 (Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets), SS-8 (Wood Mulching), other BMPs or a combination to cover the DSA throughout the project's rainy season.  Complete
- (b) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.)  Complete
- (c) Designate as a separate contract bid line item.  Complete

Slope Interrupter Devices

10. Provide slope interrupter devices for all slopes with slope lengths equal to or greater than of 20 ft in length. (Consult with District/Regional Landscape Architect and Designated Construction Representative.)
- (a) Select SC-5 (Fiber Rolls) or other BMPs to protect slopes throughout the project's rainy season.  Complete
  - (b) For slope inclination of 4:1 (h:v) and flatter, SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 20 ft on center.  Complete
  - (c) For slope inclination between 4:1 (h:v) and 2:1 (h:v), SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 15 ft on center.  Complete
  - (d) For slope inclination of 2:1 (h:v) and greater, SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 10 ft on center.  Complete
  - (e) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest alternate increase.)  Complete
  - (f) Designate as a separate contract bid line item.  Complete

Channelized Flow

11. Identify locations within the project site where concentrated flow from stormwater runoff can erode areas of soil disturbance. Identify locations of concentrated flow that enters the site from outside of the right-of-way (off-site run-on).
- (a) Utilize SS-7 (Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets), SS-9 (Earth Dikes/Swales, Ditches), SS-10 (Outlet Protection/Velocity Dissipation), SS-11 (Slope Drains), SC-4 (Check Dams), or other BMPs to convey concentrated flows in a non-erosive manner.  Complete
  - (b) Designate as a separate contract bid line item.  Complete

**Construction Site BMPs**

**Checklist CS-1, Part 2**

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (Region 5)

**Sediment Control**

Perimeter Controls - Run-off Control

1. Is there a potential for sediment laden sheet and concentrated flows to discharge offsite from runoff cleared and grubbed areas, below cut slopes, embankment slopes, etc.?  Yes  No
  - (a) Select linear sediment barrier such as SC-1 (Silt Fence), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or a combination to protect wetlands, water courses, roads (paved and unpaved), construction activities, and adjacent properties. (Coordinate with District Construction for selection and preference of linear sediment barrier BMPs.)  Complete
  - (b) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.)  Complete
  - (c) Designate as a separate contract bid line item.  Complete

Perimeter Controls - Run-on Control

2. Do locations exist where sheet flow upslope of the project site and where concentrated flow upstream of the project site may contact DSA and construction activities?  Yes  No
  - (a) Utilize linear sediment barriers such as SS-9 (Earth Dike/Drainage Swales and Lined Ditches), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or other BMPs to convey flows through and/or around the project site. (Coordinate with District Construction for selection and preference of perimeter control BMPs.)  Complete
  - (b) Designate as a separate contract bid line item.  Complete

Storm Drain Inlets

3. Do existing or proposed drainage inlets exist within the project limits?  Yes  No
- (a) Select SC-10 (Storm Drain Inlet Protection) to protect municipal storm drain systems or receiving waters wetlands at each drainage inlet. (Coordinate with District Construction for selection and preference of inlet protection BMPs.)  Complete
- (b) Designate as a separate contract bid line item.  Complete
4. Can existing or proposed drainage inlets utilize an excavated sediment trap as described in SC-10 (Storm Drain Inlet Protection- Type 2)?  Yes  No
- (a) Include with other types of SC-10 (Storm Drain Inlet Protection).  Complete

Sediment/Desilting Basin (SC-2)

5. Does the project lie within a Rainfall Area where the required combination of temporary soil stabilization and sediment control BMPs includes desilting basins? (Refer to Tables 2-1, 2-2, and 2-3 of the Construction Site Best Management Practices Manual for Rainfall Area requirements.)  Yes  No
- (a) Consider feasibility for desilting basin allowing for available right-of-way within the project limits, topography, soil type, disturbed soil area within the watershed, and climate conditions. Document if the inclusion of sediment/desilting basins is infeasible.  Complete
- (b) If feasible, design desilting basin(s) per the guidance in SC-2 Sediment/ Desilting Basins of the Construction Site BMP Manual to maximize capture of sediment-laden runoff.  Complete
- Designate as a separate contract bid item.  Complete
6. Is ATS to be used for controlling sediment?  Yes  No
- (a) If "yes", then will desilting basin or other means of natural storage be used?  Yes  No
- (b) If "no", then plan for storage tanks sufficient to hold treatment volume.  Complete
7. Will the project benefit from the early implementation of proposed permanent Treatment BMPs? (Coordinate with District Construction.)  Yes  No
- (a) Edit Order of Work specifications for permanent treatment BMP work to be implemented in a manner that will allow its use as a construction site BMP.  Complete

Sediment Trap (SC-3)

8. Can sediment traps be located to collect channelized runoff from disturbed soil areas prior to discharge?  Yes  No
- (a) Design sediment traps in accordance with the Construction Site BMP Manual.  Complete
- (b) Designate as a separate contract bid line item.  Complete

## Construction Site BMPs

### Checklist CS-1, Part 3

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (Region 5)

#### *Tracking Controls*

##### Stabilized Construction Entrance/Exit (TC-1)

1. Are there points of entrance and exit from the project site to paved roads where mud and dirt could be transported offsite by construction equipment? (Coordinate with District Construction for selection and preference of tracking control BMPs.)  Yes  No
- (a) Identify and designate these entrance/exit points as stabilized construction entrances (TC-1).  Complete
- (b) Designate as a separate contract bid line item.  Complete

##### Tire/Wheel Wash (TC-3)

1. Are site conditions anticipated that would require additional or modified tracking controls such as entrance/outlet tire wash? (Coordinate with District Construction.)  Yes  No
- Designate as a separate contract bid line item.  Complete

##### Stabilized Construction Roadway (TC-2)

3. Are temporary access roads necessary to access remote construction activity locations or to transport materials and equipment? (In addition to controlling dust and sediment tracking, access roads limit impact to sensitive areas by limiting ingress, and provide enhanced bearing capacity.) (Coordinate with District Construction.)  Yes  No
- (a) Designate these temporary access roads as stabilized construction roadways (TC-2).  Complete
- (b) Designate as a separate contract bid line item.  Complete

##### Street Sweeping and Vacuuming (SC-7)

1. Is there a potential for tracked sediment or construction related residues to be transported offsite and deposited on public or private roads? (Coordinate with District Construction for preference of including street sweeping and vacuuming with tracking control BMPs.)  Yes  No
- Designate as a separate contract bid line item.  Complete

**Construction Site BMPs**

**Checklist CS-1, Part 4**

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (Region 5)

**Wind Erosion Controls**

Wind Erosion Control (WE-1)

1. Is the project located in an area where standard dust control practices in accordance with Standard Specifications, Section 10: Dust Control, are anticipated to be inadequate during construction to prevent the transport of dust offsite by wind? *(Note: Dust control by water truck application is paid for through the various items of work. Dust palliative, if it is included, is paid for as a separate item.)*

Yes     No
  
- (a) Select SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-7 (Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets), SS-8 (Wood Mulching) or a combination to cover the DSA subject to wind erosion year-round, especially when significant wind and dry conditions are anticipated during project construction. (Coordinate with District Construction for selection and preference of wind erosion control BMPs.)
 

Complete
  
- (b) Designate as a separate contract bid line item.
 

Complete



**Construction Site BMPs  
Checklist CS-1, Part 5**

Prepared by: B. Ross Date: October 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (Region 5)

**Non-Storm Water Management**

Temporary Stream Crossing (NS-4) & Clear Water Diversion (NS-5)

1. Will construction activities occur within a waterbody or watercourse such as a lake, wetland, or stream? (Coordinate with District Construction for selection and preference for stream crossing and clear water diversion BMPs.)  Yes  No
- (a) Select from types offered in NS-4 (Temporary Stream Crossing) to provide access through watercourses consistent with permits and agreements.<sup>1</sup>  Complete
- (b) Select from types offered in NS-5 (Clear Water Diversion) to divert watercourse consistent with permits and agreements.<sup>1</sup>  Complete
- (c) Designate as a separate contract bid line item(s).  Complete

**Other Non-Storm Water Management BMPs**

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants?  Yes  No
- (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as NS-1 (Water Conservation Practices), NS-2 (Dewatering Operations), NS-3 (Paving and Grinding Operations), NS-7 (Potable Water/Irrigation), NS-8 (Vehicle and Equipment Cleaning), NS-9 (Vehicle and Equipment Fueling), NS-10 (Vehicle and Equipment Maintenance), NS-11 (Pile Driving Operations), NS-12 (Concrete Curing), NS-13 (Material and Equipment Use Over Water), NS-14 (Concrete Finishing), and NS-15 (Structure Demolition/Removal Over or Adjacent to Water).<sup>1</sup>  Complete
- (b) Verify that costs for non-stormwater management BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Construction Site Management (SSP 07-346) are anticipated to be inadequate or if requested by Construction.  Complete

<sup>1</sup> Coordinate with District Environmental for consistency with US Army Corps of Engineers 404 and 401 permits and Dept. of Fish and Game 1601 Streambed alteration Agreements.

