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Long Form - Storm Water Data Report



Dist-County-Route: 04-SCL-101, 05-SBt-101, 04, 04-SCL-25

Post Mile Limits: 0.0/5.0, 4.9/7.5, 1.6/2.5

Project Type: Highway Widening

Project ID (or EA): 04-XXXXXX

Program Identification: _____

Phase: PID
 PA/ED
 PS&E

Regional Water Quality Control Board(s): Central Coast (Region 3)

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: 411.7 acres Risk Level: 3

Estimated: Construction Start Date: 01/31/2013 Construction Completion Date: 12/03/2014

Notification of Construction (NOC) Date to be submitted: 12/31/2012

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 # TBD No

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

Betsy Ross 09/23/10
 [Betsy Ross], Registered Project Engineer/Landscape Architect Date

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

George Washington 09/23/10
 [George Washington], Project Manager Date

Paul Revere 09/23/10
 [Paul Revere], Designated Maintenance Representative Date

Horatio Gates 09/23/10
 [Horatio Gates], Designated Landscape Architect Representative Date

[Stamp Required for PS&E only] Friedrich Wilhelm von Steuben 09/23/10
 [Friedrich Wilhelm von Steuben], District/Regional Design SW Coordinator or Designee Date

STORM WATER DATA INFORMATION

1. Project Description

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to construct improvements to a 7.6-mile segment of United States Highway 101 (US 101) that is located in southern Santa Clara County/northern San Benito County. The primary improvements will consist of the following:

- Widen and upgrade US 101 to a six-lane freeway between the Monterey Road interchange in Gilroy and the State Route (SR) 129 interchange in northern San Benito County.
- Reconstruct the US 101/SR 25 interchange.
- Construct an auxiliary lane in each direction of US 101 between the Monterey Road and SR 25 interchanges.
- Extend Santa Teresa Boulevard approximately 0.5 miles from Castro Valley Road to the new US 101/SR 25 interchange.
- Construct improvements at the southbound US 101 off-ramp to SR 129.
- Construct frontage roads, as needed, to replace existing access to US 101 from adjacent properties.
- Grade-separate the Union Pacific Railroad (UPRR) crossing on SR 25 just west of Bloomfield Avenue.
- Construct bicycle facilities, as needed, to replace access that will be lost when US 101 is upgraded to a freeway and to improve bicycle access in the project area.

The project will reconstruct the US 101/SR 25 interchange at approximately the same location as the existing interchange. The interchange will include a new bridge to convey SR 25 over US 101. It will also include ramps to allow all traffic movements between US 101 and SR 25. The proposed work at the reconstructed US 101/SR 25 interchange will include a minor realignment of SR 25 to a location just east of the UPRR crossing, at which point it will either transition to the existing SR 25 or tie into an upgraded four-lane SR 25.

Disturbed Soil Area and Net Additional Impervious Area

The total disturbed soil area (DSA) is 411.7 acres, with 305.5 acres within Santa Clara and 106.2 within San Benito County. The DSA was calculated by subtracting the overlay impervious area from the proposed total construction area, including staging areas. This includes any soil that will be exposed through the removal of pavement. The net additional impervious area (AIA) is 73.6 acres, with 60.6 within Santa Clara County and 13.0 within San Benito County. The AIA was calculated by subtracting the total existing impervious area intended to be removed from the total new impervious area.

From post mile (PM) 3.7 to PM 5.0 along US 101 in Santa Clara County, the project is within the combined City of Gilroy, City of Morgan Hill and County of Santa Clara Phase II Municipal



Separate Storm Sewer System (MS4) area. All other areas within the project are not within an MS4 area.

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

The project is located within the jurisdiction of Caltrans Districts 4 and 5, and within the jurisdiction of the Central Coast Regional Water Quality Control Board-Region 3 (RWQCB).

Hydrologic Units

The entire project is within the Pajaro River hydrologic unit. The South Santa Clara Valley Hydrologic Area (sub-area 305.30) covers all the areas within the Santa Clara portion of the project and the project areas between US 101 PM 4.9 and PM 5.2 in San Benito County. The project areas between US 101 PM 5.2 and PM 7.5 in San Benito County are within the Santa Cruz Mountains Hydrologic Area (sub-area 305.20).

Receiving Water Bodies

Nine waterways are adjacent to or cross the roadways within the project limits. Seven of the crossings are direct receiving water bodies for US 101 and SR 25. From north to south, the receiving water bodies are: Uvas-Carnadero Creek, Gavilan Creek, Tick Creek, Tar Creek, Pajaro River, San Benito River, and San Juan Creek. The United States Geological Survey (USGS) topographic map for the project area (see Vicinity Maps in the attachments) identifies three unnamed streams that cross the project, located between San Benito River and Pajaro River. An unnamed crossing approximately 900 feet south of the Pajaro River crossing along US 101 has been previously identified as Murphy Creek on available as-built; however, current USGS and Federal Emergency Management Agency (FEMA) data do not provide a name for this crossing. These three unnamed waterways are tributaries of Pajaro River. Via Pajaro River, the flows ultimately reach the Pacific Ocean at Monterey Bay, which is approximately 23 miles west of US 101.

Uvas Creek flows northwest to southeast as it crosses US 101. Gavilan Creek flows from the west to east of the project. Uvas Creek eventually becomes Carnadero Creek after crossing US 101. Carnadero Creek merges with Pajaro River to the east of US 101. Pajaro River flows northeast to southwest, and crosses US 101 south of Tar Creek. Pajaro River continues parallel to US 101 from this crossing until it merges with the San Benito River. Tick Creek is located south of Gavilan Creek and flows from west to east of US 101. A tributary then merges with Tick Creek, which merges with Carnadero Creek east of US 101. San Benito River flows from southeast to northwest as it crosses US 101 and merges with Pajaro River after the crossing. San Juan Creek flows almost parallel to San Benito River, crosses US 101, and then merges with San Benito River upstream of the confluence of San Benito River and Pajaro River.



2006 Clean Water Act 303(d) List

The RWQCB has listed Pajaro River as an impaired water body for the following pollutants: boron, fecal coliform, nitrate, nutrients and sedimentation/siltation in the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments. The list also indicates that San Benito River is impaired by fecal coliform and sedimentation/siltation.

Total Maximum Daily Loads

TMDLs were approved by the United States Environmental Protection Agency (EPA) for sediment and nitrates for Pajaro River on May 3, 2007 (effective November 27, 2006) and October 13, 2006, respectively.

On December 2, 2005, the RWQCB amended the Water Quality Control Plan for the Central Coast Basin (Basin Plan) and adopted the TMDL for sediment for Pajaro River including the San Benito River. The Pajaro River sediment TMDL also applies to San Benito River. The sources of impairment are indicated as agriculture, silviculture, urban/residential, stream bank erosion, sand and gravel mining, range land/grazing, unpaved roads, and landslides.

Beneficial Uses

The RWQCB Basin Plan lists the identified beneficial uses of inland surface waters for the project's receiving water bodies as follows:

- Uvas Creek, downstream (as identified on the Basin Plan of RWQCB): Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Water Contact Recreation (REC1), Non-Contact Water Recreation (REC2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Fresh Water Habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction and/or Early Development (SPWN), Rare, Threatened, or Endangered Species (RARE), Commercial and Sporting Fish (COMM).
- Carnadero Creek: MUN, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, RARE, COMM.
- Pajaro River: MUN, AGR, IND, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, SPWN, Fresh Replenishment (FRESH), COMM.
- San Benito River: MUN, AGR, IND, GWR, REC1, REC2, WILD, WARM, SPWN, FRESH, COMM.
- Gavilan Creek, Tick Creek, Tar Creek, and San Juan Creek have no listed beneficial uses.

CWA Section 401 Water Quality Certification

Because it is anticipated that there will be widening at the creek crossings, a Clean Water Act 401 Water Quality Certification is required from the RWQCB. The 401 Certification will be prepared and submitted during PS&E.



Sensitive Issues

The archeological studies completed for this project identified archeological and paleontological sensitive areas within the project limits. These studies include maps identifying the relative likelihood of encountering archeological finds or formations containing highly paleontological sensitive areas within the project limits.

Maps identifying areas of biological significance were prepared by Caltrans in February 2010 that summarized findings of sensitive biotic habitats within the project limits. These maps include agriculture, annual grassland (foothills), aquatic, baccharis scrub, bare ground, eucalyptus, oak woodland, ornamental (pines, cypress, juniper), riparian, seasonal wetland and willow areas within the project limits.

Whenever possible, sensitive areas will be protected with Environmentally Sensitive Area (ESA) fencing during construction.

Local Agency Requirements/Concerns

Stormwater from the proposed project will discharge to both the Santa Clara Valley Water District and San Benito County Water District's jurisdiction. The proposed drainage and treatment design will be reviewed by the water districts during the design phase of the project.

Climate

The climate in Santa Clara County and San Benito County is warm and dry in the summers and cool and rainy in the winters. The average annual temperature ranges from 56°F to 58°F. The mean freeze-free period is between 250 and 300 days. The normal temperatures for summer and winter are 73°F and 46°F, respectively. Temperatures may rise above 100°F in the summer and may fall below 40°F in the winter. The average annual precipitation is about 18 inches, and the rainy season is from October 15 to April 15. Extreme weather conditions, such as thunderstorms and snowfalls, are rare. Rainfall Intensity Curves specific to the project limits are provided as Supplemental Attachments.

Topography

The project is located in the Santa Clara Valley, adjacent to the Santa Cruz Mountains in the west. The San Benito River Valley is located on the south side of the project site. Creeks originate from both the Diablo Range and the Santa Cruz Mountains.

Pajaro River approaches the site from the northeast, flowing south along the project site before flowing west through the Chittenden Pass. Eventually, the river flows into the Monterey Bay and the Pacific Ocean.

Soil Characteristics

General information about the soils in the project area indicates that the soils are rich in alluvial deposits, originating from the erosion of the Diablo Range and the Santa Cruz Mountains. The alluvial and sedimentary soil deposits consist of alternating layers of loam, clay, gravel, sand and mixtures of these elements.

Hydrologic Soil Groups (HSGs) on-site consist mostly of HSGs B and C, with small sections of HSG D adjacent to the Uvas-Carnadero Creek and scattered throughout the area from Tick Creek to SR 129.

A Geotechnical Impact Report (GIR) was prepared for this project. General locations of soils were identified on the maps in the GIR. The soils identified were: artificial fill (af), active stream deposits (Qg), alluvium (Qal), older alluvium (QoA), unnamed tertiary-aged foundation (Tn), ethegoin formation (Te), Franciscan assemblage-greenstone (fg) and Franciscan assemblage-limestone (fl). According to these geologic maps, the project is mainly located on artificial fill. Active stream deposits, ethegoin formation and older alluvium are located on the east and west sides of the project.

Hazardous Waste Material

According to the Hazardous Soil Report prepared for the project, there are areas of potentially adverse environmental conditions; these areas are located where the three railroads intersect. Historically, railroads used petroleum hydrocarbons for the maintenance of trains. The preliminary investigation found contaminated groundwater within the area from the Chevron Service Station, located in the northern portion of the alignment. Asbestos Containing Materials (ACMs) were noted on the existing bridges, particularly in the caulking, which separates the bridge sections and attachments for bridge guard-rails. Further detailed studies to determine the levels of contamination and efforts to mitigate or avoid these hazardous water materials will be specified during the design phase.

If hazardous waste levels are above allowable concentrations, then coordination with the Stormwater Coordinator and the Hazardous Waste Branch will take place to ensure that runoff during construction and placement of infiltration type treatment Best Management Practices (BMPs) will not further impact downstream water bodies or the groundwater.

Aerially Deposited Lead (ADL)

The Hazardous Soil Report determined that the soils within the project can be classified non-hazardous for ADL. Based on the findings presented in the report, the soil can be reused without any restrictions and the soil can be disposed of without any restrictions.

Groundwater Information

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the depth to water table is greater than 4.92 feet for most of the project site.

The GIR states that shallow groundwater conditions may be encountered during drilling operations on the Pajaro River structure, as demonstrated by the small depths of 1.28 feet at creek and river crossings.

Slope Failures

The GIR identifies two relatively large slope failures have been observed in the drainage courses east of US 101 and southeast of the Lomerias overcrossing. The slope failures are mainly from slump/debris flows and are considered unstable to the frontage road and US 101.

There is one new cut slope along the east side of US 101, north of Pajaro River. The cut will be a maximum of 80 feet high with slopes not greater than 1.5:1 (H:V), depending on results of further geotechnical studies and concurrence from Geotechnical Services. A detailed analysis for the slope's geologic structure and slope stability is recommended to assess the stability of the cuts and incorporation of stabilization measures. A retaining wall at this location will be placed if geotechnical studies determine that a 1:5 (H:V) slope is not feasible; a retaining wall is not currently proposed due to costs and the desire to maintain a natural appearing environment in this area.

Erosion Potential

The soil erodibility factor, K, for the soils adjacent to US 101 ranges from 0.10 to 0.37, with a weighted average of 0.33. The soil is generally more susceptible to erosion toward the northern end of US 101 and less susceptible toward the southern end. The soils closest to the US 101 and SR 25 interchange were found to be more erodible than the soils in the outlying areas.

Risk Assessment

The R factor was determined from the EPA "Rainfall Erosivity Factor Calculator" to be 51.92; the K, as previous stated is 0.33; the LS factor was determined by examining the existing slopes and calculated to be 4.59. The product of these values is 79. Because this value is larger than 75, the project is classified as having a high sediment risk. See the attachments for the sediment risk factor input values.

The receiving water risk is classified as high because Pajaro River has an approved TMDL for sediment. Some water bodies within the project limits also have the beneficial uses of SPWN, COLD and MIGR. A GIS map prepared by Caltrans was used to confirm that the entire project as high risk and is included in the attachments.

The combined high sediment risk and high receiving water risk results in the project being classified as Risk Level 3 (see Required Attachments). Furthermore, bioassessment is required for this project because the project has a DSA greater than 30 acres and discharges to freshwater wadeable streams.

Measures for Avoiding or Reducing Potential Storm Water Impacts

All work in creeks and waterways will be scheduled per regulatory requirements and will be detailed in the project's special provisions during the PS&E phase. Maintenance pullouts will be considered for the project, and side slopes will be specified to be as flat as possible, for easy maintenance. Concentrated flows will be collected into stabilized drains and channels.

There are no known existing treatment Best Management Practices (BMPs) within the project limits.

Land Use

In Santa Clara County, the land on the west side of US 101 is used as ranchland, and on the east side, it is used as agriculture. In San Benito County, land use on the west side of US 101 is mostly agricultural, whereas on the east side it is composed of natural vegetation.

Right-of-Way (R/W) Requirements

The areas outside of the right-of-way (R/W) that will be utilized during construction are the following: the Y Road north of the Lomerias overcrossing and the US 101 overcrossing, and the Pajaro River Access Road at Pajaro River. The areas that will require access to frontage roads during construction are the PG&E Access Road and the access road adjacent to the Union Pacific Rail Road (UPRR), south of Tar Creek.

The additional cost of R/W is currently anticipated to be \$60,000 per acre in urban areas and \$25,000 per acre in agricultural areas.

3. Regional Water Quality Control Board Agreements

On September 3, 2010 the project team along with Solomon Cruz, the Caltrans Storm Water Coordinator, met with Thomas Sanchez from the RWQCB to discuss the project. Mr. Sanchez stated that a CWA Section 401 Water Quality Certification and a dewatering permit will be required for this project. These documents will be submitted during the design phase for Mr. Sanchez's approval.

Other permits or agreements that may be necessary for the project include:

- A CWA Section 404 from the U.S. Army Corps of Engineers for wetlands.
- A 1602 Agreement from the California Department of Fish and Game.

It is also anticipated that coordination will be necessary with the National Marine Fisheries Service and the United States Fish and Wildlife Service, due to necessary permits for aquatic and wildlife habitats within the projects limits.

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 project will result in an increase in impervious surface. Additional impervious areas proposed for the project may increase the volume and velocity of the stormwater discharge. The increase in impervious area may impact the downstream waterways without pollution prevention BMPs for the project. The net additional impervious area for the project is 73.6 acres. This Project will incorporate low impact design (LID) efforts to maintain or restore pre-project hydrology, as well as provide overall water quality improvement of discharges. These LID efforts will be incorporated in the development and placement of permanent best management practices (BMPs) during the design phase to the maximum extent practicable. Potential LID measures that will be considered for this Project to improve water quality include:

- Minimizing impervious surface area and using pervious material for hardened surfaces outside of the roadway prism;
- Grading slopes to blend with the natural terrain and decreasing the need for dikes, promoting sheet flow to vegetated areas that can provide water quality benefits and promote infiltration;
- Designing permanent drainage facilities that mimic the existing drainage pattern of the area through the use of permanent check dams for attenuation of flow and disconnected drainage facilities;
- Constructing permanent vegetated drainage ditches to decrease the velocity of discharge, plus decreasing the volume of discharge by promoting infiltration and allowing for pollutant removal; and
- Maintaining existing vegetated areas.

To examine the effectiveness of these LID efforts, the pre and post project hydrology will be compared during the design phase.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

Areas of cut and fill are required throughout the project to satisfy the proposed project geometry. Cut and fill areas for the project will be developed further during the design phase and will be shown on the contract plans.

Existing slopes are described in the GIR as natural slopes along the alignment. According to the GIR, the natural slopes are covered by varied thicknesses of soil and colluvium, with light to heavy growth of grasses, scattered oak trees and bushes.