<b>Construction Site BMPs</b>	
<b>Checklist CS-1, Part 6</b>	
Prepared by: <u>B. Ross</u>	Date: <u>October 2010</u> District-Co-Route: <u>03-Sac-5</u>
PM : <u>0.0/17.2</u>	Project ID (or EA): <u>03-XXXXXX</u> RWQCB: <u>Central Valley (Region 5)</u>

**Waste Management & Materials Pollution Control**

Concrete Waste Management (WM-8)

1. Does the project include concrete placement or mortar mixing?  Yes  No
- (a) Select from types offered in WM-8 (Concrete Waste Management) to provide concrete washout facilities. In addition, consider portable concrete washouts and vendor supplied concrete waste management services. (Coordinate with District Construction for selection and preference of waste management and materials pollution control BMPs.)  Complete
- (b) Designate as a separate contract bid line item if the quantity of concrete waste and washout are anticipated to exceed 5.2 yd<sup>3</sup> or if requested by Construction.  Complete

Other Waste Management and Materials Pollution Controls

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants?  Yes  No
- (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as WM-1 (Material Delivery and Storage), WM-2 (Material Use), WM-4 (Spill Prevention and Control), WM-5 (Solid Waste Management), WM-6 (Hazardous Waste Management), WM-7 (Contaminated Soil Management), WM-9 (Sanitary/Septic Waste Management) and WM-10 (Liquid Waste Management)  Complete
- (b) Verify that costs for waste management and materials pollution control BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Construction Site Management (SSP 07-346) are anticipated to be inadequate or if requested by Construction.  Complete

Temporary Stockpiles (Soil, Materials, and Wastes)

3. Are stockpiles of soil, etc. anticipated during construction?  Yes  No
- (a) Select WM-3 (Stockpile Management), SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-7 (Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets), or a combination as appropriate to cover temporary stockpiles of soil, etc.  Complete

- (b) Select linear sediment barrier such as SC-1 (Silt Fence), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or a combination to encircle temporary stockpiles of soil, etc. (Coordinate with District Construction for selection and preference of BMPs related to stockpiles.)  Complete
- (c) Designate as a separate contract bid line item if the requirements in Construction Site Management (SSP 07-346) are anticipated to be inadequate or if requested by Construction.  Complete
4. Is there a potential for dust and debris from construction material (fill material, etc.) and waste (concrete, contaminated soil, etc.) stockpiles to be transported offsite by wind?  Yes  No
- (a) Select SS-7, temporary cover, plastic sheeting or other BMP to cover stockpiles subject to wind erosion year-round, especially when significant wind and dry conditions are anticipated during project construction. (Coordinate with District Construction for selection and preference of wind erosion control BMPs.)  Complete
- (b) Designate as a separate contract bid line item.  Complete

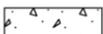
NOTE: 1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

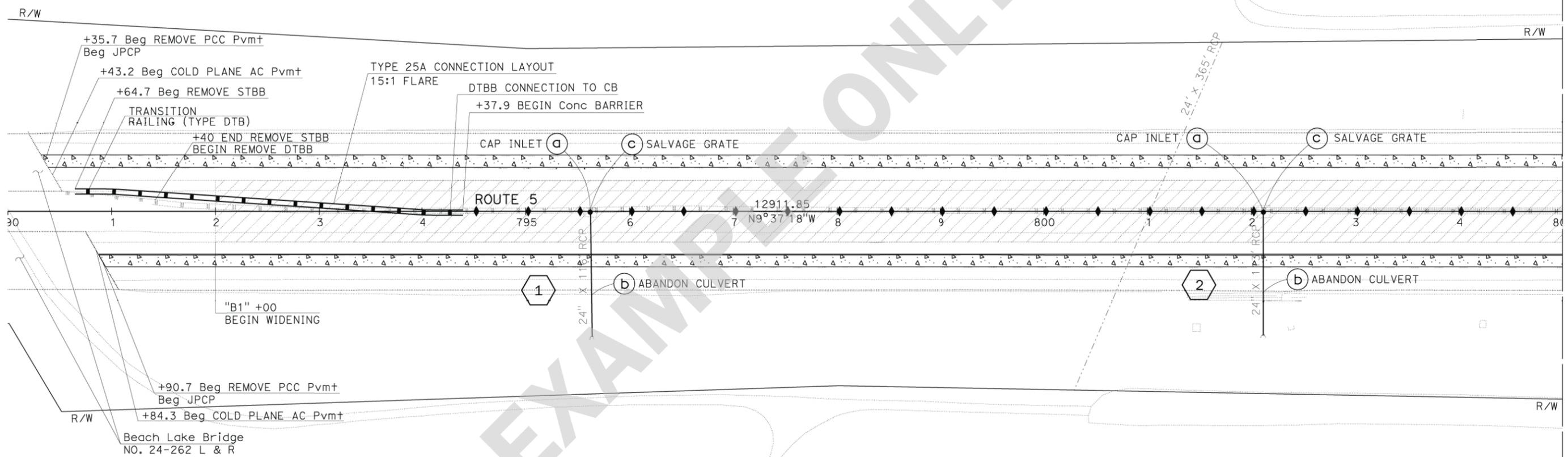
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	9	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
 10-08-10  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Betsy Ross  
 No. CXXXX  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA

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- LEGEND:
-  REPLACE MEDIAN
  -  MINOR CONCRETE (TEXTURED PAVING)
  -  JPCP
  -  SAMPLING LOCATION



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 CALCULATED/DESIGNED BY  
 B. ROSS  
 G. WASHINGTON  
 REVISED BY DATE  
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

**LAYOUT**  
 SCALE: 1"=50'  
**L-1**

LAST REVISION DATE PLOTTED => 08-OCT-2010  
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**EXAMPLE ONLY**

NOTE: FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA,  
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	10	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

10-08-10  
PLANS APPROVAL DATE

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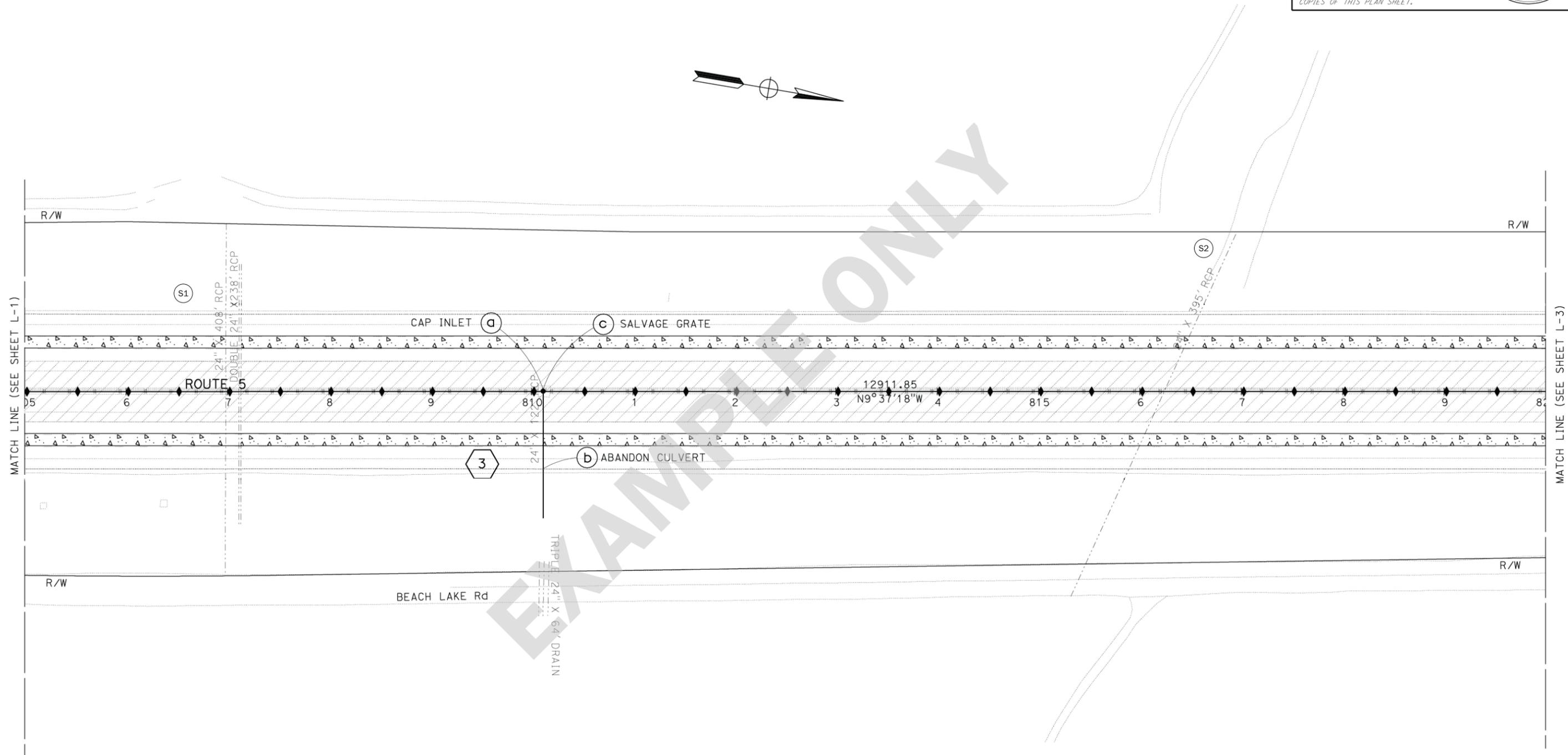
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THOMAS PAINE