All disturbed slopes shall be revegetated for erosion control. Because this project includes slopes steeper than 4:1 (H:V), an erosion control plan will be developed during the PS&E phase and will require approval from the District Landscape Architect. Areas with slopes between 4:1 (H:V) and 2:1 (H:V) will be coordinated with the Geotechnical Design unit during the PS&E phase. Because this project will also include new slope ratios steeper than 2:1 (H:V), a Geotechnical Design Report will be prepared during the PS&E phase, and maintenance concurrence must be obtained for such slopes. There is an 80-foot cut slope, from approximately Sta 255+00 to Sta 260+00, that may have slopes as steep as but not greater than 1.5:1 (H:V), depending on results of further geotechnical studies in the design phase. Retaining walls may be proposed at multiple locations throughout the project where slopes can not be graded at 1.5:1 (H:V) or flatter. The locations and types of retaining walls for this project will be addressed during the design phase.

The minimum erosion control measures are considered for this project includes:

- Move-in/Move-out (Erosion Control)
- Fiber rolls
- Erosion Control (Hydroseed)
- Rolled Erosion Control Product (Netting)

The move-in/move-out (erosion control) will be required due to the size and two-year duration of project construction and will be utilized to ensure permanent erosion control stabilization is in place. The fiber rolls and erosion control (hydroseed) will be placed on disturbed soils to remain unpaved or unlined. Erosion control (hydroseed) and rolled erosion control product (netting) will be placed in all proposed drainage ditches and slopes greater than 4:1 (H:V). The compost will be placed on all permanent slopes to promote vegetation establishment. Hard surfaces for the project drainage design are anticipated to consist of rock slope protection at the end of pipe outlets.

The effectiveness of the proposed erosion control materials will be verified during the design phase by using the Revised Universal Soil Loss Equation 2 (RUSLE2).

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

Concentrated flow conveyance systems, such as ditches, berms, dikes, swales, overside drains, flared end sections and outlet protection/velocity dissipation devices are considered for this project. Dikes are required in areas where slopes will be too steep to allow for sheet flow and will route runoff to existing and proposed drainage inlets. Outlet protection/velocity dissipation BMPs will be placed at all outlets of drainage systems that discharge into earth-lined ditches/basins. The locations and design of these facilities will take place during the design phase of the project.

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

It is the goal of the project to maximize the protection of desirable existing vegetation for erosion and sediment control. Existing vegetation in the project area primarily consists of agriculture, annual grassland (foothills), baccharis scrub, eucalyptus, oak woodland, ornamental (pines, cypress, juniper), riparian, seasonal wetland and willow, according to the latest Biotic Habitat plans. Existing vegetation to remain in place will be protected with temporary ESA fencing during construction.

Existing wetlands that can be preserved will be preserved with retaining walls and temporary ESA fencing during construction. These wetlands are delineated in the biotic habitat plans. Existing wetlands that cannot be preserved will be mitigated with appropriate measures during the PS&E Phase of the project.

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

Treatment BMP Strategy, Checklist T-1

The project is required to consider treatment BMPs because it involves major reconstruction with direct discharges to surface water bodies and the creation of more than one acre of impervious area. It was determined during the PID phase that biofiltration devices and Austin sand filters were the only feasible treatment devices for this Project. Cayla Rae, the Caltrans Maintenance Area Manager, stated via email on September 20, 2010 that biofiltration devices are preferred due to ease of maintenance for biofiltration devices over Austin sand filters. However, because there are TMDLs established for sediment and nitrate for Pajaro River, it was necessary to coordinate with the Solomon Cruz, the District Stormwater Coordinator, to determine if other treatment devices will be preferred over biofiltration for removal of these pollutants. Upon contacting Mr. Cruz, it was determined that this project can solely utilize biofiltration devices, preferably swales, as long as these devices meet the requirement of treating all the added impervious area. At this phase, potential BMPs have been identified to treat 74.9 acres, which is over 100% of the added impervious area of 73.6 acres. For a list of all BMPs, see Table 1.

Biofiltration Swales/Strips, Checklist T-1, Parts 1 and 2

Biofiltration devices are proposed throughout the project to provide permanent stormwater treatment. Due to the presence of steep slopes, adjacent river crossings, and limited space in some locations, it is not feasible to drain all project areas to these devices. At this phase, it has not been determined which BMPs will be swales and which will be strips, and these devices have not been fully designed. It is anticipated that biofiltration strips will range from 15 to 20 feet long at a slope of 4:1 (H:V) or flatter, and that biofiltration swales will include side slopes of 4:1 (H:V) with a minimum 5 foot wide invert. Mr. Cruz, District Stormwater Coordinator, has stated that soil amendments must be used for all biofiltration devices; the soil amendment types and specifications will be developed during the design phase. The infiltration capacity of the biofiltration devices using amended soils will be completed during the design phase.

Table 1. Treatment BMP Summary

BMP Sheet No.	BMP #	Proposed Preferred Treatment BMP Type	Begin Station	End Station	Offset	Treated Impervious Area (sf)	Treated Impervious Area (ac)	WQF (cfs)
BMP-2 - BMP-3	1	Biofiltration Device	"M" Line 91+10	"M" Line 98+50	Lt	57,025	1.3	0.26
BMP-3 - BMP-4	2	Biofiltration Device	"M" Line 101+45	"M" Line 106+00	Lt	20,816	0.5	0.10
BMP-4	3	Biofiltration Device	"M" Line 106+00	"M" Line 107+40	Lt	6,649	0.2	0.03
BMP-3 - BMP-4	4	Biofiltration Device	"M" Line 101+45	"M" Line 106+00	Rt	26,487	0.6	0.12
BMP-3 - BMP-5	5	Biofiltration Device	"M" Line 106+00	"M" Line 115+00	Rt	41,174	0.9	0.19
BMP-4 - BMP-5	6	Biofiltration Device	"M" Line 107+30	"M" Line 115+00	Lt	49,805	1.1	0.23
BMP-5 - BMP-6	7	Biofiltration Device	"M" Line 123+00	"M" Line 134+00	Rt	61,082	1.4	0.28
BMP-5 - BMP-6	8	Biofiltration Device	"M" Line 123+00	"M" Line 134+60	Lt	73,936	1.7	0.34
BMP-6 - BMP-7	9	Biofiltration Device	"M" Line 135+00	"M" Line 151+00	Lt	73,850	1.7	0.34
BMP-6 - BMP-10	10	Biofiltration Device	"M" Line 151+00	End of SB on-ramp	Lt	94,035	2.2	0.43
BMP-7	11	Biofiltration Device	"M" Line 139+92	"M" Line 168+00	Rt	146,332	3.4	0.67
BMP-9	12	Biofiltration Device	"M" Line 172+18	"M" Line 175+80	Rt	21,781	0.5	0.10
BMP-9	13	Biofiltration Device	"M" Line 172+71	"M" Line 175+90	Lt	14,059	0.3	0.06
BMP-9 - BMP-10	14	Biofiltration Device	"M" Line 175+90	"M" Line 182+78	Lt	31,337	0.7	0.14
BMP-10	15	Biofiltration Device	"M" Line 176+50	"M" Line 182+74	Rt	28,644	0.7	0.13
BMP-10 - BMP-11	16	Biofiltration Device	"M" Line 183+10	"M" Line 184+60	Lt	9,247	0.2	0.04
BMP-10 - BMP-12	17	Biofiltration Device	"M" Line 183+21	"M" Line 194+07	Rt	50,030	1.1	0.23
BMP-11 - BMP-12	18	Biofiltration Device	"M" Line 185+21	"M" Line 196+20	Lt	59,362	1.4	0.27
BMP-12 - BMP-13	19	Biofiltration Device	"M" Line 195+70	"M" Line 206+00	Rt	60,837	1.4	0.28
BMP-12 - BMP-13	20	Biofiltration Device	"M" Line 199+00	"M" Line 203+00	Lt	23,167	0.5	0.11
BMP-12 - BMP-13	21	Biofiltration Device	"M" Line 203+00	"M" Line 220+00	Lt	97,210	2.2	0.45
BMP-13	22	Biofiltration Device	"M" Line 206+00	"M" Line 210+00	Rt	19,411	0.4	0.09
BMP-13 - BMP-14	23	Biofiltration Device	"M" Line 215+00	"M" Line 220+30	Lt	25,025	0.6	0.11
BMP-13 - BMP-14	24	Biofiltration Device	"M" Line 210+00	"M" Line 236+50	Rt	148,259	3.4	0.68
BMP-15	25	Biofiltration Device	"M" Line 232+00	"M" Line 236+40	Lt	24,167	0.6	0.11
BMP-15 - BMP-16	26	Biofiltration Device	"M" Line 240+00	"M" Line 247+00	Rt	60,346	1.4	0.28
BMP-15 - BMP-16	27	Biofiltration Device	"M" Line 240+00	"M" Line 246+00	Lt	28,803	0.7	0.13
BMP-16 - BMP-18	28	Biofiltration Device	"M" Line 246+80	"M" Line 269+00	Rt	248,604	5.7	1.14
BMP-16	29	Biofiltration Device	"M" Line 246+00	"M" Line 252+50	Lt	22,042	0.5	0.10
BMP-17	30	Biofiltration Device	"M" Line 257+70-	"M" Line 260+50	Lt	11,312	0.3	0.05
BMP-17	31	Biofiltration Device	"M" Line 260+50	"M" Line 266+00	Lt	21,872	0.5	0.10
BMP-18	32	Biofiltration Device	"M" Line 266+70-	"M" Line 269+00	Lt	78,518	1.8	0.36
BMP-20	33	Biofiltration Device	"F1" Line 22+00	"F1" Line 26+30	Lt	4,748	0.1	0.02
BMP-20	34	Biofiltration Device	"F1" Line 22+00	"F1" Line 26+30	Rt	4,689	0.1	0.02
BMP-23	35	Biofiltration Device	"SJH" Line 33+20	"SJH" Line 38+00	Lt	7,899	0.2	0.04
BMP-23	36	Biofiltration Device	"SJH" Line 33+20	"SJH" Line 38+00	Rt	7,871	0.2	0.04
BMP-25 - BMP-26, BMP-28	37	Biofiltration Device	"A" Line 66+00	"A" Line 85+30	Lt	90,634	2.1	0.37
BMP-25	38	Biofiltration Device	"A" Line 60+50	"A" Line 65+80	Rt	29,572	0.7	0.12
BMP-25 - BMP-34	39	Biofiltration Device	"A" Line 66+06	"A" Line 141+05	Rt	419,772	9.6	1.73
BMP-28, BMP-30	40	Biofiltration Device	"A" Line 86+40	"A" Line 100+00	Lt	62,274	1.4	0.26
BMP-30, BMP-32	41	Biofiltration Device	"A" Line 100+00	"A" Line 113+00	Lt	59,752	1.4	0.25
BMP-32 - BMP-34	42	Biofiltration Device	"A" Line 114+50	"A" Line 139+20	Lt	152,015	3.5	0.63
BMP-35 - BMP-36	43	Biofiltration Device	"A" Line 155+00	"A" Line 161+20	Lt	55,266	1.3	0.23
BMP-36	44	Biofiltration Device	"A" Line 160+10	"A" Line 164+50	Lt	23,218	0.5	0.10
BMP-36	45	Biofiltration Device	"B" Line 659+50	"B" Line 669+90	Lt	18,118	0.4	0.07
BMP-38	46	Biofiltration Device	"A" Line 170+80	"A" Line 179+00	Lt	60,967	1.4	0.25
BMP-38 - BMP-39	47	Biofiltration Device	"A" Line 182+00	"A" Line 187+00	Lt	22,499	0.5	0.09
BMP-40 - BMP-41	48	Biofiltration Device	"A" Line 196+00	"A" Line 208+50	Lt	101,771	2.3	0.42
	49	Biofiltration Device	"A" Line 210+00	"A" Line 231+00	Lt	192,096	4.4	0.79
BMP-41, BMP-43, BMP-44	50	Biofiltration Device	"A" Line 212+70	"A" Line 230+00	Rt	98,518	2.3	0.41
BMP-44 - BMP-45	51	Biofiltration Device	"A" Line 237+50	"A" Line 245+00	Lt	48,010	1.1	0.20
	52	Biofiltration Device	"R4" Line 37+70	"R4" Line 47+00	Lt	25,346	0.6	0.10
	53	Biofiltration Device	"F6" Line 190+50	"F6" Line 194+00	Lt	17,022	0.4	0.07

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 3. A meeting with Jean Barker, the Caltrans Construction Stormwater Coordinator, was held September 10, 2010 to discuss the BMP approach for this project.

Storm Water Pollution Prevention Plan

The project has a DSA of 411.7 acres for Design Option B. A Storm Water Pollution Prevention Plan (SWPPP) must be prepared prior to the start of construction. The SWPPP also includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, pH, and receiving waters.

Rain Event Action Plan

Risk Level 3 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 Gilroy.

Construction Site BMP Strategy

The Temporary Construction Site BMP strategy for this project consists of the following:

- Soil Stabilization Measures
- Sediment Control Measures
- Tracking Control
- Non-stormwater Management Measures
- General Construction Site Management
- Stormwater Sampling and Analysis

Soil stabilization and sediment control consists of placing linear sediment barriers such as silt fence at the toe of all excavation and embankment slopes. Slope interruption devices such as fiber rolls will be installed and soil stabilizer will be hydraulically applied. Wherever possible, early implementation of permanent erosion control seeding or landscape planting will be performed.

Storm drain inlet protection shall be deployed throughout the project.

It is not anticipated that active treatment systems will be necessary for this project. Further consideration will be made during the PS&E phase.

The project has medium wind erosion potential; thus, it is anticipated that there will be several areas that need stabilized construction entrances and scheduled street sweeping to avoid off-site tracking of sediment.

Riparian areas adjacent to creeks shall be designated as ESAs and protected with temporary high visibility fencing. The project includes work on bridges for widening, and the project team may propose upsizing or extending cross culverts located within the project limits. Some of these waterways are perennial and may need dewatering operations or temporary creek diversions during construction to protect water quality. A dewatering permit will be needed from the RWQCB for the proposed work near these perennial waterways. Dewatering for retaining wall footings or pilings may also be necessary for deep excavations.

Concrete work is anticipated for this project and shall be managed through the use of temporary concrete washout bins.

Various waste management, materials handling, and other housekeeping BMPs shall be used throughout the duration of the project. Stockpiles of various kinds are anticipated and shall be maintained with the appropriate BMPs.

Table 2 lists the types and quantities of construction site BMPs that are anticipated for this project based on current information available for the Project. The final construction site BMPs and associated checklists will be completed and submitted during the project design phase.

The cost of stormwater BMPs was estimated using the Historical Project Method as outlined in Section F.6.2 of the PPDG, and the cost can be found in the supplemental attachments. Most items and costs were taken from the US 101 Auxiliary Lane Project, a similarly sized highway widening project that includes work on interchanges. The values reflect an average of the five lowest bids. Because this is a recent project, cost indexes were not used to adjust for variations in construction costs over time. Supplemental items related to Stormwater Sampling were estimated using the guidance in Appendix F of the PPDG.

The costs for those items related to the CGP were calculated based on the “Estimating Guidance for CGP,” currently available on the Caltrans website. These items include preparing the SWPPP, REAP, Storm Water Annual Report and Storm Water Sampling and Analysis.

[Storm Water Sampling and Analysis](#)

This project is required to perform stormwater sampling at all discharge locations. Numeric Action Levels and Numeric Effluent Limitations are applicable to this project because the project is Risk Level 3. The required specifications will be prepared during the design phase included in the project Special Provisions.

This project is required to incorporate bioassessment monitoring for impaired receiving waters. Bioassessment monitoring is required both upstream and downstream of the impacted areas, before and after the project.

Table 2. Quantities for Construction Site BMPs

BMP Description	Unit of Measurement	Unit
Move-In/Move-out (Temporary Erosion Control)	EA	10
Maintain Existing Planted Areas	LS	1
Temp. Hydraulic Mulch (Bonded Fiber Matrix)	SQYD	22000
Temporary Cover	SQYD	8000
Temporary Silt Fence	LF	10000
Temporary Fiber Rolls	LF	9000
Street Sweeping and Vacuuming	LS	1
Temporary Drainage Inlet Protection	EA	46
Temporary Construction Entrance	EA	11
Temporary Concrete Washout	EA	8
Temporary Active Treatment System (Dewatering Operations)	LS	1
Temporary Creek Diversion System	EA	3
Construction Site Management	LS	1
Water Pollution Control Maintenance Sharing	LS	1
Additional Water Pollution Control	LS	1
Prepare Storm Water Pollution Prevention Plan	LS	1
Storm Water Sampling and Analysis	LS	1
Storm Water Sampling and Analysis Day	EA	46
Receiving Water Bioassessment	1	LS
Rain Event Action Plan	EA	83
Storm Water Annual Report	2	EA

7. Maintenance BMPs (Drain Inlet Stenciling)

Drain inlet stenciling is anticipated to be required for this project because inlets will be placed in areas accessible to pedestrians and bicycle traffic. The stenciling detail provided in the Caltrans *Standard Plans* will be specified for drainage inlets within the State R/W. The quantities, details and specifications for the drain inlet stenciling will be provided during the PS&E phase of the project. Other types of maintenance BMPs, including placement of maintenance vehicle pullouts, will be considered during the design phase and coordinated with the Caltrans Maintenance Area Manager.

Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Risk Level Determination Documentation
- SWDR Tracking Form

Supplemental Attachments

- 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 T-1, Parts 1–2 (Treatment BMPs)
- BMP and Monitoring Location Maps

EXAMPLE ONLY



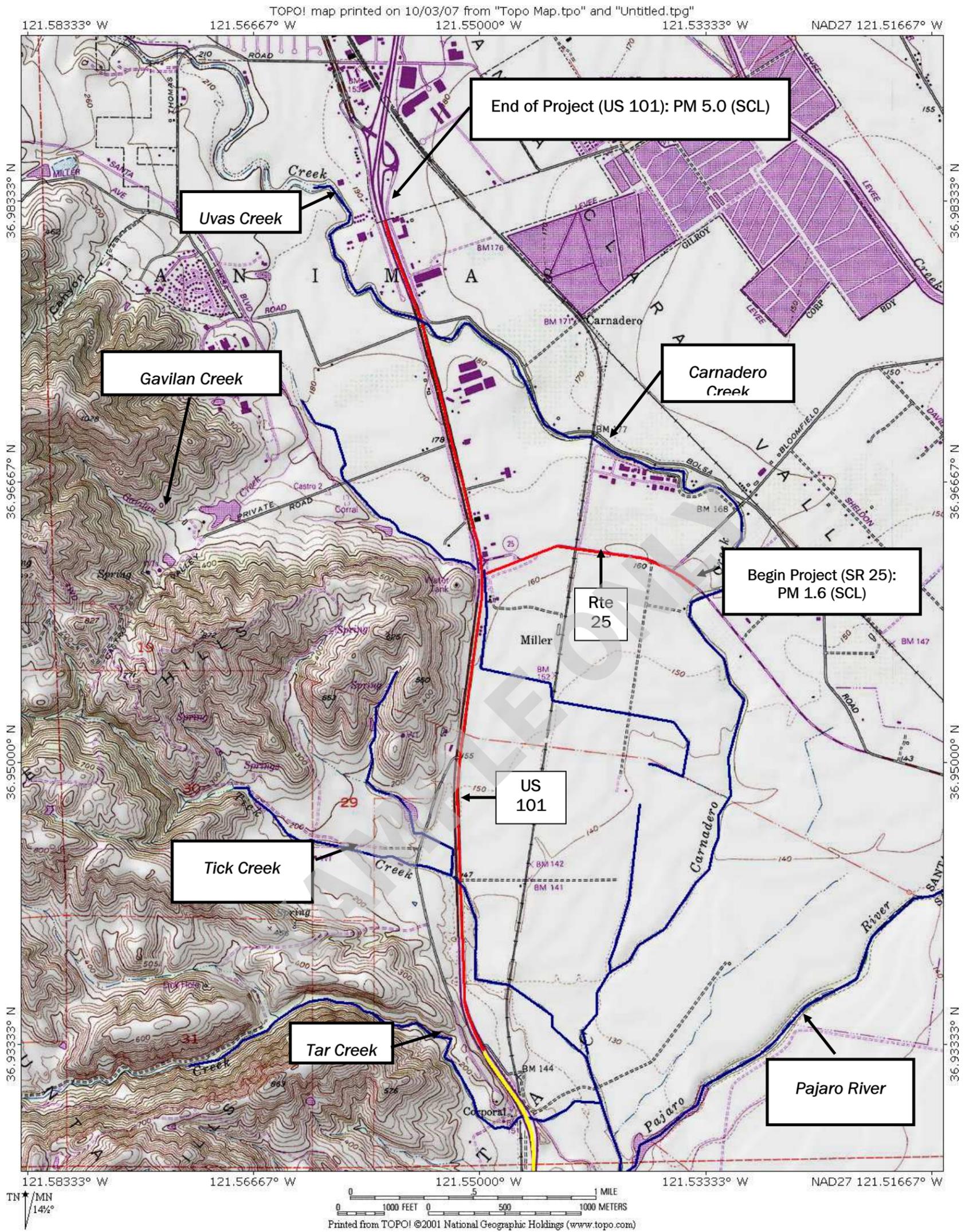


Figure 1. Vicinity Map-North Half of Project

Source: USGS

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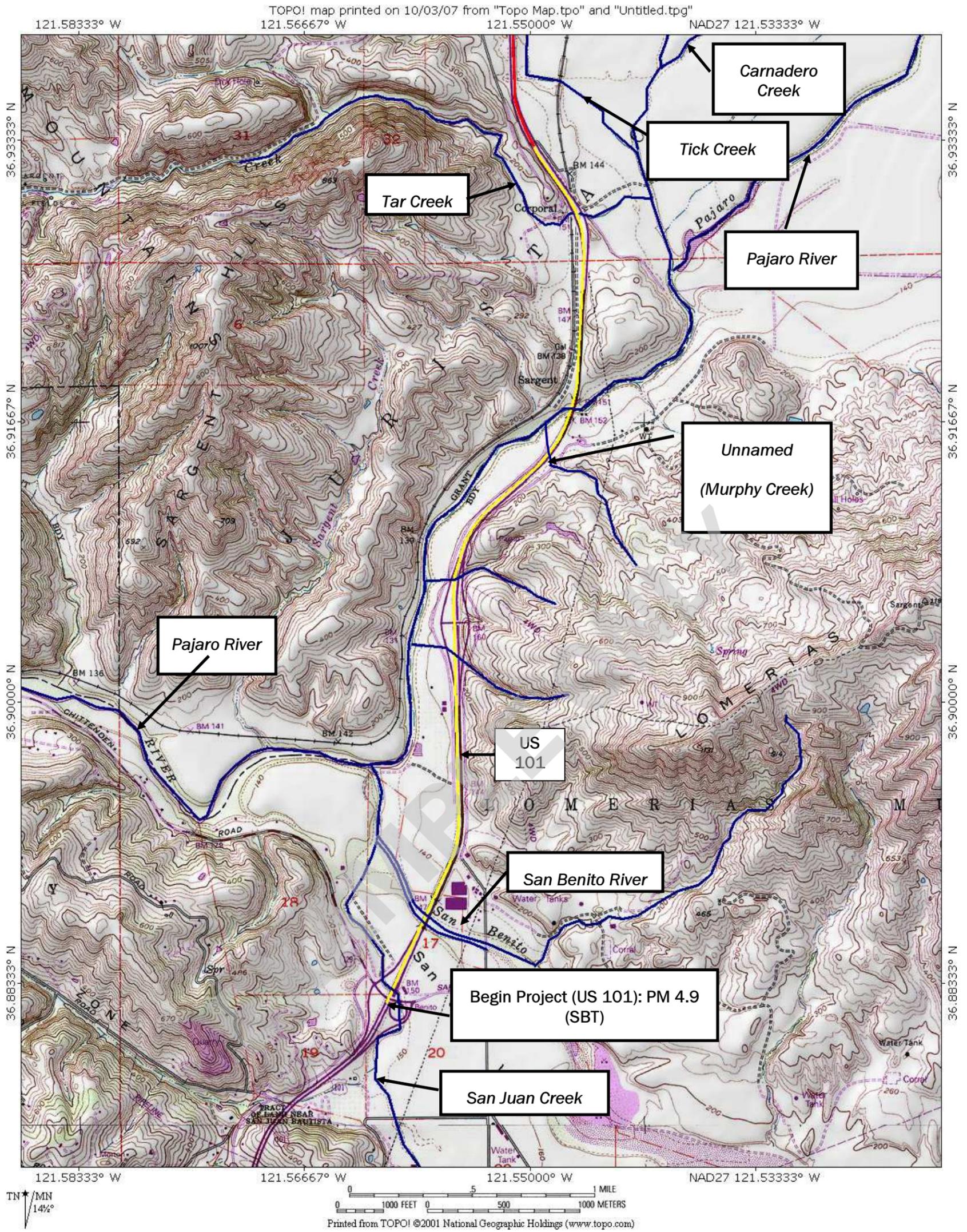


Figure 2. Vicinity Map-South Half of Project

Source: USGS

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Evaluation Documentation Form (EDF)

DATE: September 2010

Project ID (or EA): XX-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. (write the MS4 Area here), 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>73.6 acres</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. _____(Dist./Reg. Design SW Coord. Initials) _____(Project Engineer Initials) _____(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

Figure 3 . R Factor

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: 101/25 Highway Widening
 Start Date: 01/31/2013
 End Date: 12/03/2014
 Latitude: 36.9620
 Longitude: -121.5501

Erosivity Index Calculator Results

AN EROSIIVITY INDEX VALUE OF **51.92** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF 01/31/2013 - 12/03/2014.

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

Figure 4 . LS Factor

Sheet Flow Length (ft)	Average Watershed Slope (%)							
	0.2	5.0	10.0	20.0	25.0	30.0	40.0	50.0
<3	0.05	0.23	0.35	0.41	0.45	0.48	0.53	0.58
6	0.05	0.23	0.37	0.56	0.64	0.72	0.85	0.97
9	0.05	0.23	0.38	0.67	0.80	0.91	1.13	1.31
12	0.05	0.23	0.39	0.76	0.93	1.08	1.37	1.62
15	0.05	0.23	0.40	0.84	1.04	1.24	1.59	1.91
25	0.05	0.31	0.57	1.24	1.56	1.86	2.41	2.91
50	0.05	0.46	0.91	2.10	2.67	3.22	4.24	5.16
75	0.05	0.58	1.20	2.86	3.67	4.44	5.89	7.20
100	0.05	0.68	1.46	3.57	4.59	5.58	7.44	9.13
150	0.05	0.86	1.92	4.85	6.30	7.70	10.35	12.75

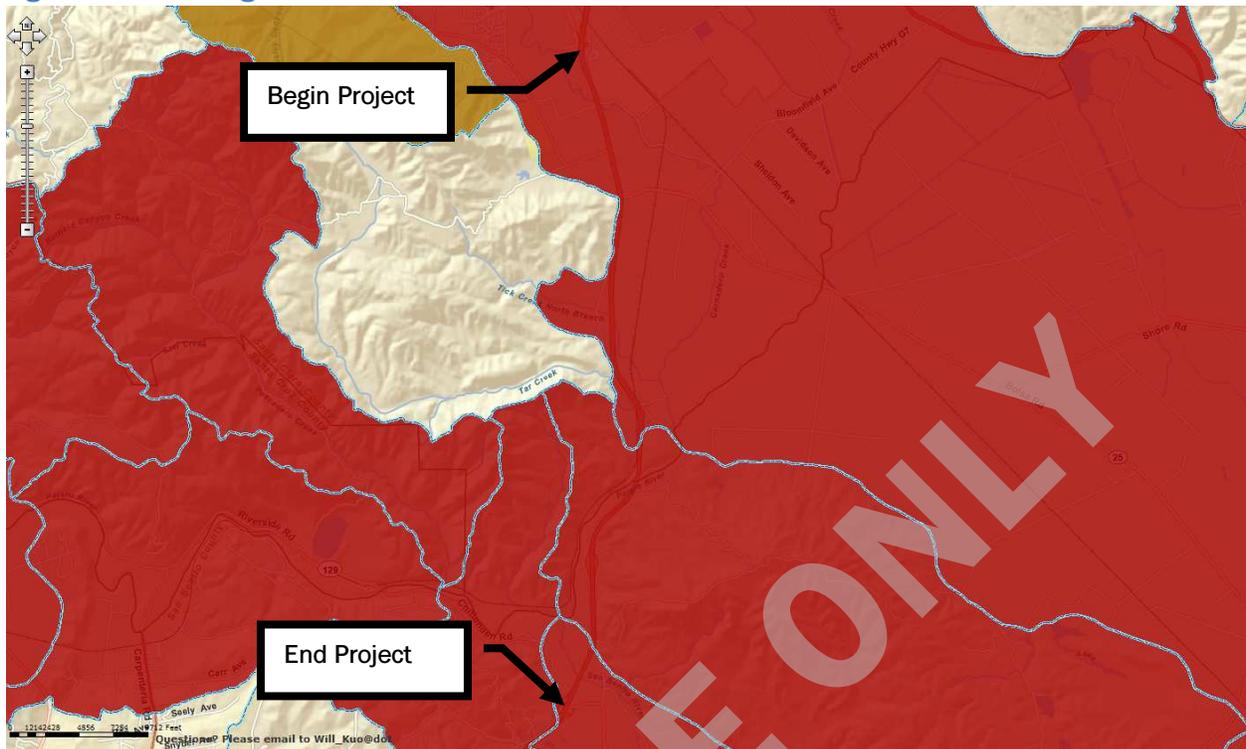
Source: State Water Resources Control Board

Figure 5 . Sediment Risk (High)

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
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	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	R Factor Value		51.92
6	B) K Factor (weighted average, by area, for all site soils)		
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	Site-specific K factor guidance		
9	K Factor Value		0.33
10	C) LS Factor (weighted average, by area, for all slopes)		
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	LS Table		
13	LS Factor Value		4.59
14			
15	Watershed Erosion Estimate (=R_xK_xL_S) in tons/acre		79
16	Site Sediment Risk Factor		High
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Source: State Water Resources Control Board

Figure 6 . Receiving Water Risk



Source: Caltrans

Figure 7 . Receiving Water Risk

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed waterbody impaired by sediment ? For help with impaired waterbodies please check the attached worksheet or visit the link below: 2006 Approved Sediment-impaired WBs Worksheet http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml	Yes	High
OR A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? http://www.ice.ucdavis.edu/geowbs/asp/wbquse.asp		

Source: State Water Resources Control Board

Figure 8 . Risk Level Determination

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

Project Sediment Risk: **High**
 Project RW Risk: **High**
 Project Combined Risk: **Level 3**

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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	MS4CiCo	Water Bodies Affected	Criteria	BioStrip	BioSwale	Detention	Infiltration	InfilTrench	GSRD	TST	DryWeath	MedFilter	MCTT	WetBasin	Const_Start	Const_Comp	SWComment		
10/8/2010	04-XXXX	4	XXXXXX	4	101	0	5	Highway PS&E	TRUE	10/8/2010	FALSE	TRUE	SWPPP		305.5	60.6	100	TRUE	Gilroy, MuiUvas-Carnadero Creek,	401	0	53	0	0	0	0	0	0	0	0	0	0	0	1/31/2013	12/3/2014		
10/8/2010	04-XXXX	4	XXXXXX	4	25	1.6	2.5	Highway PS&E	TRUE	10/8/2010	FALSE	TRUE	SWPPP		305.5	60.6	100	TRUE	Gilroy, MuiUvas-Carnadero Creek,	401	0	53	0	0	0	0	0	0	0	0	0	0	0	0	1/31/2013	12/3/2014	
10/8/2010	05-XXXX	5	XXXXXX	5	101	4.9	7.5	Highway PS&E	TRUE	10/8/2010	FALSE	TRUE	SWPPP		106.2	13	100	TRUE	Gilroy, MuiUvas-Carnadero Creek,	401	0	53	0	0	0	0	0	0	0	0	0	0	0	0	1/31/2013	12/3/2014	

EXAMPLE ONLY

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Storm Water BMP Cost Summary FOR CALTRANS USE ONLY

Temporary Construction Site BMPs

Historical Project Name/EA	BMP Description	Unit of Measurement	Unit Price	Total Dollar Amount
US 101 Auxiliary Lane Project/XX-XXXXXX	Move-In/Move-out (Temporary Erosion Control)	EA	900.00	\$ 9,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Maintain Existing Planted Areas	LS	100,000.00	\$ 100,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temp. Hydraulic Mulch (Bonded Fiber Matrix)	SQYD	1.20	\$ 26,400
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Cover	SQYD	4.00	\$ 32,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Silt Fence	LF	1.50	\$ 15,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Fiber Rolls	LF	6.00	\$ 54,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Street Sweeping and Vacuuming	LS	100,000.00	\$ 100,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Drainage Inlet Protection	EA	300.00	\$ 13,800
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Construction Entrance	EA	3,500	\$ 38,500
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Concrete Washout	EA	2,500	\$ 20,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Active Treatment System (Dewatering Operations)	LS	60,000	\$ 60,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Construction Site Management	LS	450,000	\$ 450,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Prepare Storm Water Pollution Prevention Plan	LS	30,000	\$ 30,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Additional Water Pollution Control	LS	65,000	\$ 65,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Water Pollution Control Maintenance Sharing	LS	30,000	\$ 30,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Storm Water Sampling and Analysis	LS	30,000	\$ 30,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Temporary Creek Diversion System	EA	15,000	\$ 45,000
Subtotal Temporary Construction Site BMPs				\$ 1,118,700

Treatment BMPs

Historical Project Name/EA	BMP Description	Unit of Measurement	Unit Price	Total Dollar Amount
US 101 Auxiliary Lane Project/XX-XXXXXX	Fiber Rolls	LF	4.00	\$ 9,360
US 101 Auxiliary Lane Project/XX-XXXXXX	Compost, Incorporate	SQYD	5.00	\$ 36,750
US 101 Auxiliary Lane Project/XX-XXXXXX	Erosion Control (Hydroseed)	SQFT	0.20	\$ 13,236
US 101 Auxiliary Lane Project/XX-XXXXXX	Plant (Group M)	EA	15	\$ 131,400
US 101 Auxiliary Lane Project/XX-XXXXXX	Filter Fabric	SQYD	1.50	\$ 414
US 101 Auxiliary Lane Project/XX-XXXXXX	Imported Topsoil	CY	50	\$ 68,400
US 101 Auxiliary Lane Project/XX-XXXXXX	Ditch Excavation	CY	30	\$ 69,240
Subtotal Treatment BMPs				\$ 259,560