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REVISOR BY  
DATE REVISED



EXAMPLE ONLY

**LAYOUT**  
SCALE: 1"=50'

L-2

LAST REVISION DATE PLOTTED => 08-OCT-2010 00-00-00 TIME PLOTTED => 11:04

**EXAMPLE ONLY**

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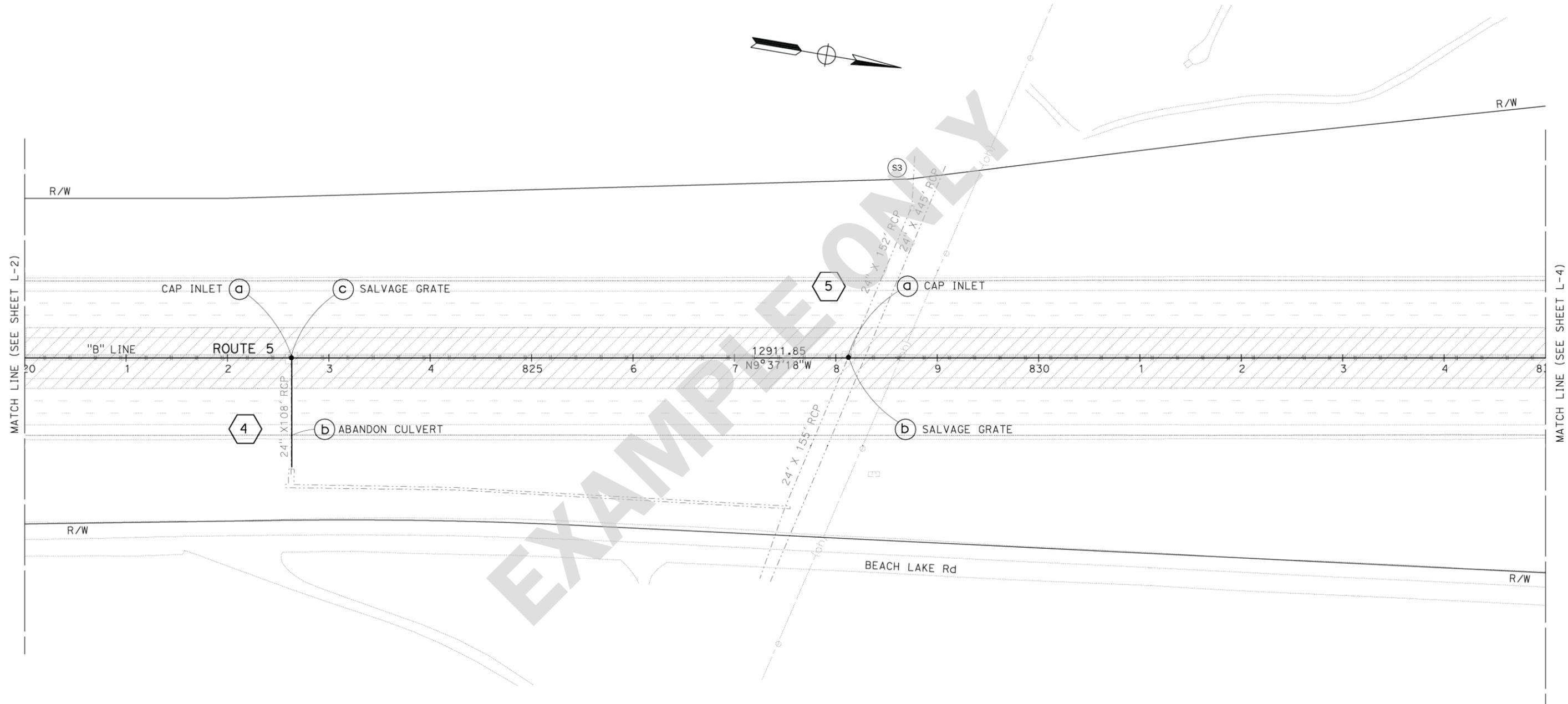
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	11	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
 10-08-10  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Betsy Ross  
 No. CXXXXX  
 Exp. 6-30-11  
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 DATE REVISED



**LAYOUT**  
SCALE: 1"=50'

**L-3**

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 00-00-00    TIME PLOTTED => 11:04

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	12	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

10-08-10  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
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No. CXXXX  
Exp. 6-30-11  
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FUNCTIONAL SUPERVISOR  
THOMAS PAINE

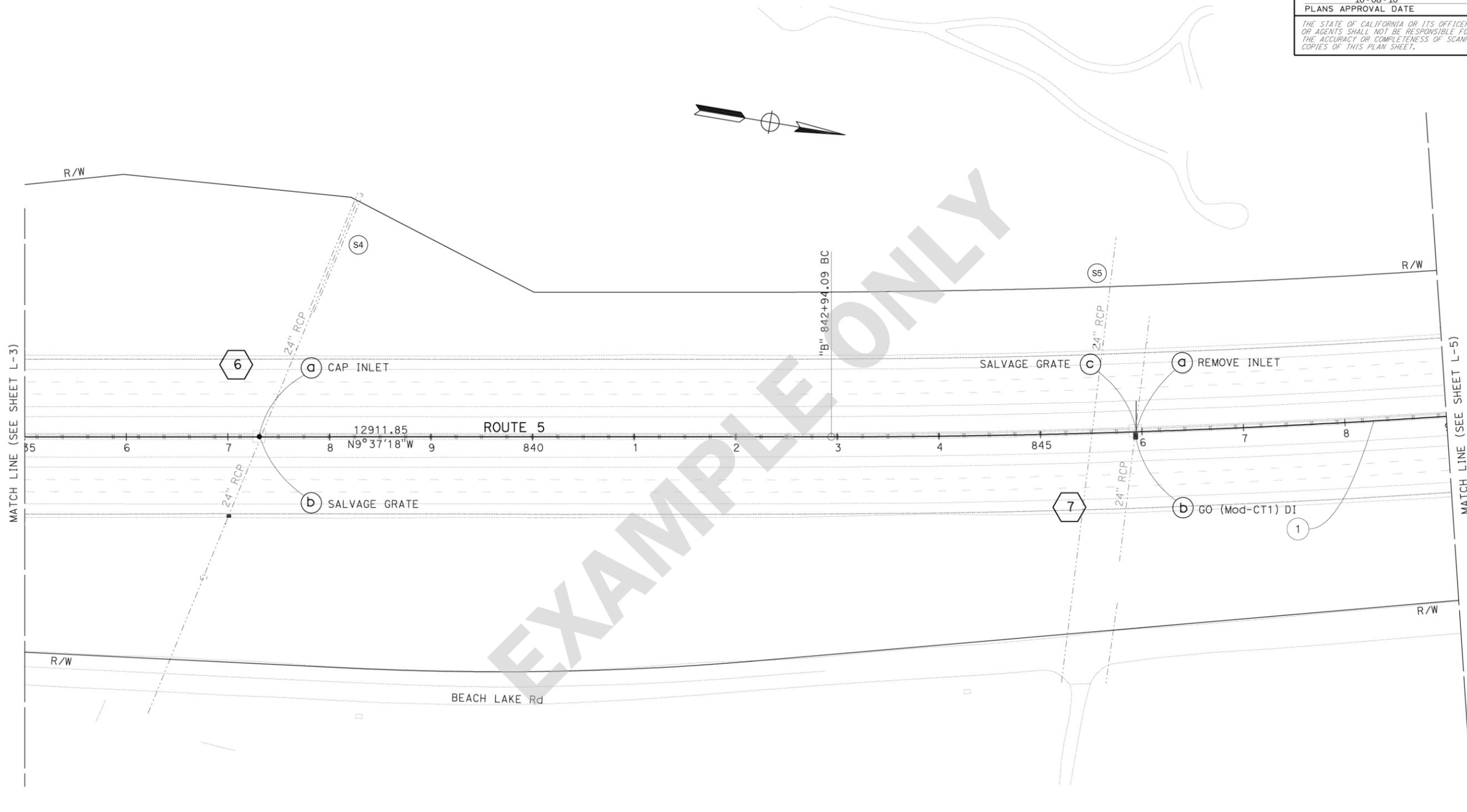
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B. ROSS  
G. WASHINGTON

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DATE

REVISED  
DATE



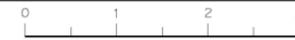
EXAMPLE ONLY

CURVE DATA

No.	R	Δ	T	L
1	9088'	4°55'05"	390.26'	780.04'

**LAYOUT**  
SCALE: 1"=50'

L-4



**EXAMPLE ONLY**

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

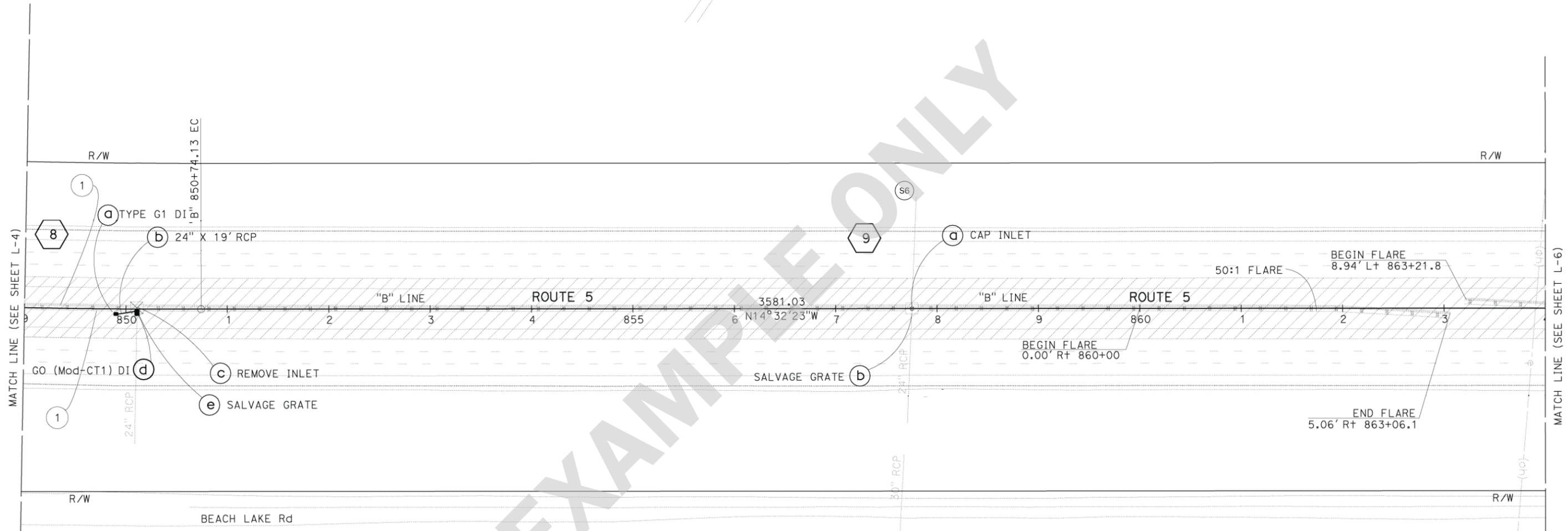
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	13	301

*Betsy Ross* 10-08-10  
 REGISTERED CIVIL ENGINEER DATE

10-08-10  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 Betsy Ross  
 No. CXXXXX  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA



EXAMPLE ONLY

CURVE DATA

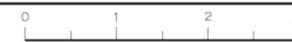
No.	⊕	R	Δ	T	L
1		9088'	4°55'05"	390.26'	780.04'

NOTES:

- ONLY COMPONENTS (a) AND (b) SHALL BE INSTALLED AT THE TIME WHEN BUILDING THE 4:1 TEMPORARY PAVING STAGE. THE OTHER DRAINAGE COMPONENTS SHALL BE INSTALLED AFTER REMOVING THE TEMPORARY 4:1 PAVING AND MEDIAN BUILT TO FINAL GRADE.
- THE 24" X 19' PIPE SHALL CONNECT TO THE Exist DI WHEN STAGING (AS TEMPORARY), AND THEN SHALL BE CHANGED TO CONNECT TO NEW DI (TYPE GO) FOR THE PERMANENT DRAINAGE SYSTEM INSTALLED AT THE FINAL STAGE.

**LAYOUT**  
 SCALE: 1"=50'

L-5



**EXAMPLE ONLY**

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	14	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
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No. CXXXXX  
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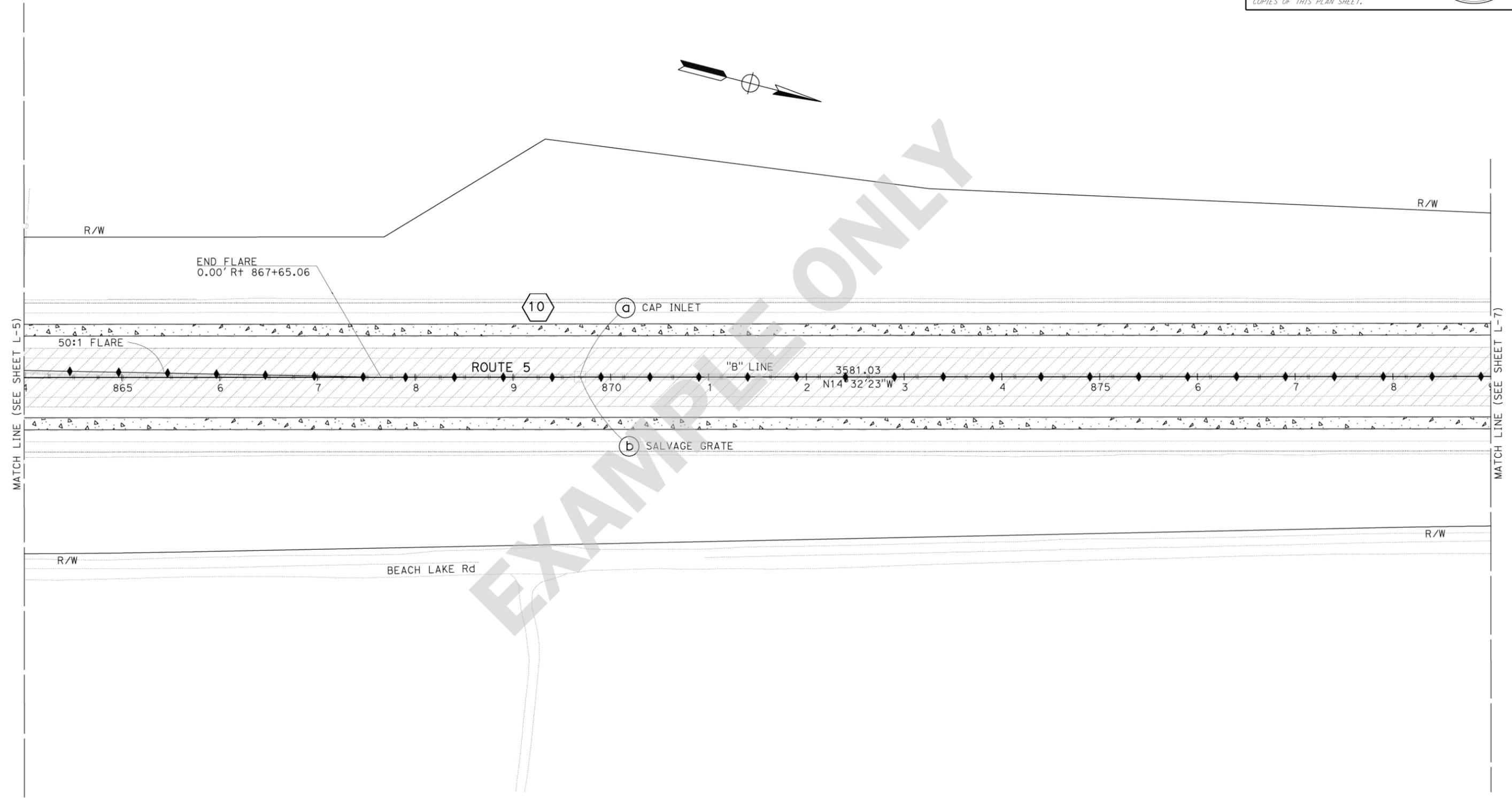
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DATE



**LAYOUT**  
SCALE: 1"=50'

L-6

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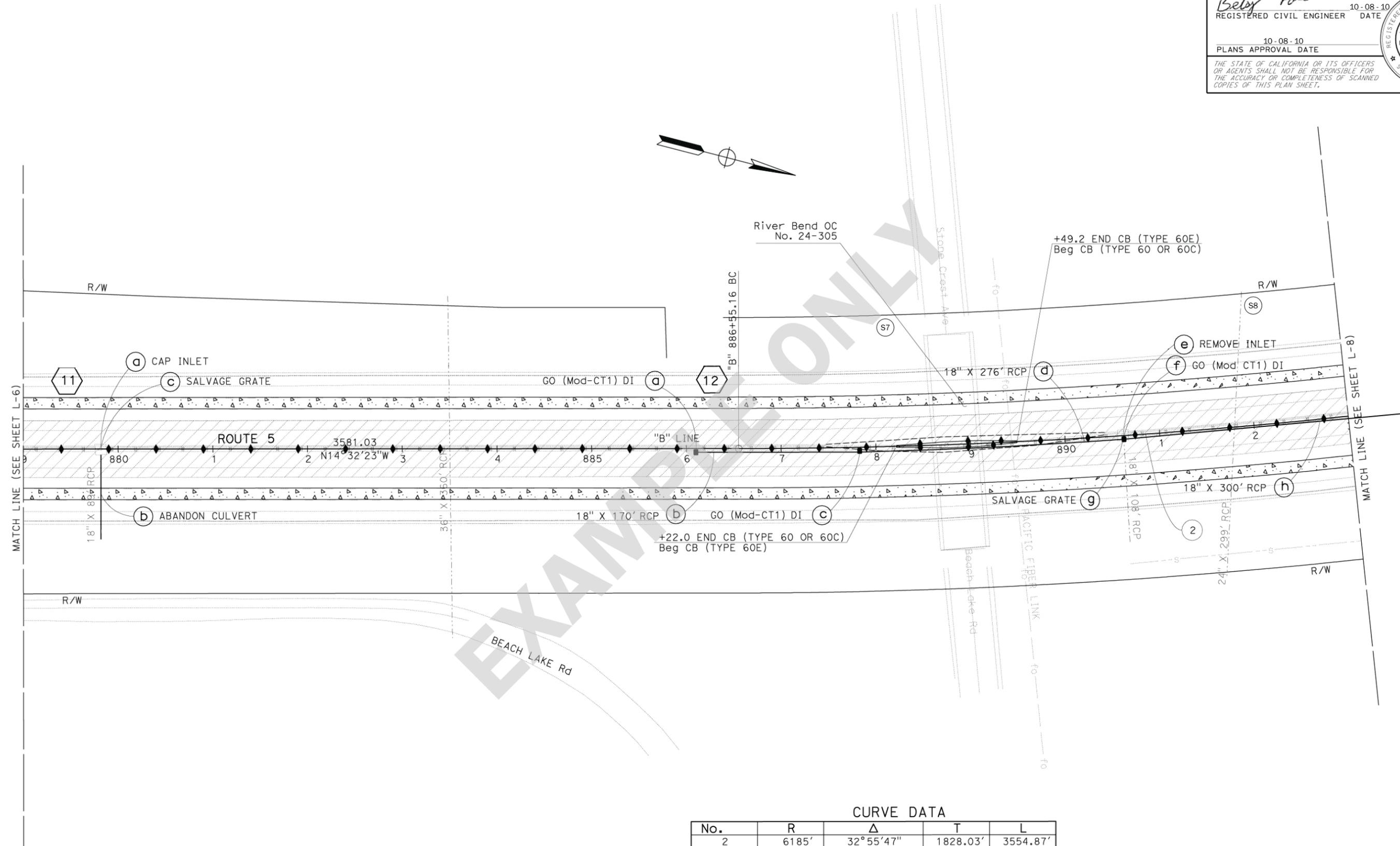
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	15	301