Design Pollution Prevention BMPs

Historical Project Name/EA	BMP Description	Unit of Measurement	Unit Price	Total Dollar Amount
US 101 Auxiliary Lane Project/XX-XXXXXX	18" Alternative Flared End Section	EA	470	\$ 6,580
US 101 Auxiliary Lane Project/XX-XXXXXX	24" Alternative Flared End Section	EA	645	\$ 1,290
US 101 Auxiliary Lane Project/XX-XXXXXX	30" Alternative Flared End Section	EA	800	\$ 1,600
US 101 Auxiliary Lane Project/XX-XXXXXX	Rock Slope Protection (Light, Method B)	CY	200	\$ 11,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Rock Slope Protection (Backing No. 1, Method B)	CY	125	\$ 1,125
US 101 Auxiliary Lane Project/XX-XXXXXX	Rock Slope Protection (Backing No. 2, Method B)	CY	160	\$ 21,920
US 101 Auxiliary Lane Project/XX-XXXXXX	Rock Slope Protection Fabric	SQYD	6	\$ 4,704
US 101 Auxiliary Lane Project/XX-XXXXXX	Fiber Rolls	LF	4.00	\$ 10,040
US 101 Auxiliary Lane Project/XX-XXXXXX	Compost, Incorporate	SQYD	5.00	\$ 74,250
US 101 Auxiliary Lane Project/XX-XXXXXX	Move-In/Move-Out (Erosion Control)	EA	3,000	\$ 12,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Erosion Control (Hydroseed)	SQFT	0.20	\$ 20,988
US 101 Auxiliary Lane Project/XX-XXXXXX	Rolled Erosion Control Product (Netting)	SQFT	4.00	\$ 110,000
US 101 Auxiliary Lane Project/XX-XXXXXX	Ditch Excavation	CY	30	\$ 34,620
US 101 Auxiliary Lane Project/XX-XXXXXX	Minor Concrete (Ditch Lining)	CY	545	\$ 81,750
Subtotal Design Pollution Prevention BMPs				\$ 391,867

Total \$ 1,770,127

Long Form - Storm Water Data Report

Routine Quarterly Monitoring

24 months	/	3	+	1	9 inspections
432 discharges	+	4 additional discharges			436 discharges
					\$ 100 /hour
Total					\$ 392,400

Prepare Storm Water Pollution Prevention Plan

Prepare SWPPP Base Cost	\$ 6,000
Routine Quarterly Monitoring Cost	\$ 392,400
Total	\$ 398,400

Prepare Storm Water Pollution Prevention Plan

Prepare WPCP Cost	\$ -
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Storm Water Annual Report

2 years	2 SWA Reports
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REAP (Storms Generating ≥ 0.10 inches)

36.6 rainy days/year	x	2 years	73 days
36.6 rainy days/year	x	3 subsequent months	\div 12 subsequent months/year
			9 days
			83 days
			83 REAPs

Storm Water Monitoring Cost

M Value	3		
22.9 rainy days/year	x	2 years	46 days
22.9 rainy days/year	x	0 subsequent months	\div 12 subsequent months/year
			0 days
			46 days
Daily Cost to perform sampling and analysis	\$ 1,000		
Equipment Maintenance Cost	\$ 2,400		
	\$ 145,200		

Additional Storm Water Sampling Items

No.	Item Code	Description	Quantity	Unit	Unit Price	Cost
1	074019	Prepare Storm Water Pollution Prevention Plan	1	LS	\$ 398,400.00	\$ 398,400.00
2	074056	Rain Event Action Plan	83	EA	\$ 500.00	\$ 41,500.00
3	074057	Storm Water Annual Report	2	EA	\$ 2,000.00	\$ 4,000.00
4	074058	Storm Water Sampling and Analysis Day	46	EA	\$ 3,156.52	\$ 145,200.00
5		Receiving Water Bioassessment	1	LS	\$ 30,000.00	\$ 30,000.00
Subtotal						\$ 619,100.00

No.	Item Code	Supplemental Work	Quantity	Unit	Unit Price	Cost
1	066596	Additional Water Pollution Control	1	LS	\$ 6,000.00	\$ 6,000.00
2	066597	Storm Water Sampling and Analysis	1	LS	\$ 6,000.00	\$ 6,000.00
Subtotal						\$ 12,000.00

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

COOP ID: 043417

Lon: 121° 34W

Elevation: 194 Feet Lat: 37° 00N

NWS Call Sign:

Station: GILROY, CA

Climate Division: CA 4

Precipitation (inches)

		Precipitation Totals										Precipitation Probabilities (1)																			
		Extremes										Probability that the monthly/annual precipitation will be equal to or less than the indicated amount																			
Month	Means/ Medians(t)	Highest Daily(t)	Year	Day	Highest Monthly(t)	Year	Lowest Monthly(t)	Year	Daily Precipitation										Monthly/Annual Precipitation vs Probability Levels												
									Mean	Median	0.01	>= 0.01	>= 0.10	>= 0.50	>= 1.00	These values were determined from the incomplete gamma distribution															
Jan	4.30	3.11	4.55	1963	31	11.89	1997	.21	1976	10.5	7.1	3.1	1.3	.29	.55	1.09	1.68	2.34	3.11	4.03	5.21	6.85	9.62	12.36							
Feb	4.10	3.01	3.21	1963	1	13.18	1998	.16	1997	8.6	5.7	2.6	1.1	.30	.56	1.08	1.65	2.28	3.00	3.87	4.98	6.52	9.10	11.66							
Mar	3.64	2.86	2.82	1991	4	13.22	1991	.02	1972	9.9	6.6	2.7	.8	.21	.42	.87	1.36	1.92	2.58	3.38	4.40	5.84	8.28	10.71							
Apr	1.16	.71	3.65	1958	3	4.68	1982	.00	1977	5.3	3.1	.5	.2	.03	.11	.27	.44	.62	.84	1.10	1.42	1.88	2.64	3.39							
May	.41	.13	1.87	1996	16	2.34	1996	.00+	1992	2.7	1.0	.1	.1	.00	.00	.00	.01	.06	.14	.26	.43	.69	1.18	1.69							
Jun	.10	.00	.77	1967	2	.76	1993	.00+	1999	.8	.5	.0	.0	.00	.00	.00	.00	.00	.00	.00	.03	.09	.18	.34							
Jul	.06	.00	.66	1974	9	.80	1974	.00+	2000	.3	.2	.1	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.15							
Aug	.05	.00	.68	1976	19	1.00	1976	.00+	2000	.4	.2	@	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11							
Sep	.33	.02	5.97	1959	19	2.67	1976	.00+	1998	1.3	.7	.2	@	.00	.00	.00	.00	.00	.00	.01	.07	.21	.47	.94							
Oct	.93	.57	1.97	1981	28	3.18	2000	.00+	1999	3.1	1.8	.7	.2	.00	.00	.03	.16	.32	.52	.78	1.11	1.59	2.41	3.27							
Nov	2.52	1.59	2.54	1972	15	7.50	1972	.00	1992	7.4	4.3	1.8	.7	.03	.14	.41	.74	1.13	1.61	2.22	3.01	4.14	6.11	8.09							
Dec	3.00	2.88	2.81	1995	12	9.15	1996	.01	1989	8.9	5.4	1.9	.8	.18	.35	.72	1.12	1.59	2.13	2.79	3.63	4.81	6.82	8.82							
Ann	20.60	21.39	5.97	Sep 1959	19	13.22	Mar 1991	.00+	Aug 2000	59.2	36.6	13.7	5.2	9.07	10.92	13.48	15.57	17.53	19.50	21.61	24.03	27.09	31.73	35.92							

- (1) From the 1971-2000 Monthly Normals
 - (2) Derived from station's available digital record: 1957-2001
 - (3) Derived from 1971-2000 serially complete daily data
- Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

36.6 - 13.7 = 22.9

+ 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



Checklist SW-1, Site Data Sources

Prepared by: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBt-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

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"> United States Geological Survey. (2001). California: Seamless U.S.G.S. Topographic Maps (CDROM, Version 2.6.8, Part Number: 113-100-004). National Geographic Holdings, Inc 	
<ul style="list-style-type: none"> Caltrans. Draft Location Hydraulic Study Report. US 101 Improvement Project: Monterey Road to SR 129 Santa Clara and San Benito Counties, California. 	September 2010
Hydraulic	
<ul style="list-style-type: none"> CA Department of Water Resources, Planning and Local Assistance, Available on website at : www.landwateruse.water.ca.gov 	Access Date: September 2010
<ul style="list-style-type: none"> San Benito County Water District. Available on website at: www.sbcwd.com 	Access Date: September 2010
<ul style="list-style-type: none"> Santa Clara Valley Water District. Available on website at: http://www.valleywater.org/ 	Access Date: September 2010
Soils	
<ul style="list-style-type: none"> Santa Clara County Flood Insurance Studies. Unincorporated Areas. Community Number 060337 	Revised August 17, 1998
<ul style="list-style-type: none"> San Benito County Flood Insurance Studies. Incorporated Areas. 	September 27, 1991
<ul style="list-style-type: none"> Michigan State University, RUSLE On-Line Soil Erosion Assessment Tool. Available on website at: http://www.iwr.msu.edu/rusle/ 	Access Date: September 2010
<ul style="list-style-type: none"> Caltrans Geotechnical Report. 	January 28, 2008
<ul style="list-style-type: none"> United States Department of Agriculture-Natural Resources Conservation Service Web Soil Survey. Available on website at: NRCS WSS <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> 	Access Date: September 2010
Climatic	
<ul style="list-style-type: none"> SCAS PRISM mapping data (Spatial Climate Analysis [SCAS] Oregon State University, 2003). 	Access Date: September 2010
<ul style="list-style-type: none"> Ecological Subregions of California Watsonville Plain-Salinas Valley. Subsection 261Ah. Available on website at: 	Access Date: September 2010



www.fs.fed.us/r5/projects/ecoregions/261ah.htm	
Water Quality	
<ul style="list-style-type: none"> California State University Sacramento, Office of Water Programs, Water Quality Planning Tool. Available on website at: http://www.water-programs.com/wqpt.htm 	Access Date: September 2010
<ul style="list-style-type: none"> State Water Resources Control Board, CWA Section 303(d) List. Available on website at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml 	Access Date: September 2010
<ul style="list-style-type: none"> Central Coast RWQCB. Basin Plan. Beneficial Uses. Table 2-1. Identified Uses of Inland Surface Waters. Available on website at: http://www.swrcb.ca.gov/rwqcb3/publications_forms/publications/basin_plan/chapter_2/figs/table_2_1.doc 	Access Date: September 2010
<ul style="list-style-type: none"> Central Coast Regional Water Quality Control Board, 303(d) & TMDL Projects Pajaro River Total Maximum Daily Loads for Sediment (including Llagas Creek, Rider Creek, and San Benito River). Available on website at: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/303d_and_tmdl_projects.shtml 	Access Date: September 2010
<ul style="list-style-type: none"> California State Water Resources Control Board. Storm Water Panel Recommendations to the California SWRCB, the Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities. 	June 19, 2006
Other Data Categories	
<ul style="list-style-type: none"> Environmental Buried Site Sensitivity from Far Western Plans 	Last Revision Date: March 1, 2007
<ul style="list-style-type: none"> State Water Resources Control Board. Available on website at: http://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_areas.shtml 	Access Date: September 2010
<ul style="list-style-type: none"> California Department of Transportation, Division of Environmental Analysis. Statewide Stormwater Management Plan (SWMP) CTSW-RT-07-182-1.1 	June 2007
<ul style="list-style-type: none"> Caltrans. Geotechnical Report. 	August 30, 2010

Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBt-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

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 checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 6. Determine if a 401 certification will be required. | <input checked="" type="checkbox"/> Complete | <input 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 checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 10. Determine contaminated soils within the project area. | <input checked="" type="checkbox"/> Complete | <input 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 checked="" type="checkbox"/> Complete | <input 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 checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 15. Determine if a right-of-way certification is required. | <input checked="" type="checkbox"/> Complete | <input 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 checked="" type="checkbox"/> Complete | <input 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 checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |



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

Prepared by: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBT-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

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: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBT-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

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: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBT-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

Downstream Effects Related to Potentially Increased Flow

Note: Checklist to be completed during the design phases.

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: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBt-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

Slope / Surface Protection Systems

Note: Checklist to be completed during the design phases.

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).

Estimate the net new impervious area that will result from this project. Complete
60.6 acres (SCI), 13.0 acres (SBt)

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: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBt-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

Concentrated Flow Conveyance Systems

Note: Checklist to be completed during the design phases.

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: J. Doe Date: 09/23/10 District-Co-Route: 04-SCI-101, 05-SBt-101, 04-SCI-25

PM : 0.0/5.0, 4.9/7.5, 1.6/2.5 Project ID (or EA): XX-XXXXXX RWQCB: Central Coast

Preservation of Existing Vegetation

Note: Checklist to be completed during the design phases.

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



Treatment BMPs		
Checklist T-1, Part 1		
Prepared by: <u>J. Doe</u>	Date: <u>09/23/10</u>	District-Co-Route: <u>04-SCI-101, 05-SBt-101, 04-SCI-25</u>
PM : <u>0.0/5.0, 4.9/7.5, 1.6/2.5</u>	Project ID (or EA): <u>XX-XXXXXX</u>	RWQCB: <u>Central Coast</u>

Consideration of Treatment BMPs

Note: For areas not with City of Gilroy, City of Morgan Hill and County of Santa Clara MS4.

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watershed within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed. Questions 14 through 16 should be answered after all subwatershed (drainages) are considered using this checklist.

1. Is the project in a watershed with prescriptive TMDL treatment BMP requirements in an adopted TMDL implementation plan? Yes No

If Yes, consult the District/Regional Storm Water Coordinator to determine whether the T-1 checklist should be used to propose alternative BMPs because the prescribed BMPs may not be feasible or other BMPs may be more cost-effective. Special documentation and regulatory response may be necessary.

2. Dry Weather Flow Diversion

- (a) Are dry weather flows generated by Caltrans anticipated to be persistent? Yes No

- (b) Is a sanitary sewer located on or near the site? Yes No

If Yes to both 2 (a) and (b), continue to (c). If No to either, skip to question 3.

- (c) Is connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? Yes No

- (d) Is the domestic wastewater treatment authority willing to accept flow? Yes No

If Yes was answered to all of these questions consider **Dry Weather Flow Diversion**, complete and attach **Part 3** of this checklist

3. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? Yes No

If Yes, consider **Gross Solids Removal Devices (GSRDs)**, complete and attach **Part 6** of this checklist. Note: Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter. Before considering GSRDs for stand-alone installation or in sequence with other BMPs, consult with District/Regional NPDES Storm Water Coordinator to determine whether Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins should be considered instead of GSRDs to meet litter/trash TMDL.

4. Is project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year? Yes No

If Yes, consider **Traction Sand Traps**, complete and attach **Part 7** of this checklist.

5. Maximizing Biofiltration Strips and Swales Yes No

Objectives:

- 1) Quantify infiltration from biofiltration alone
- 2) Identify highly infiltrating biofiltration (i.e. > 90%) and skip further BMP consideration.
- 3) Identify whether amendments can substantially improve infiltration.

- (a) Have biofiltration strips and swales been designed for runoff from all project areas, including sheet flow and concentrated flow conveyance? If no, document justification in Section 5 of the SWDR. Yes No

(b) Based on site conditions, estimate what percentage of the WQV can be infiltrated. Use the 12-hour WQV for Type A and B soils, the 24-hour WQV for Type C soils, and the 48-hour WQV for Type D soil.

- < 20% Complete
- 20 % - 50%
- 50% - 90%
- > 90%

- (c) Is infiltration greater than 90 percent? If Yes, skip to question 13. Yes No

- (d) Can the infiltration ranking in question 5(b) above be increased by using soil amendments? Use the 'drain time' associated with the amended soil (the 12-hour WQV for Type A and B soils, the 24-hour WQV for Type C soils¹). Yes No

If Yes, consider including soil amendments; increasing the infiltration ranking allows more flexibility in the selection of BMPs (strips and swales will show performance comparable to other BMPs). Record the new infiltration estimate below:

Note: Calculations to be completed during design.

- ___ < 20% (skip to 6) Complete
___ 20 % - 50% (skip to 6)
___ 50% - 90% (skip to 6)
___ >90%

- (e) Is infiltration greater than 90 percent? If Yes, skip to question 13. Yes No

6. Biofiltration in Rural Areas

- Is the project in a rural area (outside of urban areas that is covered under an NDPES Municipal Stormwater Permit²). If Yes proceed to question 13. Yes No

¹ Type D soils are not expected where amendments are incorporated

² See pages 39 and 40 of the Fact Sheets for the CGP.

http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf

13. After completing the above, identify and attach the checklists shown below for every Treatment BMP under consideration. (use one checklist every time the BMP is considered for a different drainage within the project) Complete
- Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2
 - Dry Weather Diversion: Checklist T-1, Part 3
 - Infiltration Devices: Checklist T-1, Part 4
 - Detention Devices: Checklist T-1, Part 5
 - GSRDs: Checklist T-1, Part 6
 - Traction Sand Traps: Checklist T-1, Part 7
 - Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8
 - Multi-Chambered Treatment Train: Checklist T-1, Part 9
 - Wet Basins: Checklist T-1, Part 10
14. Estimate what percentage of WQV (or WQF, depending upon the Treatment BMP selected) will be treated by the preferred Treatment BMP(s): 100 % Complete
- (a) Have Treatment BMPs been considered for use in parallel or series to increase this percentage? Yes No
15. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) that will be treated by the preferred treatment BMP(s): 100% Complete
16. Prepare cost estimate, including right-of-way, and site specific determination of feasibility (Section 2.4.2.1) for selected Treatment BMPs and include as supplemental information for SWDR approval. Complete

Treatment BMPs	
Checklist T-1, Part 1	
Prepared by: <u>B. Ross</u>	Date: <u>08/26/10</u> District-Co-Route: <u>04-SCI-101, 05-SBt-101, 04-SCI-25</u>
PM : <u>0.0/5.0, 4.9/7.5, 1.6/2.5</u>	Project ID (or EA): <u>04-XXXXXX</u> RWQCB: <u>Central Coast</u>

Consideration of Treatment BMPs

Note: For areas with City of Gilroy, City of Morgan Hill and County of Santa Clara MS4.

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watershed within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed. Questions 14 through 16 should be answered after all subwatershed (drainages) are considered using this checklist.

1. Is the project in a watershed with prescriptive TMDL treatment BMP requirements in an adopted TMDL implementation plan? Yes No

If Yes, consult the District/Regional Storm Water Coordinator to determine whether the T-1 checklist should be used to propose alternative BMPs because the prescribed BMPs may not be feasible or other BMPs may be more cost-effective. Special documentation and regulatory response may be necessary.

2. Dry Weather Flow Diversion

- (a) Are dry weather flows generated by Caltrans anticipated to be persistent? Yes No

- (b) Is a sanitary sewer located on or near the site? Yes No

If Yes to both 2 (a) and (b), continue to (c). If No to either, skip to question 3.

- (c) Is connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? Yes No

- (d) Is the domestic wastewater treatment authority willing to accept flow? Yes No

If Yes was answered to all of these questions consider **Dry Weather Flow Diversion**, complete and attach **Part 3** of this checklist

3. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? Yes No

If Yes, consider **Gross Solids Removal Devices (GSRDs)**, complete and attach **Part 6** of this checklist. Note: Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter. Before considering GSRDs for stand-alone installation or in sequence with other BMPs, consult with District/Regional NPDES Storm Water Coordinator to determine whether Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins should be considered instead of GSRDs to meet litter/trash TMDL.

4. Is project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year? Yes No

If Yes, consider **Traction Sand Traps**, complete and attach **Part 7** of this checklist.

5. Maximizing Biofiltration Strips and Swales Yes No

Objectives:

- 1) Quantify infiltration from biofiltration alone
- 2) Identify highly infiltrating biofiltration (i.e. > 90%) and skip further BMP consideration.
- 3) Identify whether amendments can substantially improve infiltration.

- (a) Have biofiltration strips and swales been designed for runoff from all project areas, including sheet flow and concentrated flow conveyance? If no, document justification in Section 5 of the SWDR. Yes No

(b) Based on site conditions, estimate what percentage of the WQV can be infiltrated. Use the 12-hour WQV for Type A and B soils, the 24-hour WQV for Type C soils, and the 48-hour WQV for Type D soil.

- < 20%
- 20 % - 50%
- 50% - 90%
- > 90%

Complete

- (c) Is infiltration greater than 90 percent? If Yes, skip to question 13. Yes No

- (d) Can the infiltration ranking in question 5(b) above be increased by using soil amendments? Use the 'drain time' associated with the amended soil (the 12-hour WQV for Type A and B soils, the 24-hour WQV for Type C soils¹). Yes No

If Yes, consider including soil amendments; increasing the infiltration ranking allows more flexibility in the selection of BMPs (strips and swales will show performance comparable to other BMPs). Record the new infiltration estimate below:

Note: Calculations to be completed during design.

- < 20% (skip to 6)
 20 % - 50% (skip to 6)
 50% - 90% (skip to 6)
 >90%
 Complete

- (e) Is infiltration greater than 90 percent? If Yes, skip to question 13. Yes No

6. Biofiltration in Rural Areas

- Is the project in a rural area (outside of urban areas that is covered under an NDPES Municipal Stormwater Permit²). If Yes proceed to question 13. Yes No

7. Estimating Infiltration for BMP Combinations

Objectives:

- 1) Identify high-infiltration biofiltration or biofiltration and infiltration BMP combinations and skip further BMP consideration.
- 2) If high infiltration is infeasible, then identify the infiltration level of all feasible BMP combinations for use in the subsequent BMP selection matrices

- (a) Has concentrated infiltration (i.e., via earthen basins or earthen filters) been prohibited? Consult your District/Regional Storm Water Coordinator and/or environmental documents. Yes No

¹ Type D soils are not expected where amendments are incorporated

² See pages 39 and 40 of the Fact Sheets for the CGP.
http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf

If No proceed to 7 (b); if Yes skip to question 8 and do not consider earthen basin-type BMPs

- (b) Assess infiltration of an infiltration BMP that is used in conjunction with biofiltration. Include infiltration losses from biofiltration, if biofiltration is feasible. **Note: Infiltration devices are prohibited.** Complete

(use 24 hr WQV)

___ < 20% (do not consider this BMP combination, skip to 7d)

___ 20% - 50% (skip to 7d)

___ 50% - 90% (skip to 7d)

___ >90%

Is at least 90 percent infiltration estimated? If Yes proceed to 13. If No proceed to 7(c). Yes No

- (c) Assess infiltration of biofiltration with combinations with remaining approved earthen BMPs using water quality volumes based on the drain time of those BMPs. This assessment will be used in subsequent BMP selection matrices.

Earthen Detention Basin
(use 48 hr WQV)

___ < 20%

___ 20% - 50%

___ > 50%

Earthen Austin SF
(use 48 hr WQV)

___ < 20%

___ 20% - 50%

___ > 50%

Complete

Note: Detention devices are not feasible. Austin Sand Filters are not proposed per direction of Caltrans Maintenance.

Continue to Question 8

8. Identifying BMPs based on the Target Design Constituents

- (a) Does the project discharge to a water body that has been placed on the 303-d list or has had a TMDL adopted? If "No," use Matrix A to select BMPs, consider designing to treat 100% of the WQV, then skip to question 12. Yes No

If Yes, is the identified pollutant(s) considered a Targeted Design Constituent (TDC) (check all that apply below)?

- | | |
|---|---|
| <input checked="" type="checkbox"/> sediments | <input type="checkbox"/> copper (dissolved or total) |
| <input type="checkbox"/> phosphorus | <input type="checkbox"/> lead (dissolved or total) |
| <input checked="" type="checkbox"/> nitrogen | <input type="checkbox"/> zinc (dissolved or total) |
| | <input type="checkbox"/> general metals (dissolved or total) ³ |

- (b) Treating Sediment. Is sediment the only TDC? If Yes, use Matrix A to select BMPs, then skip to question 12. Otherwise, proceed to question 9. Yes No

³ General metals include cadmium, nickel, chromium, and other trace metals. Note that selenium and arsenic are not metals. Mercury is a metal, but is considered later during BMP selection, under Question 12 below.

BMP Selection Matrix A: General Purpose Pollutant Removal			
<p>Consider approaches to treat 100% of the WQV with combinations of the BMPs in this table. The highest preference is for Tier 1, followed by Tier 2. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs that infiltrate should be highlighted in the infiltration category summarized in question 7 (f) and listings of BMPs that infiltrate in other categories should be ignored.</p>			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale MCTT Wet basin	Austin filter (concrete) Delaware filter MCTT Wet basin
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

9. Treating both Metals and Nutrients.

Is copper, lead, zinc, or general metals AND nitrogen or phosphorous a TDC? If Yes use Matrix D to select BMPs, then skip to question 12. Otherwise, proceed to question 10. Yes No

10. Treating Only Metals.

Are copper, lead, zinc, or general metals listed TDCs? If Yes use Matrix B below to select BMPs, and skip to question 12. Otherwise, proceed to question 11. Yes No

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous			
Consider approaches to treat 100% of the WQV with combinations of the BMPs in this table. The highest preference is for Tier 1, followed by Tier 2. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs that infiltrate should be highlighted in the infiltration category summarized in question 7 (f) and listings of BMPs that infiltrate in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	MCTT Wet basin Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Biofiltration Strip Biofiltration Swale Wet basin
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

11. Treating Only Nutrients.

Are nitrogen and/or phosphorus listed TDCs? If "Yes," use Matrix C to select BMPs. If "No", please check your answer to 8(a). At this point one of the matrices should have been used for BMP selection for the TDC in question, unless no BMPs are feasible. Yes No

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC			
<p>Consider approaches to treat 100% of the WQV with combinations of the BMPs in this table. The highest preference is for Tier 1, followed by Tier 2. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs that infiltrate should be highlighted in the infiltration category summarized in question 7 (f) and listings of BMPs that infiltrate in other categories should be ignored.</p>			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter**	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches*	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Wet basin Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale Wet basin	Austin filter (concrete) Delaware filter Wet basin
<p>* Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.</p>			
<p>** Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.</p>			

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs			
<p>Consider approaches to treat 100% of the WQV with combinations of the BMPs in this table. The highest preference is for Tier 1, followed by Tier 2. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs that infiltrate should be highlighted in the infiltration category summarized in question 7 (f) and listings of BMPs that infiltrate in other categories should be ignored.</p>			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Wet basin* Austin filter (earthen) Austin filter (concrete) Delaware filter**	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches***	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches*** Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
* The wet basin should only be considered for phosphorus			
** In cases where earthen BMPs can infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.			
*** Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

12. Does the project discharge to a waterbody that has been placed on the 303-d list or has had a TMDL adopted for mercury or low dissolved oxygen? Yes No
 If Yes contact the District/Regional NPDES Storm Water Coordinator to determine if standing water in a Delaware filter, wet basin, or MCTT would be a risk to downstream water quality.
13. After completing the above, identify and attach the checklists shown below for every Treatment BMP under consideration. (use one checklist every time the BMP is considered for a different drainage within the project) Complete
 Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2
 Dry Weather Diversion: Checklist T-1, Part 3
 Infiltration Devices: Checklist T-1, Part 4
 Detention Devices: Checklist T-1, Part 5
 GSRDs: Checklist T-1, Part 6
 Traction Sand Traps: Checklist T-1, Part 7
 Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8
 Multi-Chambered Treatment Train: Checklist T-1, Part 9
 Wet Basins: Checklist T-1, Part 10
14. Estimate what percentage of WQV (or WQF, depending upon the Treatment BMP selected) will be treated by the preferred Treatment BMP(s): 100 % Complete
- (b) Have Treatment BMPs been considered for use in parallel or series to increase this percentage? Yes No
15. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) that will be treated by the preferred treatment BMP(s): 100 % Complete
16. Prepare cost estimate, including right-of-way, and site specific determination of feasibility (Section 2.4.2.1) for selected Treatment BMPs and include as supplemental information for SWDR approval. Complete

Treatment BMPs	
Checklist T-1, Part 2	
Prepared by: <u>J. Doe</u>	Date: <u>09/23/10</u> District-Co-Route: <u>04-SCI-101, 05-SBt-101, 04-SCI-25</u>
PM : <u>0.0/5.0, 4.9/7.5, 1.6/2.5</u>	Project ID (or EA): <u>XX-XXXXXX</u> RWQCB: <u>Central Coast</u>

Biofiltration Swales / Biofiltration Strips

Note: A single Checklist T-1, Part 2 is completed for all biofiltration devices because the feasibility and design elements for all biofiltration devices are similar.

Feasibility

1. Do the climate and site conditions allow vegetation to be established? Yes No
2. Are flow velocities from a peak drainage facility design event < 4 fps (i.e. low enough to prevent scour of the vegetated biofiltration swale as per HDM Table 873.3E)? Yes No
 If "No" to either question above, Biofiltration Swales and Biofiltration Strips are not feasible.
3. Are Biofiltration Swales proposed at sites where known contaminated soils or groundwater plumes exist? Yes No
 If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.
4. Does adequate area exist within the right-of-way to place Biofiltration device(s)? Yes No
 If "Yes", continue to Design Elements section. If "No", continue to Question 5.
5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Biofiltration devices and how much right-of-way would be needed to treat WQF? _____ acres Yes No
 If "Yes", continue to Design Elements section. If "No", continue to Question 6.
6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. Complete

Design Elements

Note: To be completed during the design phase.

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * Yes No
 2. Can the biofiltration swale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g. freeboard, minimum slope, etc.) Yes No
 3. Can the biofiltration swale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.2.3.1) * Yes No
 4. Is the maximum length of a biofiltration strip \leq 300 ft? * Yes No
 5. Has the minimum width (in the direction of flow) of the invert of the biofiltration swale received the concurrence of Maintenance? * Yes No
 6. Can biofiltration swales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? ** Yes No
 7. Is the biofiltration strip sized as long as possible in the direction of flow? ** Yes No
 8. Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train? ** Yes No
-

EXAMPLE ONLY

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Caltrans
 FUNCTIONAL SUPERVISOR: T. PAINE
 CALCULATED/DESIGNED BY: B. ROSS
 CHECKED BY: G. WASHINGTON
 REVISED BY: DATE REVISION

- LEGEND:**
- PROPOSED TREATMENT BEST MANAGEMENT PRACTICE (BMP) LOCATIONS. REFER TO STORM WATER DATA REPORT FOR TREATMENT BMP TYPE
 - WATERSHED CONTRIBUTING TO BMP
 - INLET AND PIPE CONNECTING TO BMP
 - WATERSHED FLOW DIRECTION
 - SAMPLING LOCATION

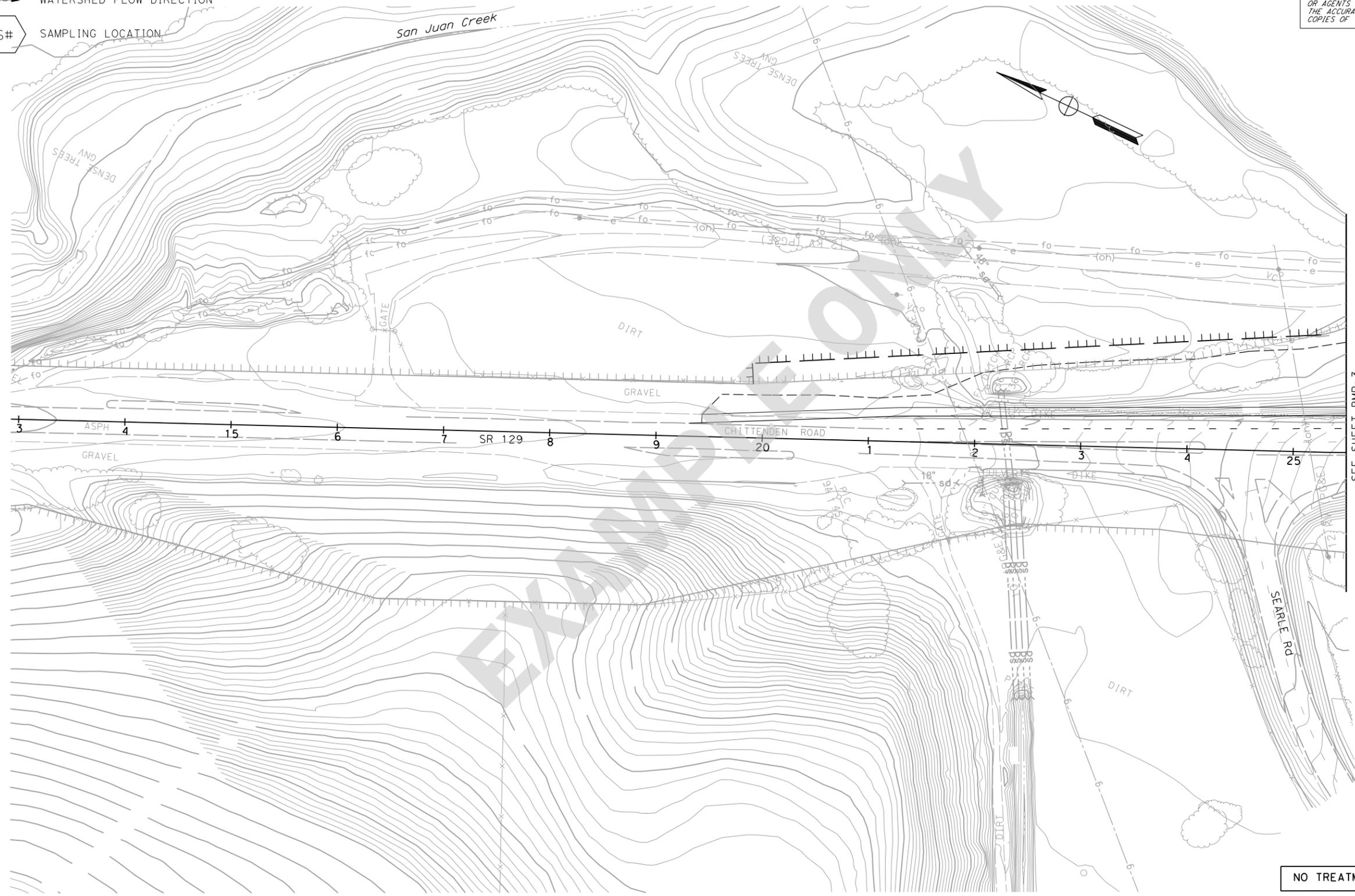
NOTE:
 PLANS SHOWING NO TREATMENT BMP WORK ARE OMITTED, FOR FULL PROJECT LAYOUT SEE LAYOUT SHEETS.