Betsy Ross  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
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REGISTERED PROFESSIONAL ENGINEER  
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 Exp. 6-30-11  
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**CURVE DATA**

No.	R	Δ	T	L
2	6185'	32°55'47"	1828.03'	3554.87'

**LAYOUT**  
 SCALE: 1"=50'  
**L-7**

LAST REVISION: DATE PLOTTED => 08-OCT-2010  
 00-00-00 TIME PLOTTED => 11:04

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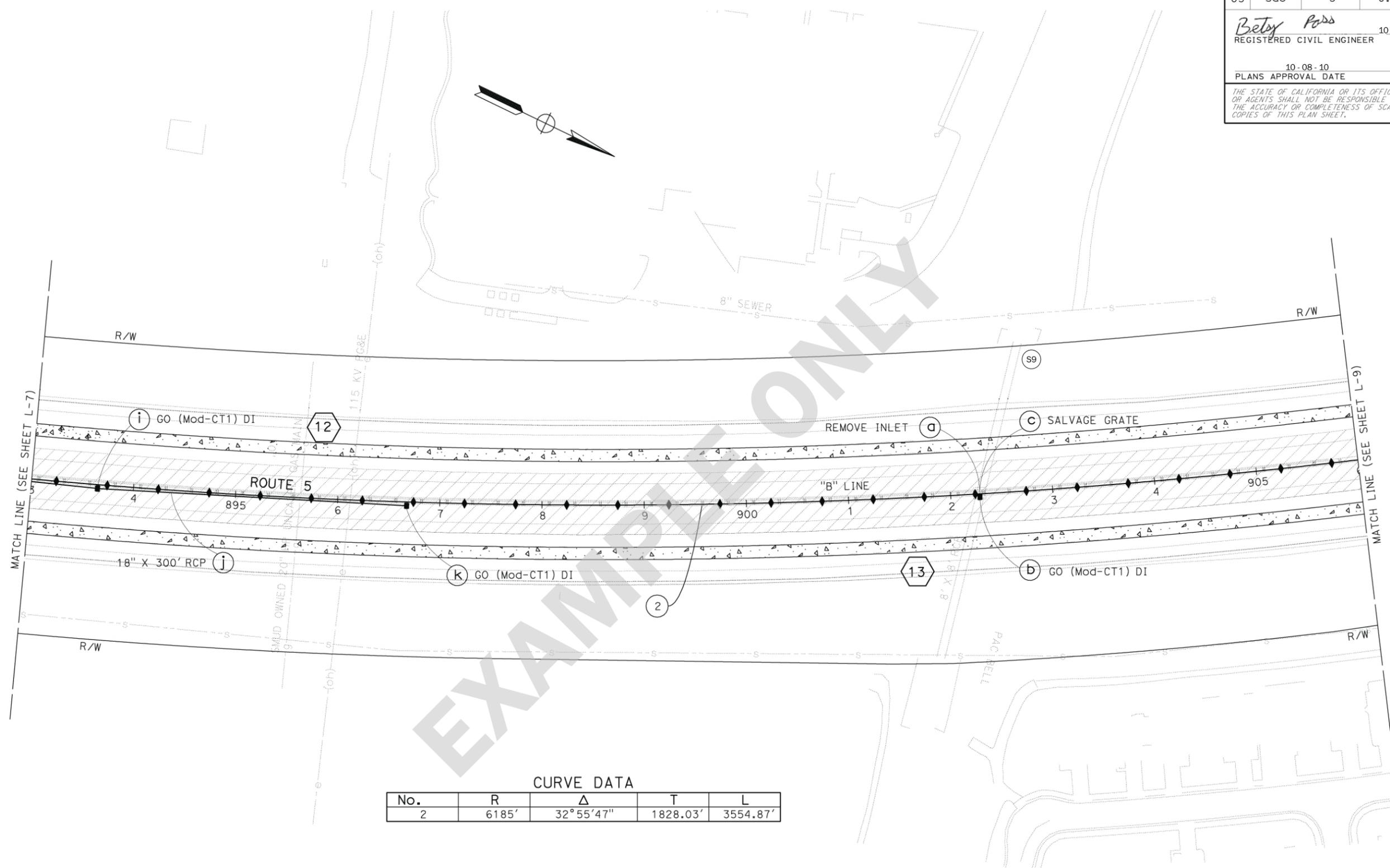
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	16	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

10-08-10  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
BETSY ROSS  
No. CXXXX  
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CURVE DATA

No.	R	$\Delta$	T	L
2	6185'	32°55'47"	1828.03'	3554.87'

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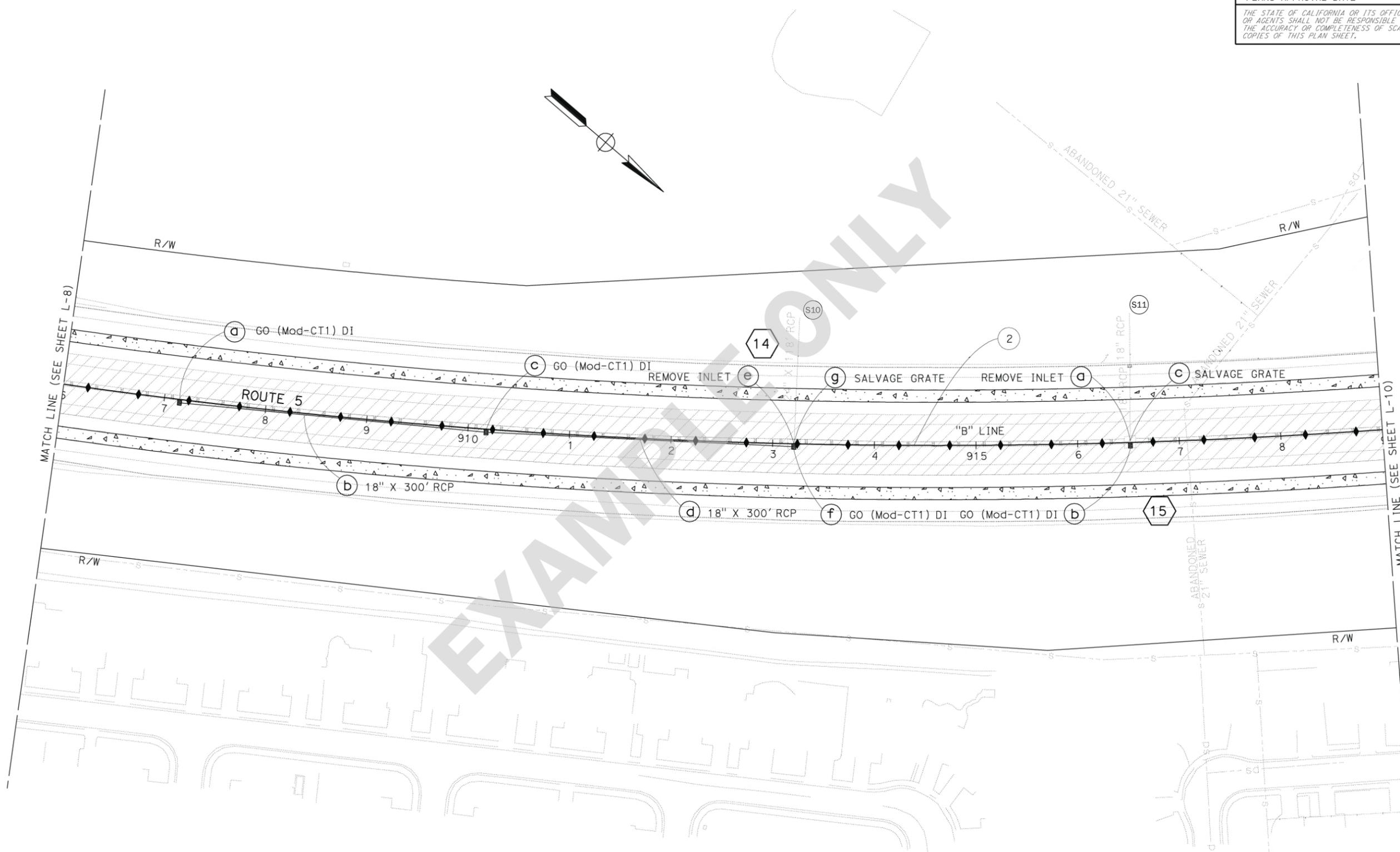
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	17	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
 PLANS APPROVAL DATE 10-08-10

REGISTERED PROFESSIONAL ENGINEER  
 Betsy Ross  
 No. CXXXX  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA

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**CURVE DATA**

No.	R	Δ	T	L
2	6185'	32°55'47"	1828.03'	3554.87'

**LAYOUT**  
SCALE: 1"=50'

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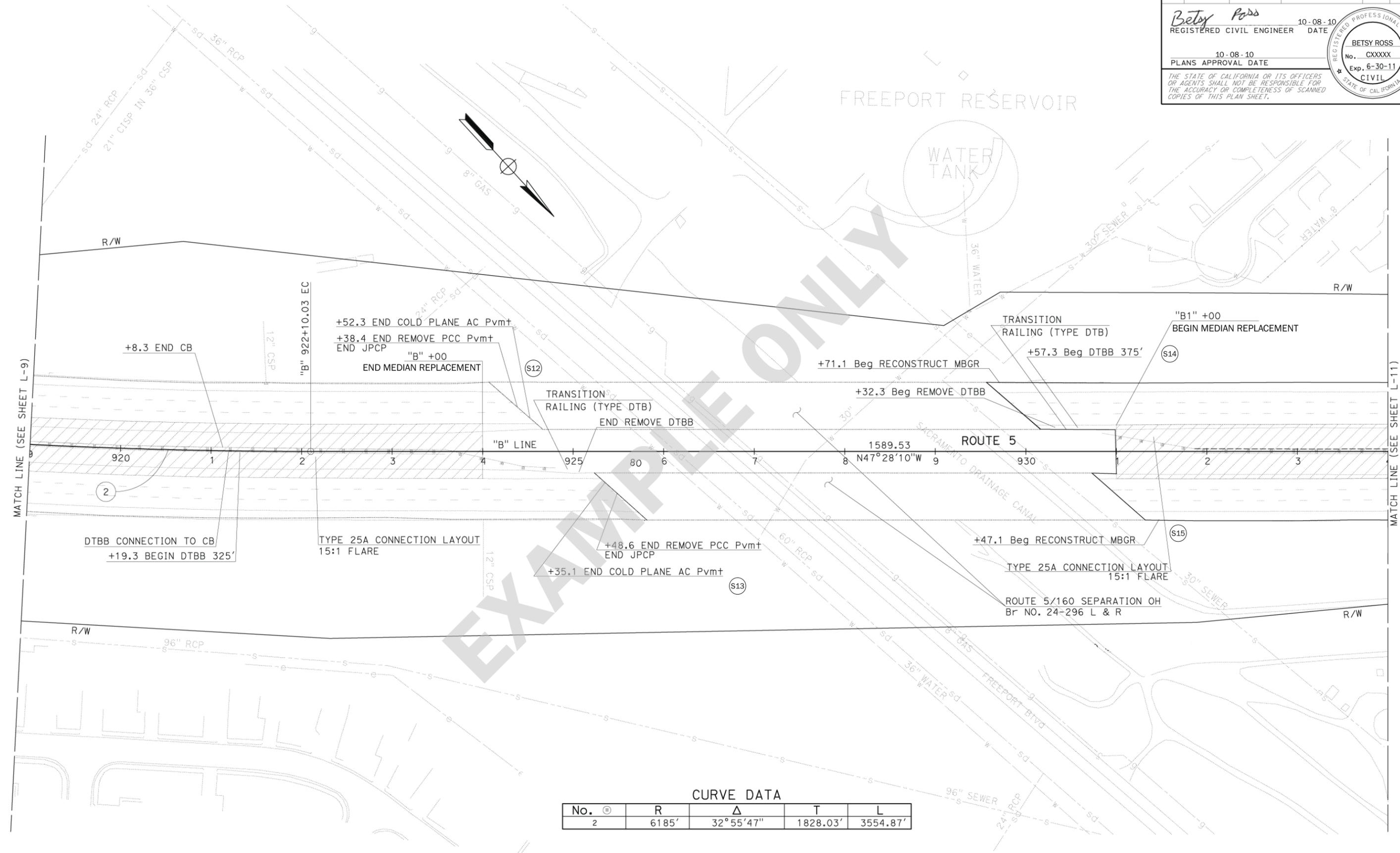
**EXAMPLE ONLY**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	18	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
 10-08-10  
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REGISTERED PROFESSIONAL ENGINEER  
 BETSY ROSS  
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 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA

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



**CURVE DATA**

No.	⊕	R	Δ	T	L
2		6185'	32° 55' 47"	1828.03'	3554.87'

**LAYOUT**  
SCALE: 1"=50'  
**L-10**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
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 DATE REVISED

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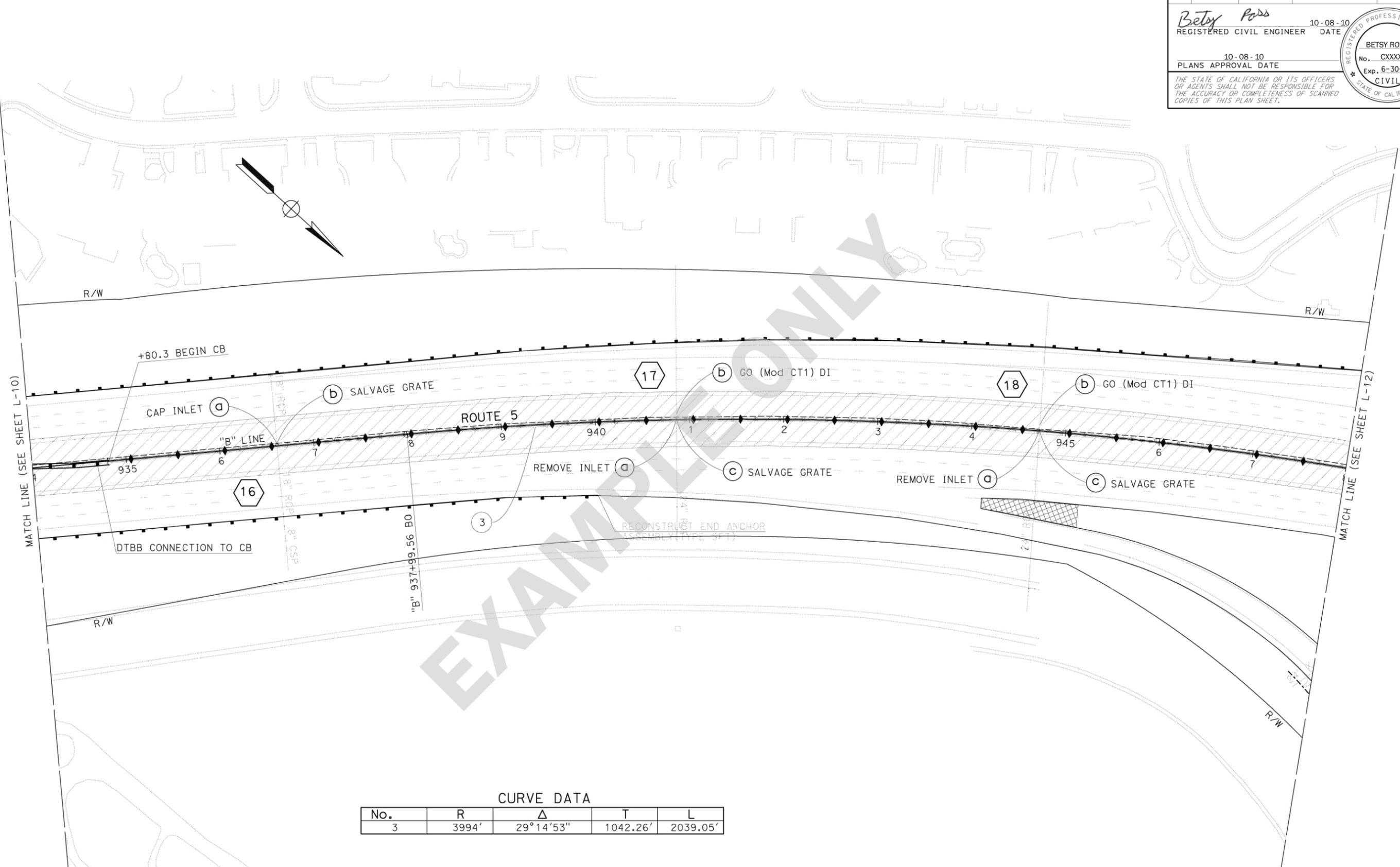
NOTE: FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	19	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
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 No. CXXXX  
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CURVE DATA