ABBREVIATION:
 BMP BEST MANAGEMENT PRACTICE
 WS WATERSHED

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

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NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP

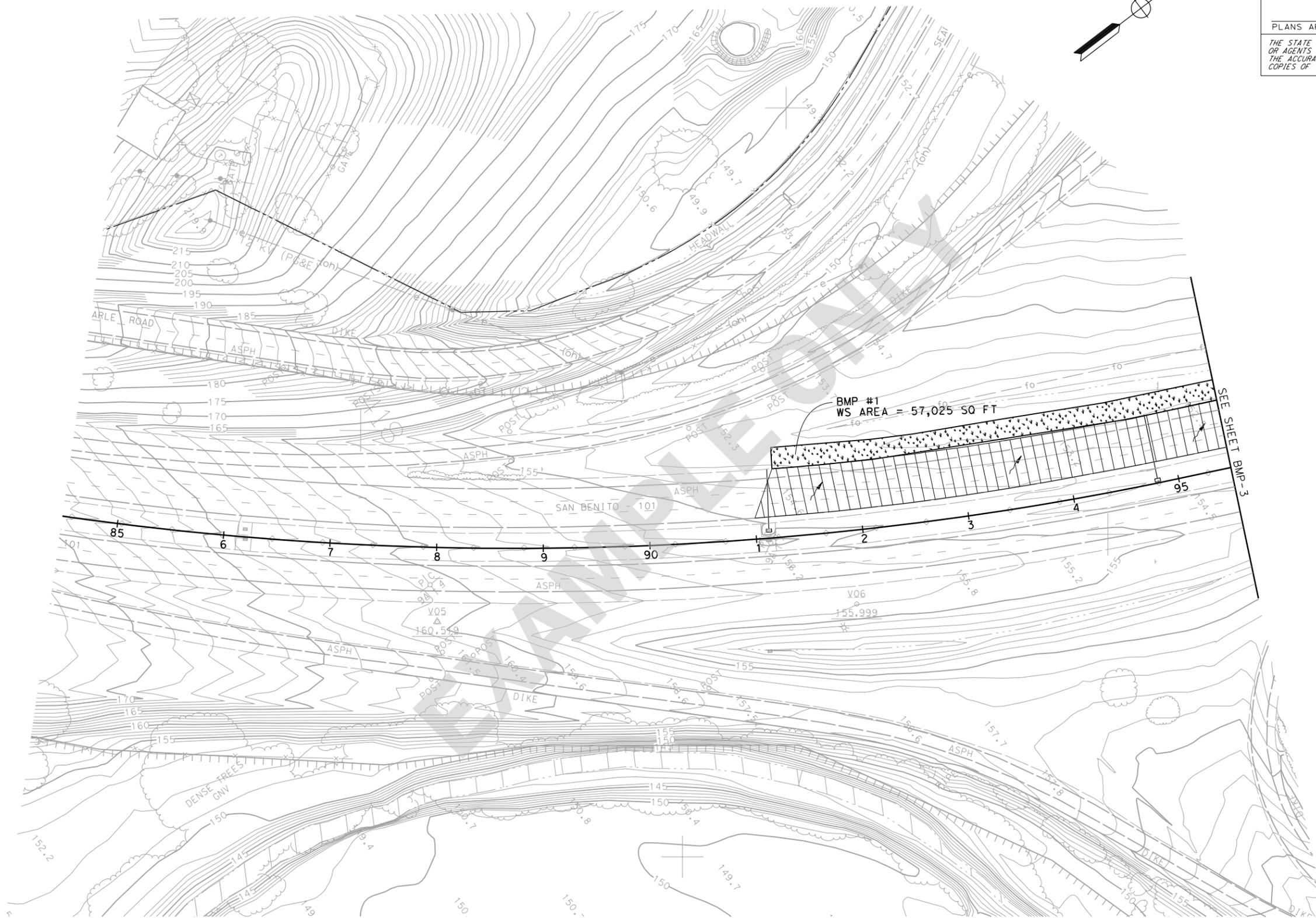
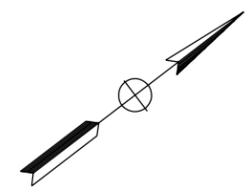
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**TREATMENT BMPS AND
MONITORING LOCATION MAP**
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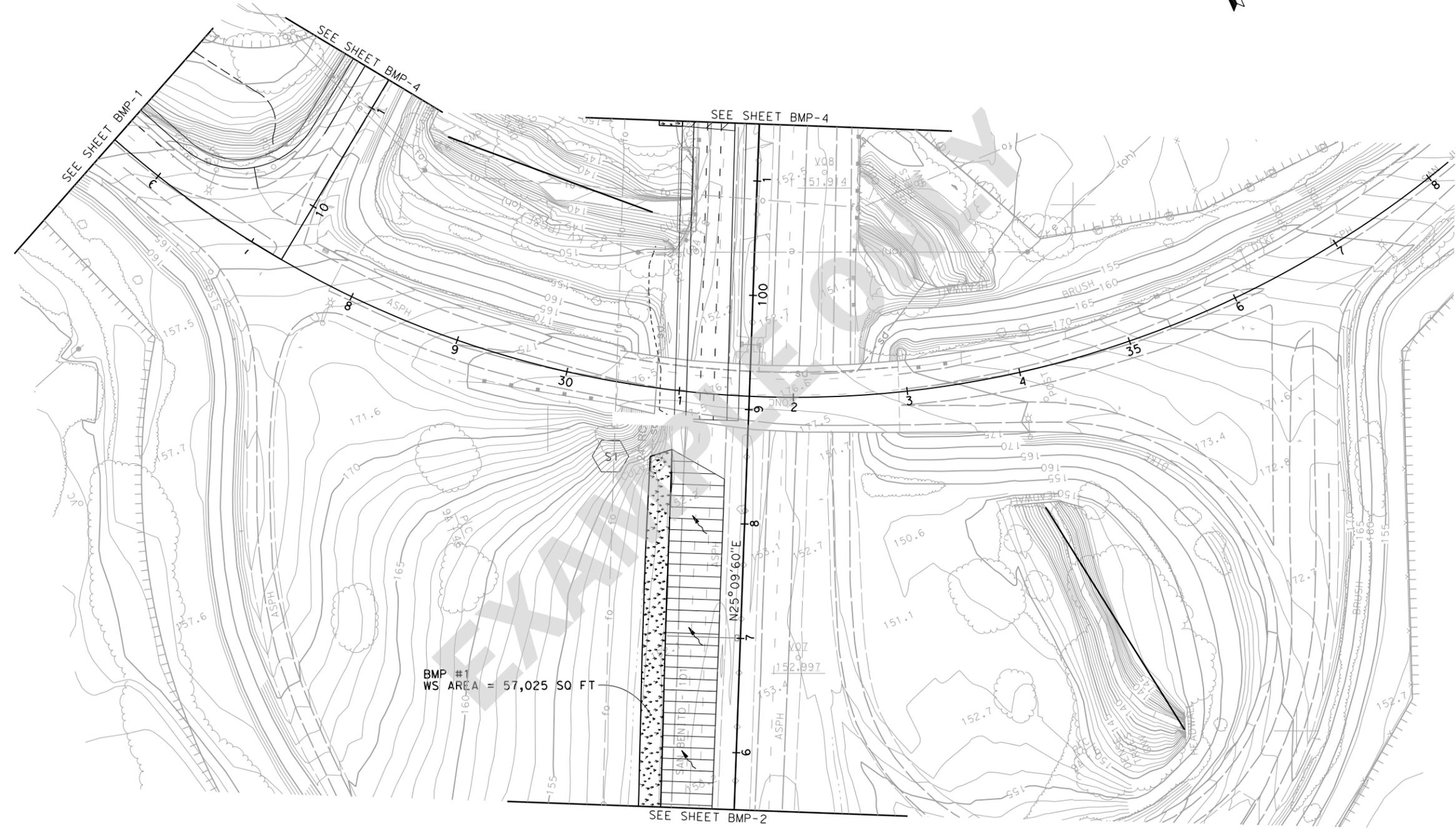
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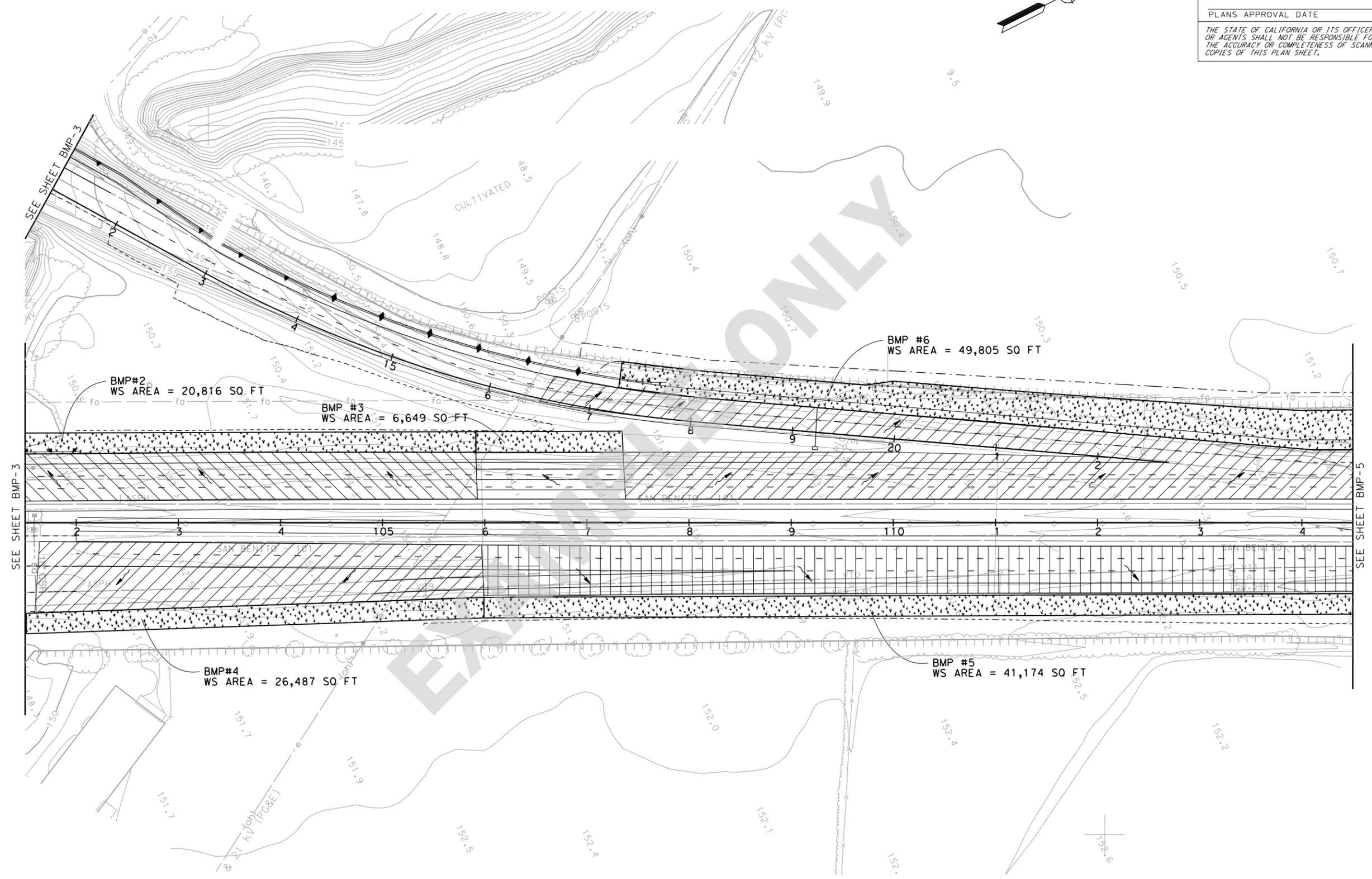
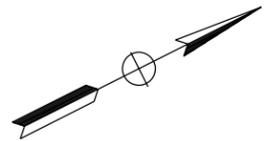
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**TREATMENT BMPs AND
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SCALE 1"=50' **BMP-3**

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**TREATMENT BMPs AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-4**

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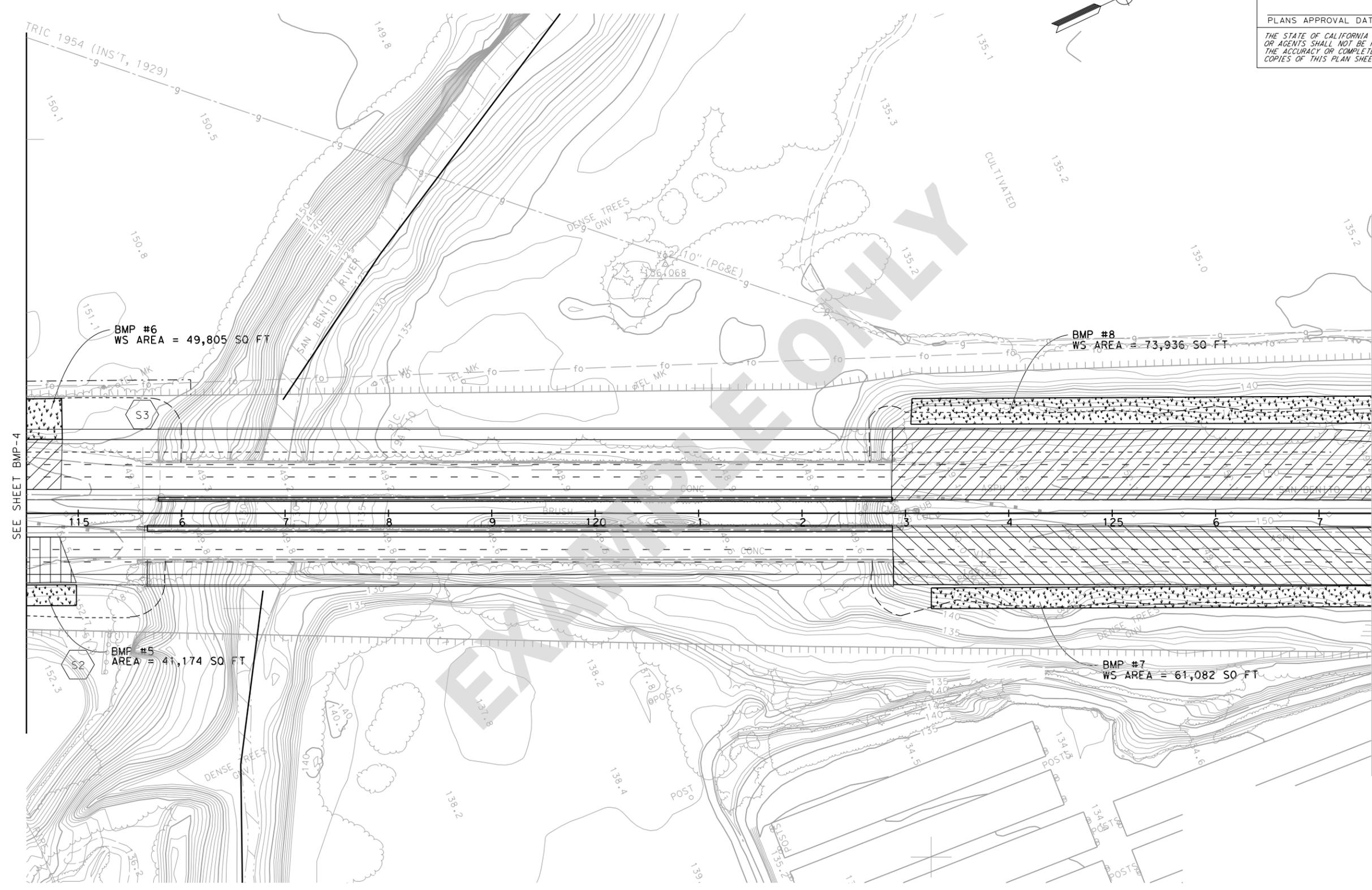
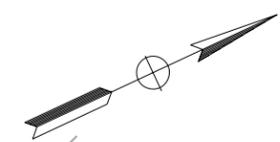
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SEE SHEET BMP-4

SEE SHEET BMP-6

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**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-5**

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BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
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RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

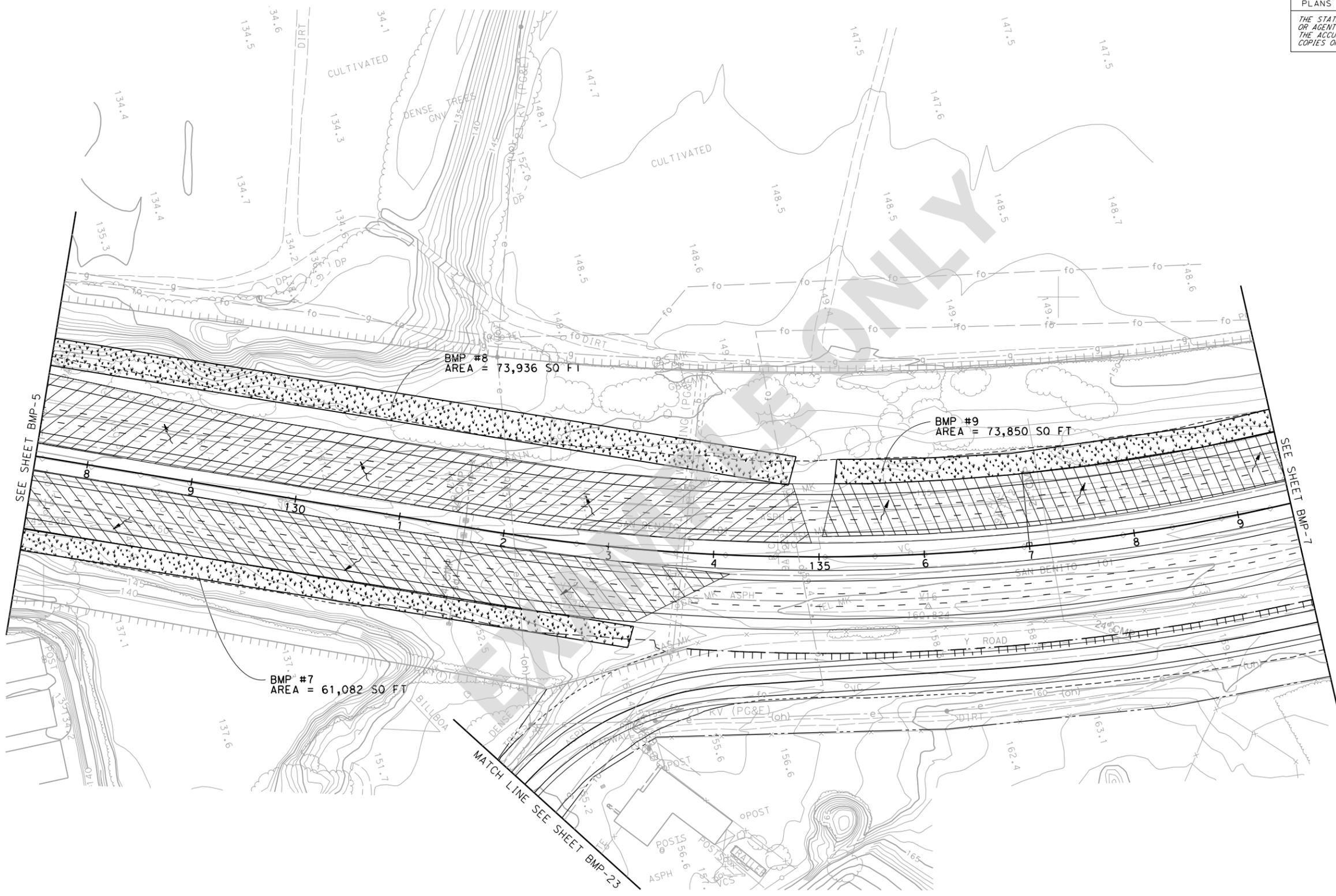
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**TREATMENT BMPS AND
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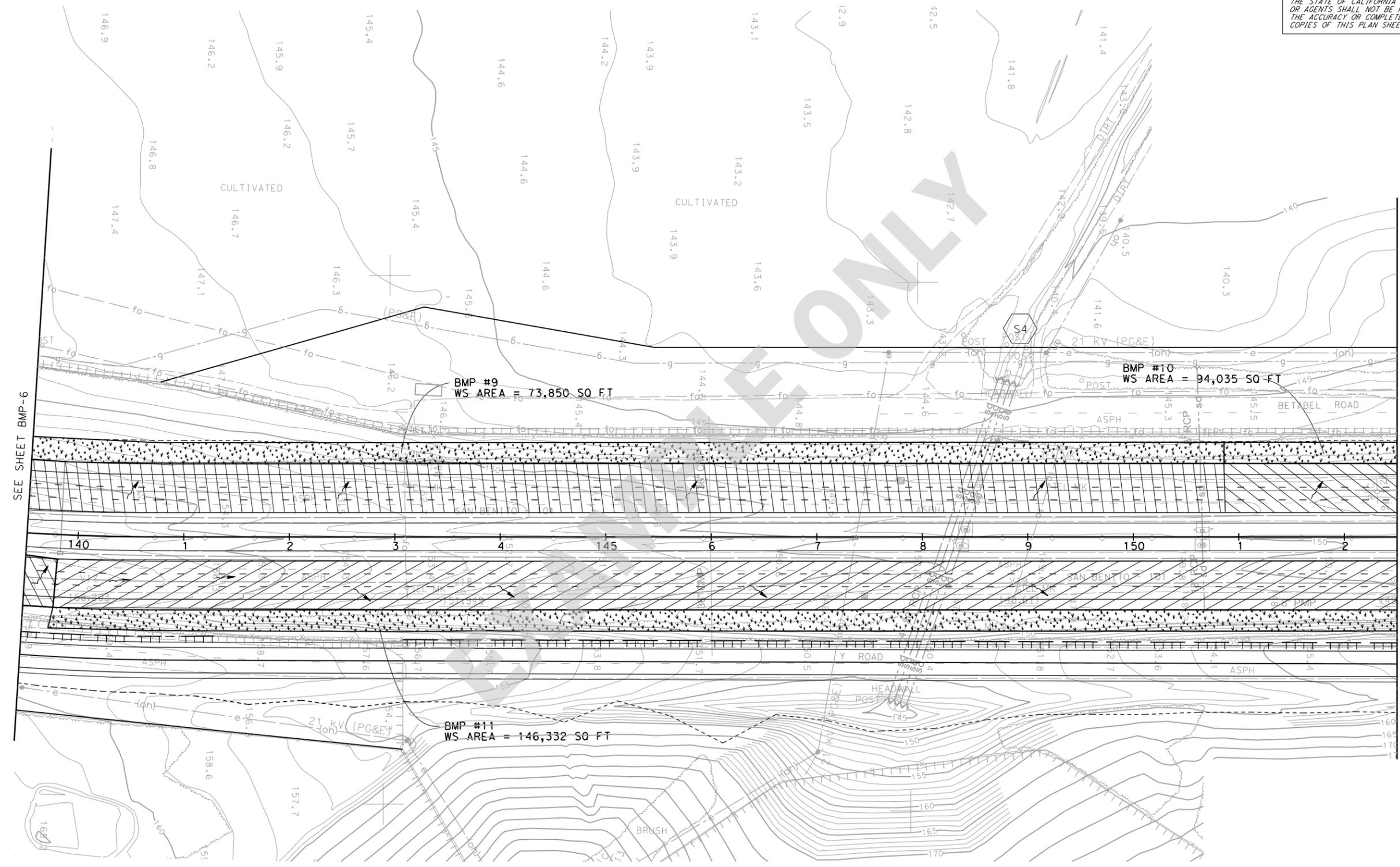
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA



SEE SHEET BMP-6

SEE SHEET BMP-8

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-7**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CHECKED BY	REVISOR	DATE
Caltrans	T. PAINE	B. ROSS	G. WASHINGTON	

BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
DGN FILE => ... \Dwg\SWDR12\BMP-07.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

LAST REVISION DATE PLOTTED => > > 11/30/2010
00-00-00 TIME PLOTTED => > > 01:30:07 AM

EXAMPLE ONLY

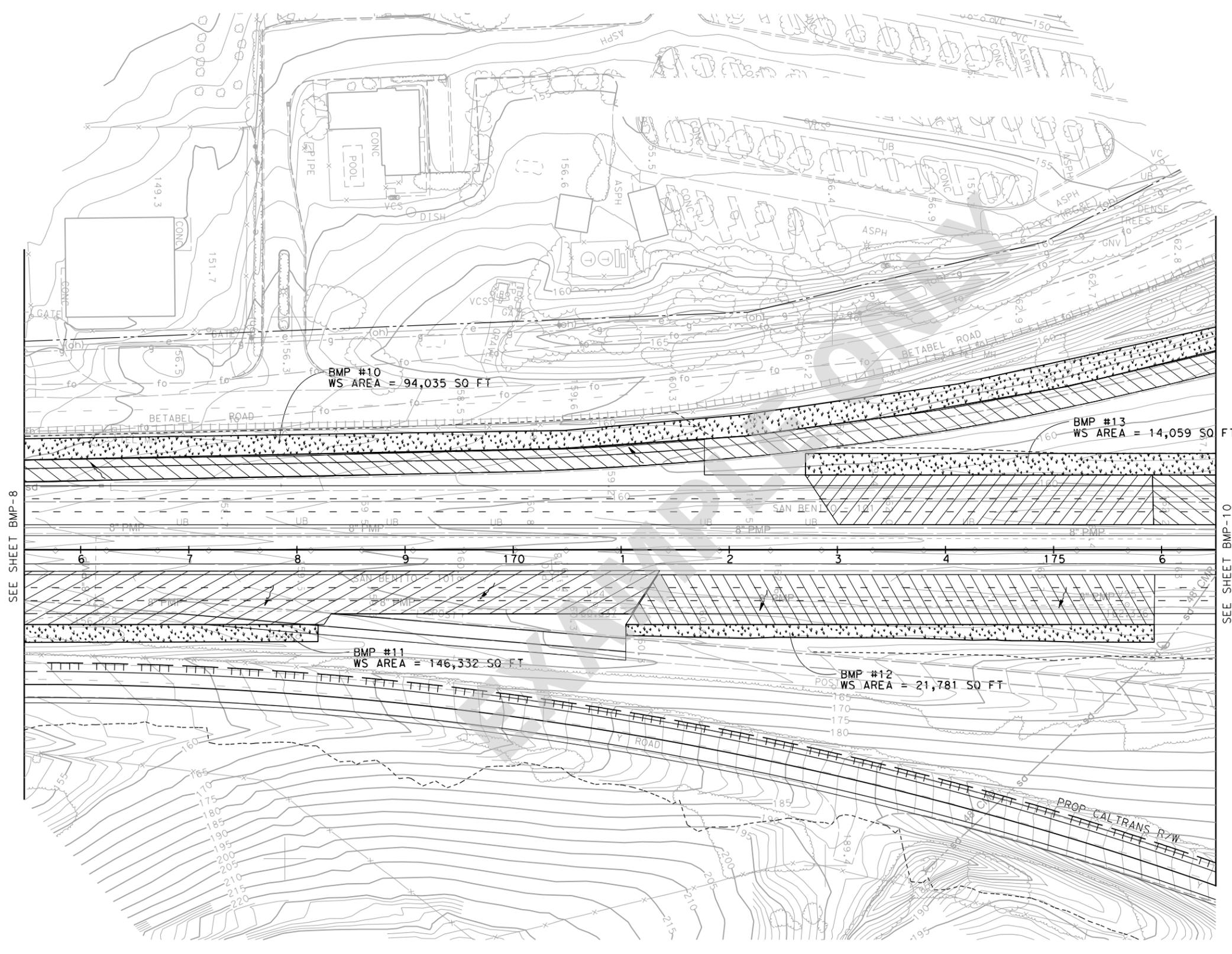
EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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

SEE SHEET BMP-8

SEE SHEET BMP-10

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPs AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-9**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
	T. PAINE	G. WASHINGTON	B. ROSS
BORDER LAST REVISED 7/2/2010		CHECKED BY	DATE REVISED

USERNAME => hongchao_yu
DGN FILE => ... \Dwg\SWDR12\BMP-09.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

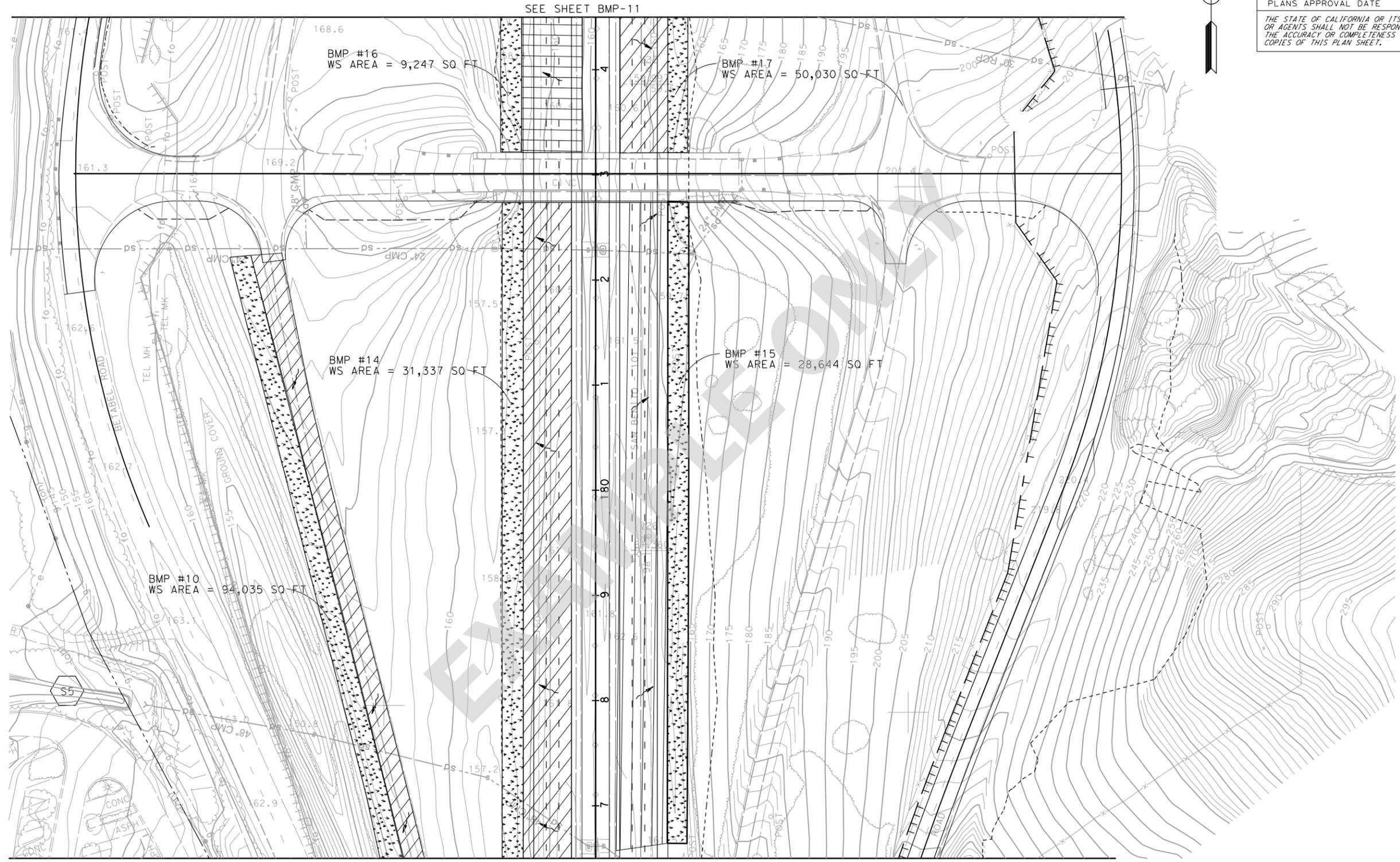
LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 10:31:09 AM

EXAMPLE ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR: T. PAINE
 CALCULATED/DESIGNED BY: B. ROSS
 CHECKED BY: G. WASHINGTON
 REVISED BY: DATE REVISED

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

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



TREATMENT BMPS AND MONITORING LOCATION MAP
 SCALE 1"=50' **BMP-10**

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

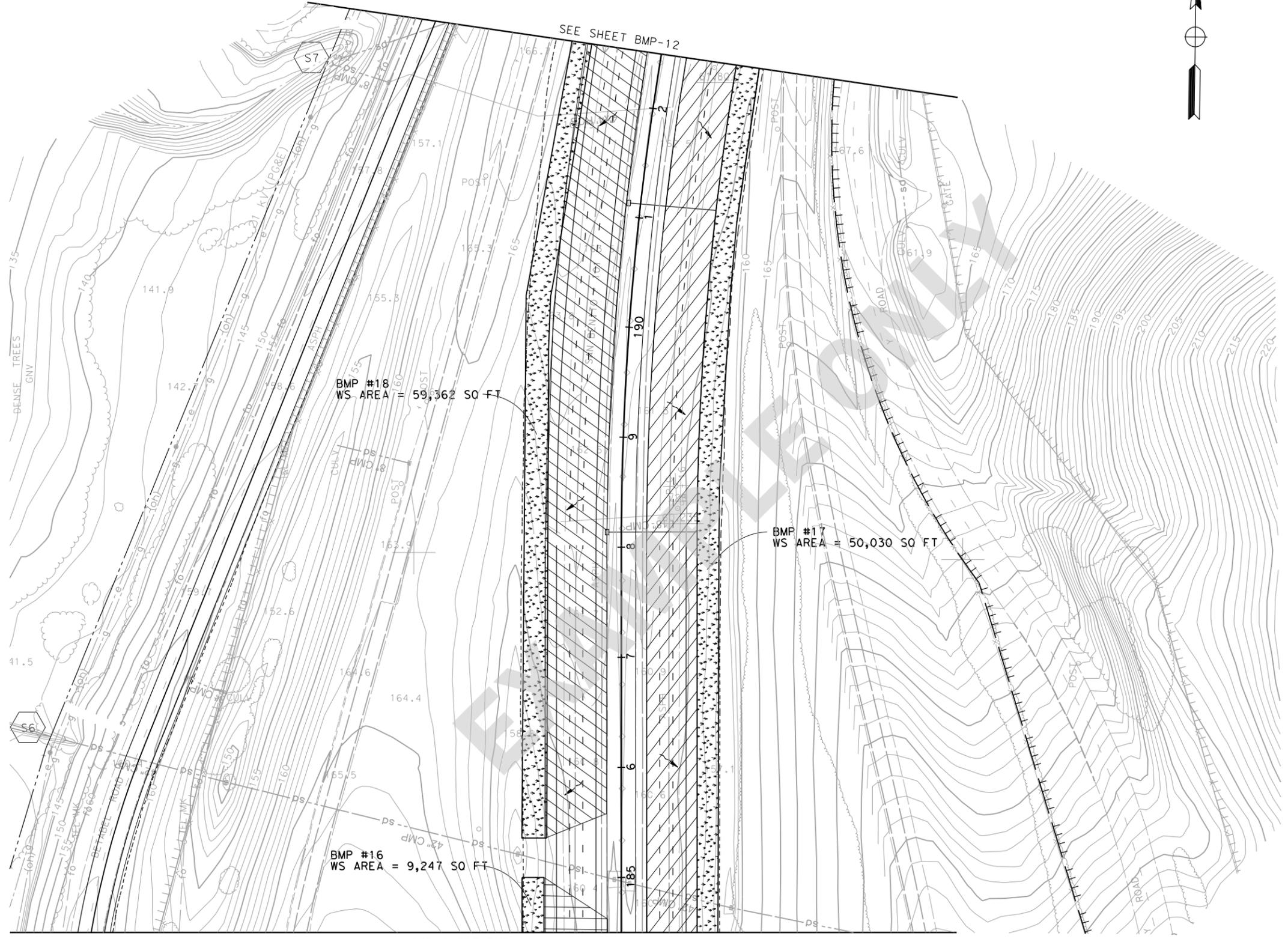
PRELIMINARY PLANS, SUBJECT TO REVISION

LAST REVISION DATE PLOTTED => 11/30/2010
 00-00-00 TIME PLOTTED => 10:31:33 AM

EXAMPLE ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
	T. PAINE	CHECKED BY	DATE REVISED
Caltrans	B. ROSS	G. WASHINGTON	