No.	R	Δ	T	L
3	3994'	29° 14' 53"	1042.26'	2039.05'

EXAMPLE ONLY

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 G. WASHINGTON  
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**LAYOUT**  
 SCALE: 1"=50'  
**L-11**

LAST REVISION: 00-00-00    DATE PLOTTED => 08-OCT-2010    TIME PLOTTED => 11:05

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

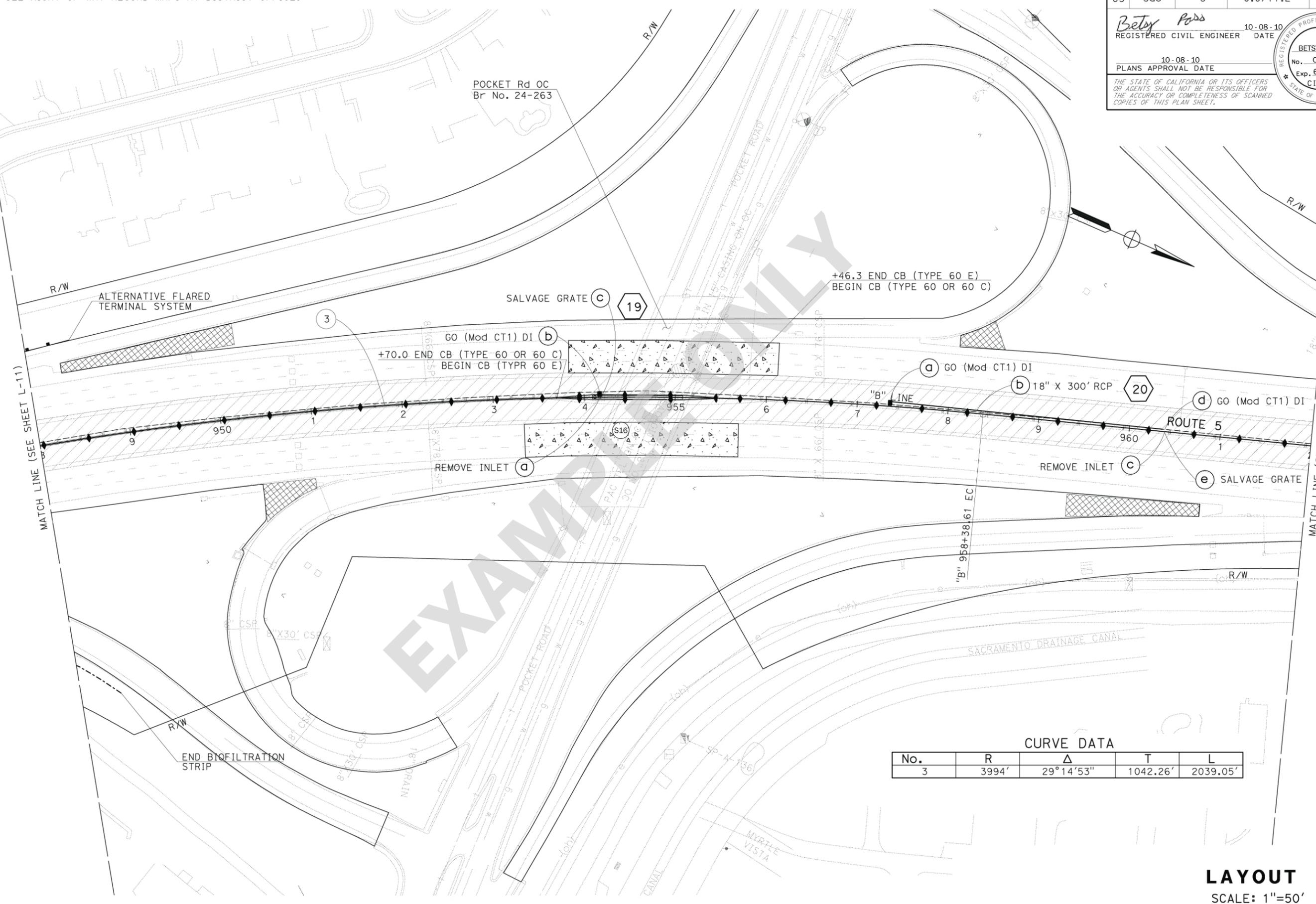
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	20	301

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 STATE OF CALIFORNIA



CURVE DATA

No.	R	Δ	T	L
3	3994'	29°14'53"	1042.26'	2039.05'

**LAYOUT**  
 SCALE: 1"=50'  
**L-12**

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REVISED BY  
 DATE REVISED

REVISIONS

USERNAME =>  
 DGN FILE =>

RELATIVE BORDER SCALE  
 15 IN INCHES

UNIT 0333

PROJECT NUMBER & PHASE

0300000941

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	21	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

10-08-10  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
BETSY ROSS  
No. CXXXX  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

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NORTH REGION  
OFFICE OF DESIGN, SOUTH  
DESIGN BRANCH S13

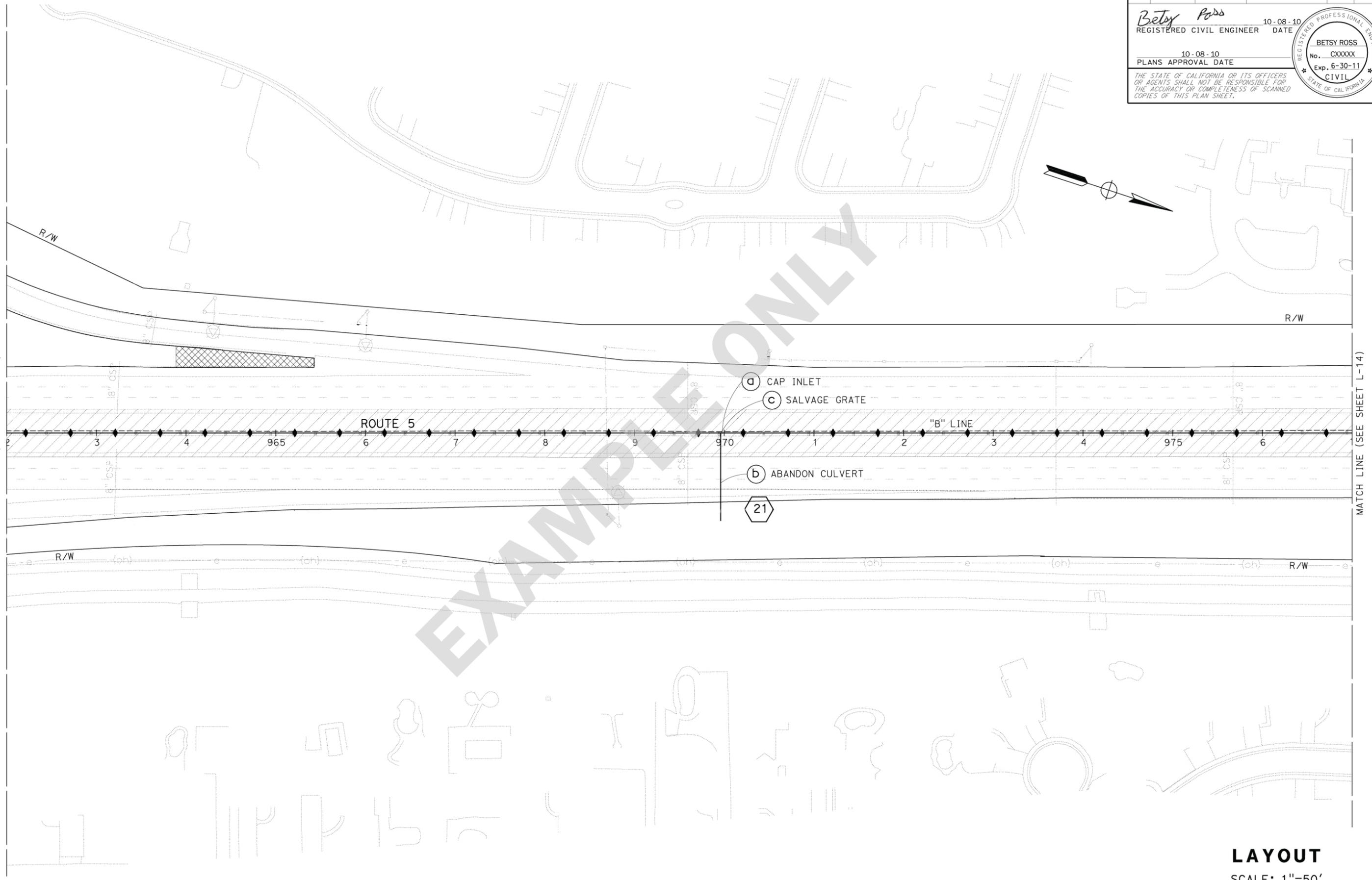
**Caltrans**

FUNCTIONAL SUPERVISOR  
THOMAS PAINE

CALCULATED/DESIGNED BY  
CHECKED BY

B. ROSS  
G. WASHINGTON

REVISED BY  
DATE REVISED



**LAYOUT**  
SCALE: 1"=50'  
**L-13**

LAST REVISION: DATE PLOTTED => 08-OCT-2010 00-00-00 TIME PLOTTED => 11:05

**EXAMPLE ONLY**

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

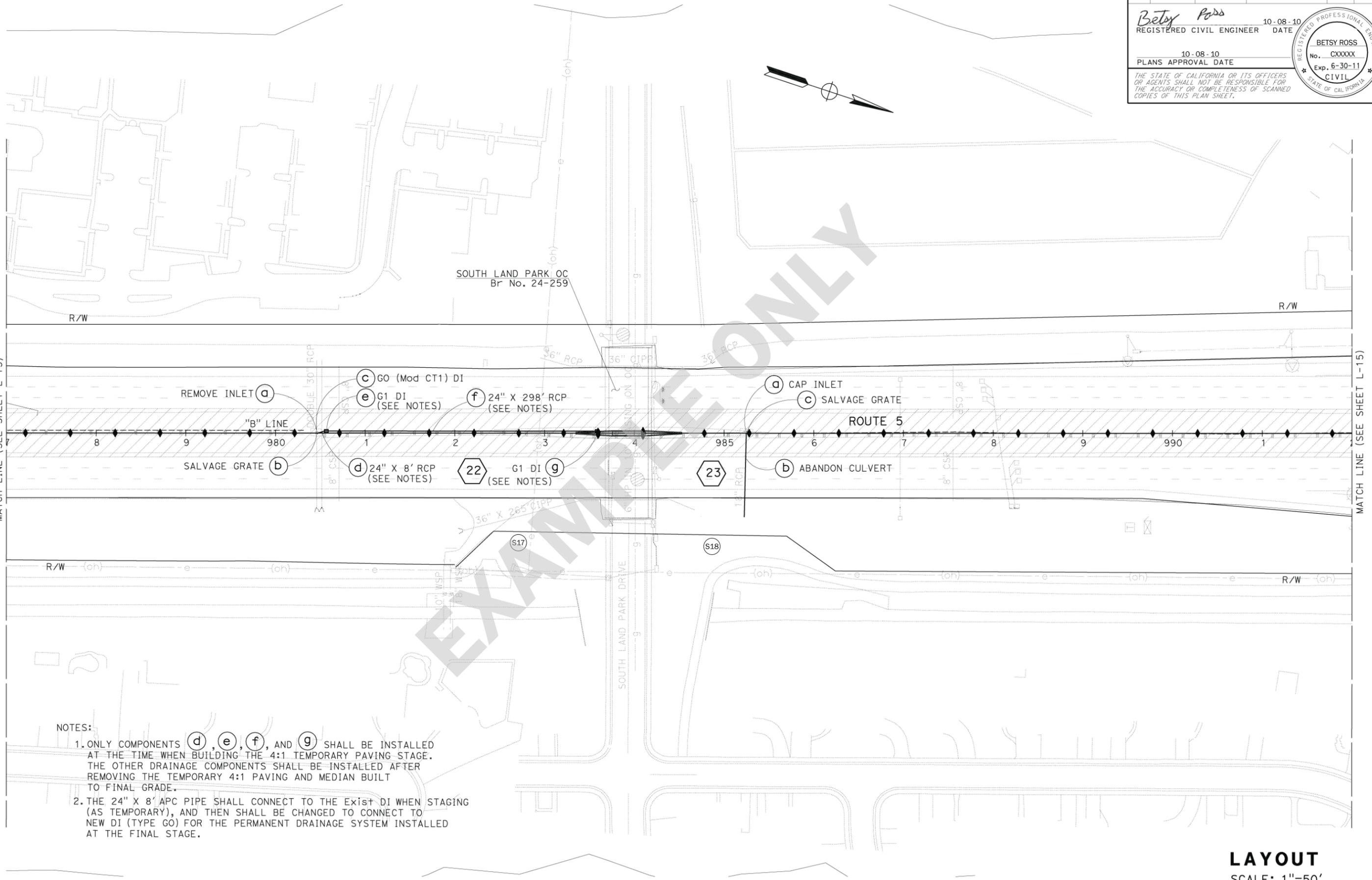
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	22	301

*Betsy Ross*  
 REGISTERED CIVIL ENGINEER DATE 10-08-10  
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- NOTES:
- ONLY COMPONENTS (d), (e), (f), AND (g) SHALL BE INSTALLED AT THE TIME WHEN BUILDING THE 4:1 TEMPORARY PAVING STAGE. THE OTHER DRAINAGE COMPONENTS SHALL BE INSTALLED AFTER REMOVING THE TEMPORARY 4:1 PAVING AND MEDIAN BUILT TO FINAL GRADE.
  - THE 24" X 8' APC PIPE SHALL CONNECT TO THE EXIST DI WHEN STAGING (AS TEMPORARY), AND THEN SHALL BE CHANGED TO CONNECT TO NEW DI (TYPE GO) FOR THE PERMANENT DRAINAGE SYSTEM INSTALLED AT THE FINAL STAGE.

**LAYOUT**  
 SCALE: 1"=50'  
**L-14**

LAST REVISION:    DATE PLOTTED => 08-OCT-2010  
 00-00-00    TIME PLOTTED => 11:05

**EXAMPLE ONLY**

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	5	0.0/17.2	23	301

*Betsy Ross*  
REGISTERED CIVIL ENGINEER DATE 10-08-10

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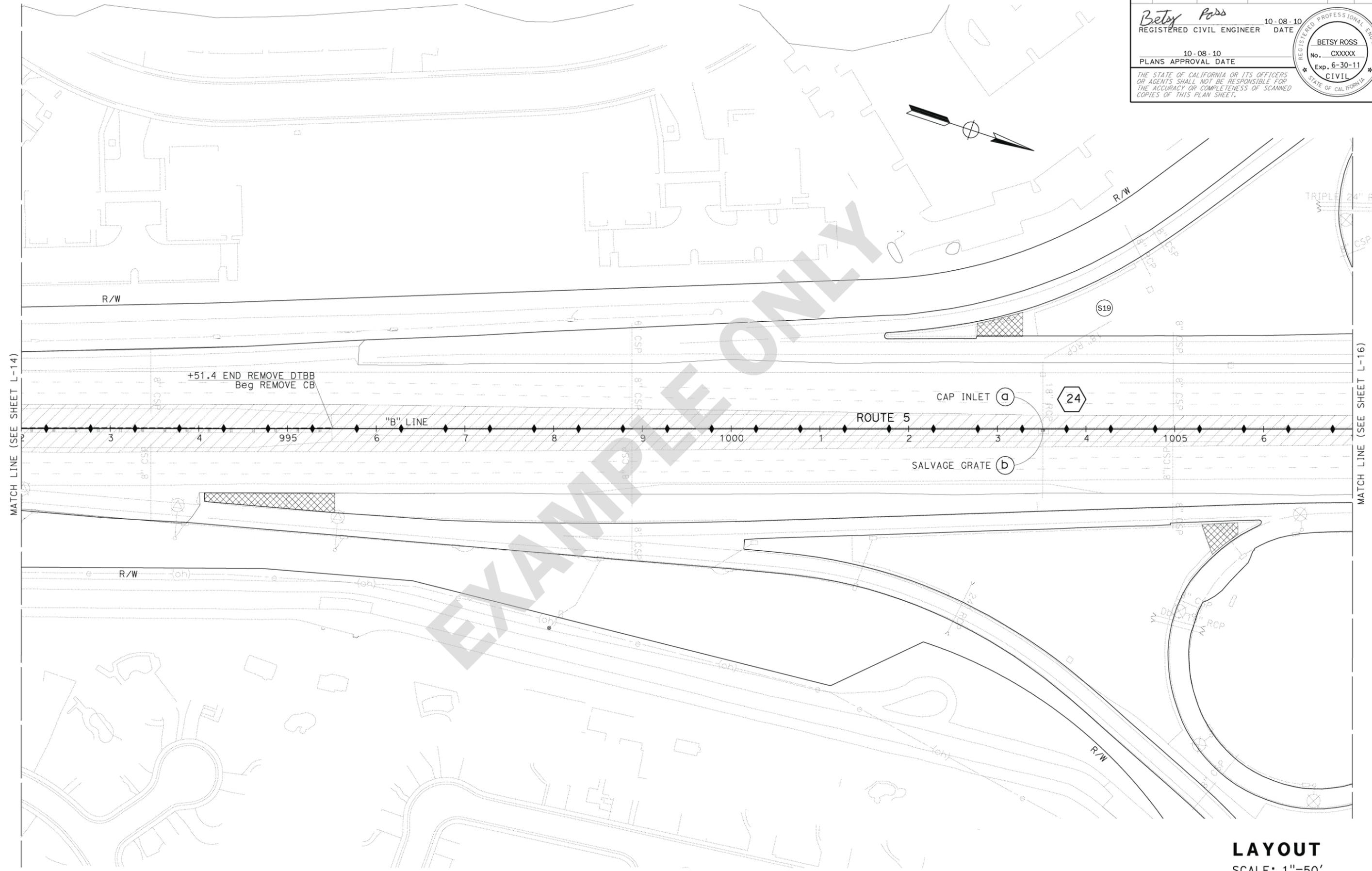
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THOMAS PAINE

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**LAYOUT**  
SCALE: 1"=50'  
**L-15**

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**EXAMPLE ONLY**