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		
REGISTERED CIVIL ENGINEER DATE					
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-11**

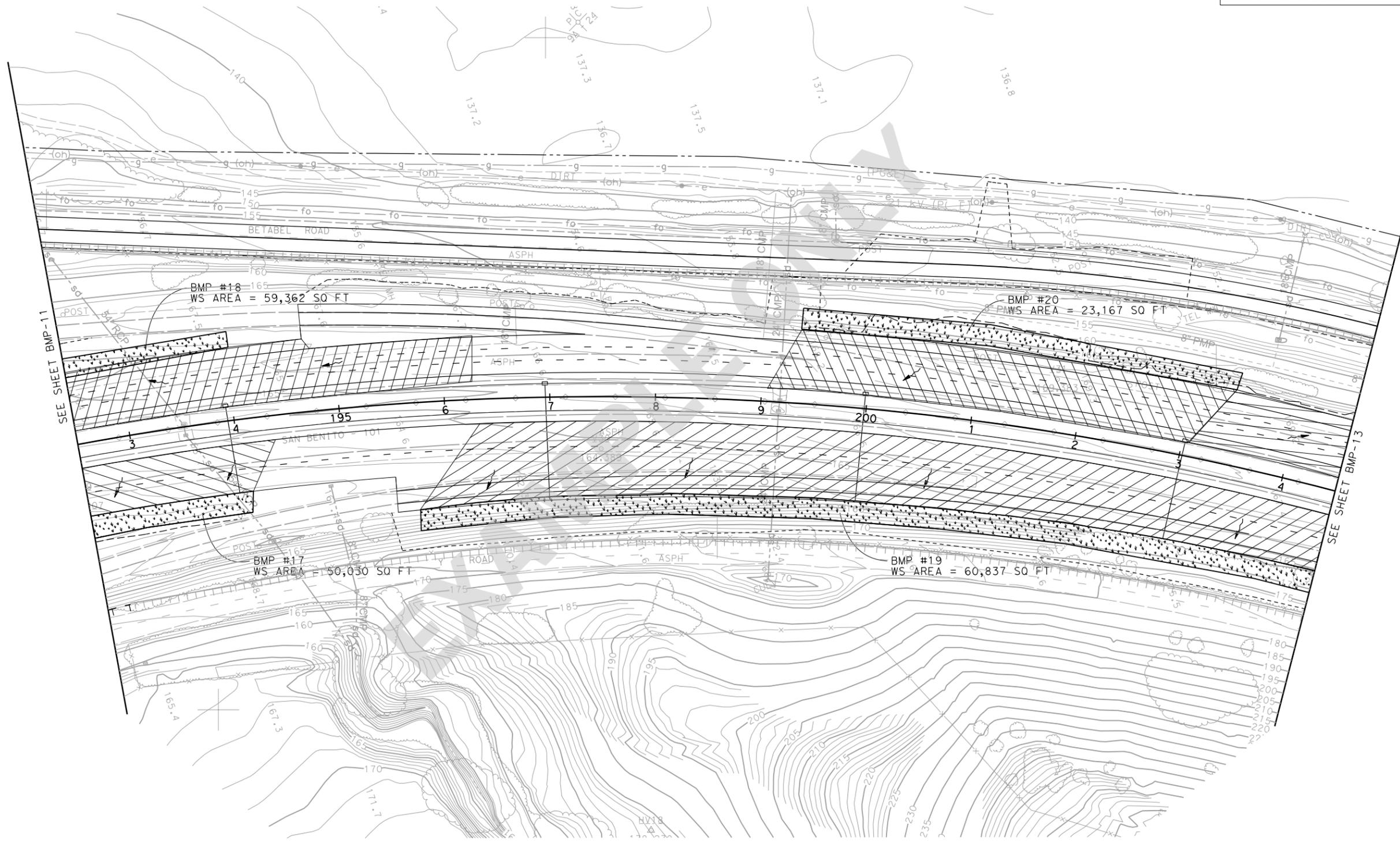
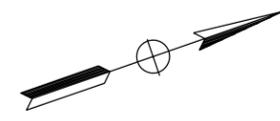
EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	G. WASHINGTON	B. ROSS
		CHECKED BY	DATE REVISED

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

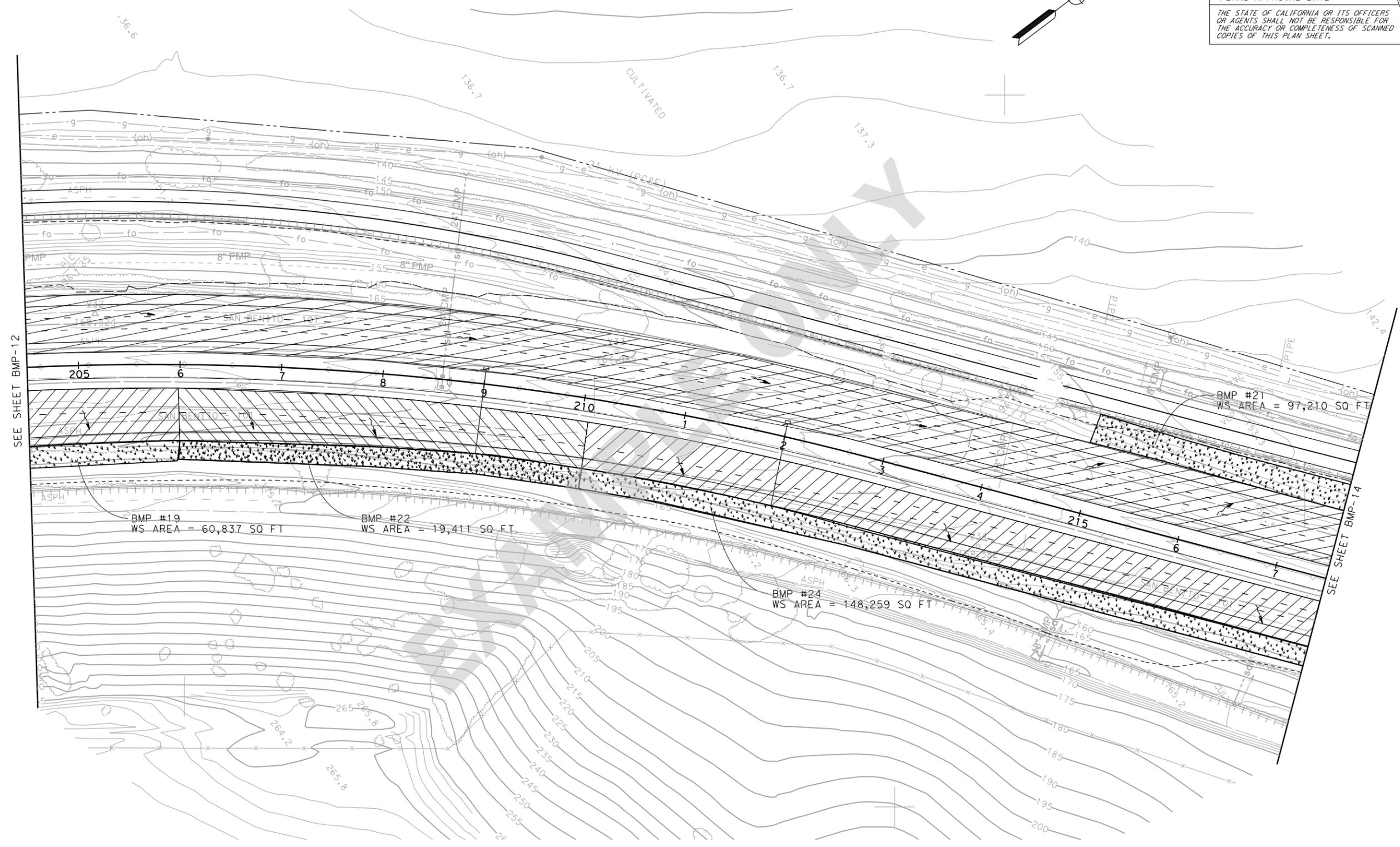
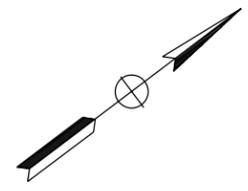
**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPs AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-12**

LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 10:32:22 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE			No.		
			Exp.		
			CIVIL		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



SEE SHEET BMP-12

SEE SHEET BMP-14

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-13**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	B. ROSS	
		CHECKED BY	DATE REVISOR
		G. WASHINGTON	

BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
DGN FILE => ... \Dwg\SWDR12\BMP-13.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

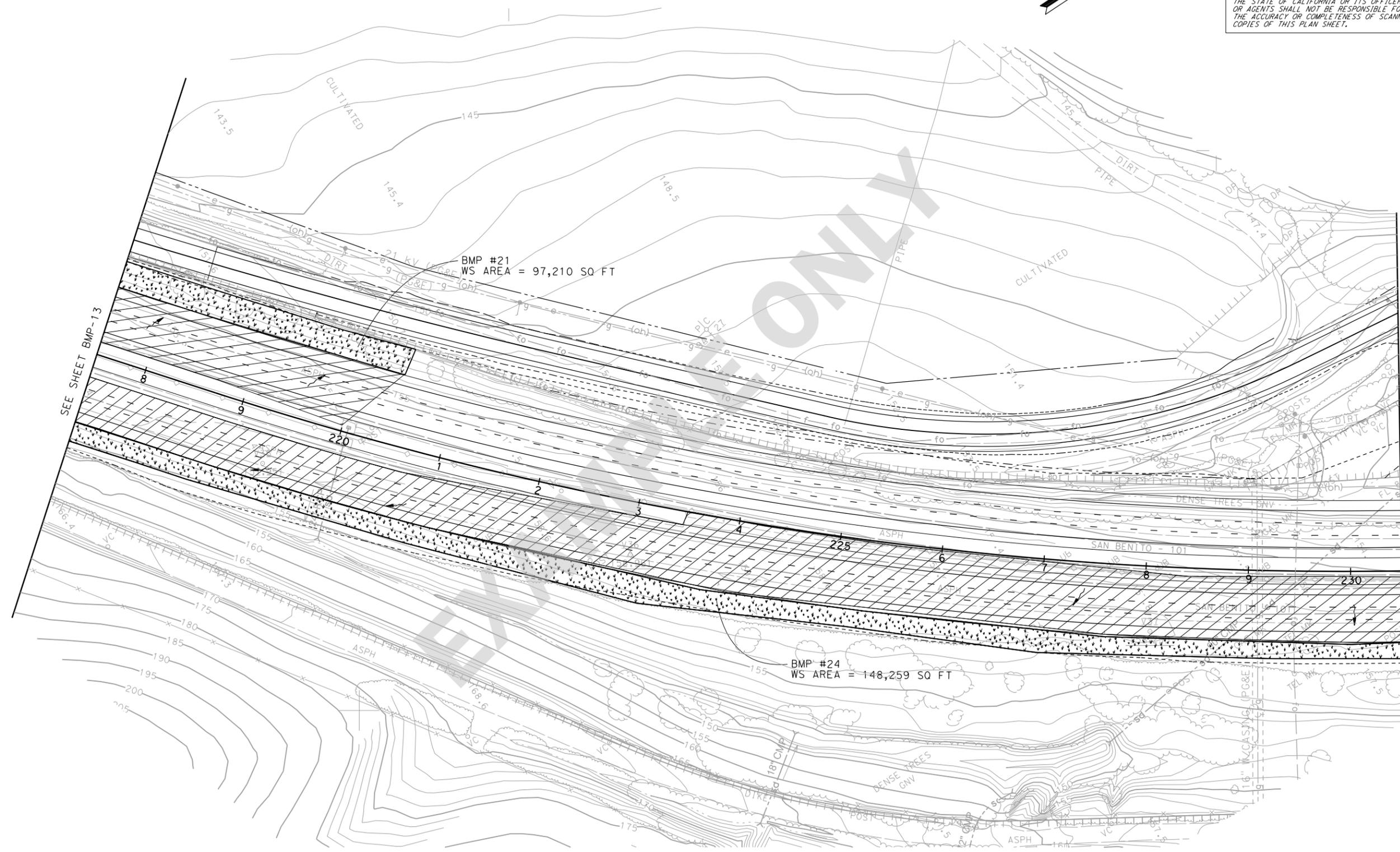
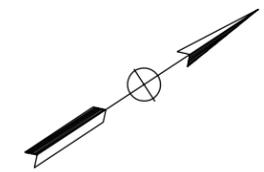
LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 10:32:45 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



SEE SHEET BMP-13

SEE NOTE ON BMP-1

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-14**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	G. WASHINGTON	B. ROSS
		CHECKED BY	DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
DGN FILE => ... \Dwg\SWDR12\BMP-14.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

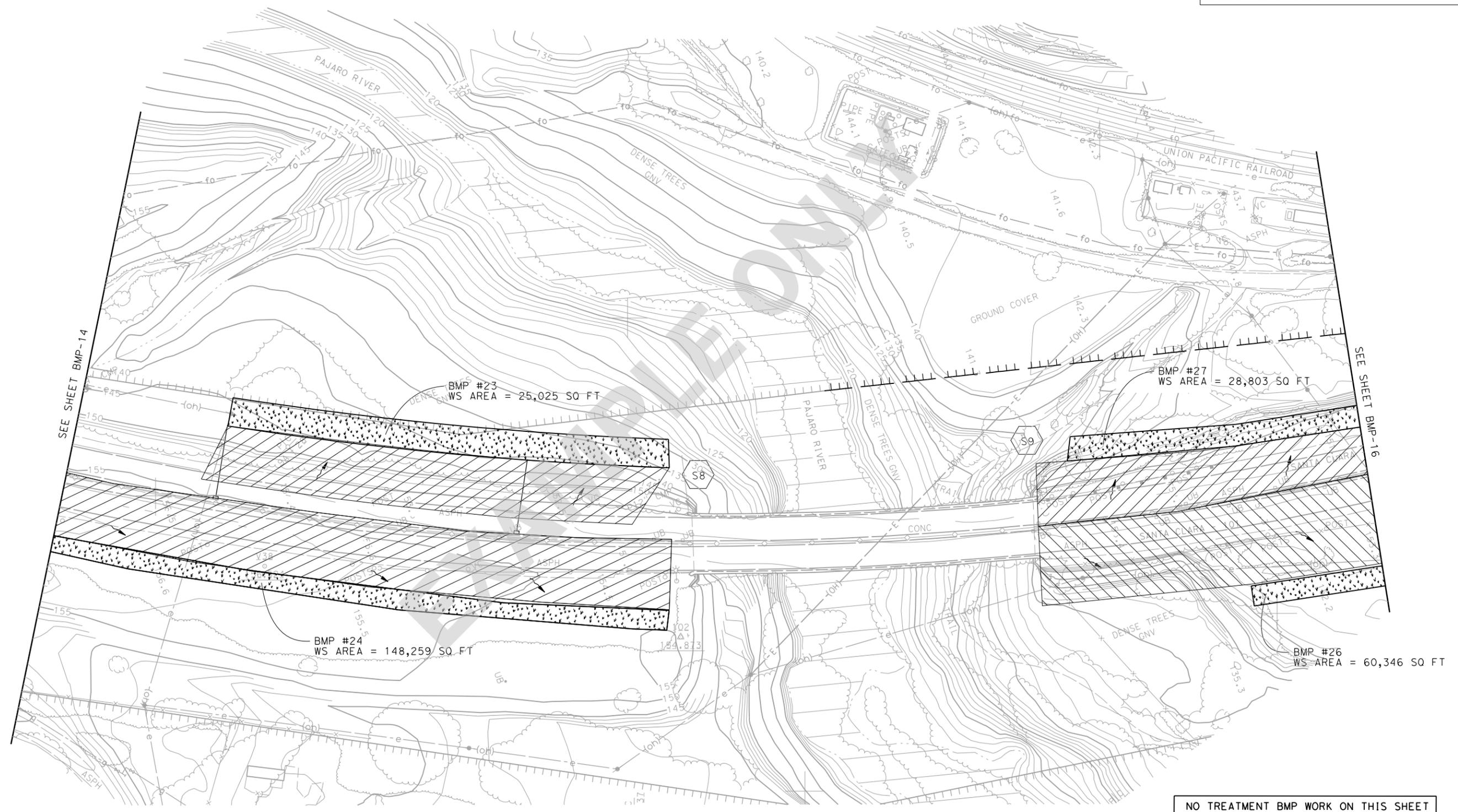
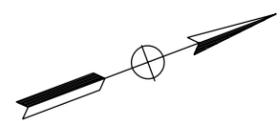
PROJECT NUMBER & PHASE

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LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 10:33:08 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



SEE SHEET BMP-14

SEE SHEET BMP-16

NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP

SCALE 1"=50' **BMP-15**

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

PRELIMINARY PLANS, SUBJECT TO REVISION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	CHECKED BY	B. ROSS
			G. WASHINGTON
			DATE REVISED

LAST REVISION DATE PLOTTED => 11/30/2010 00:00:00 TIME PLOTTED => 10:33:27 AM

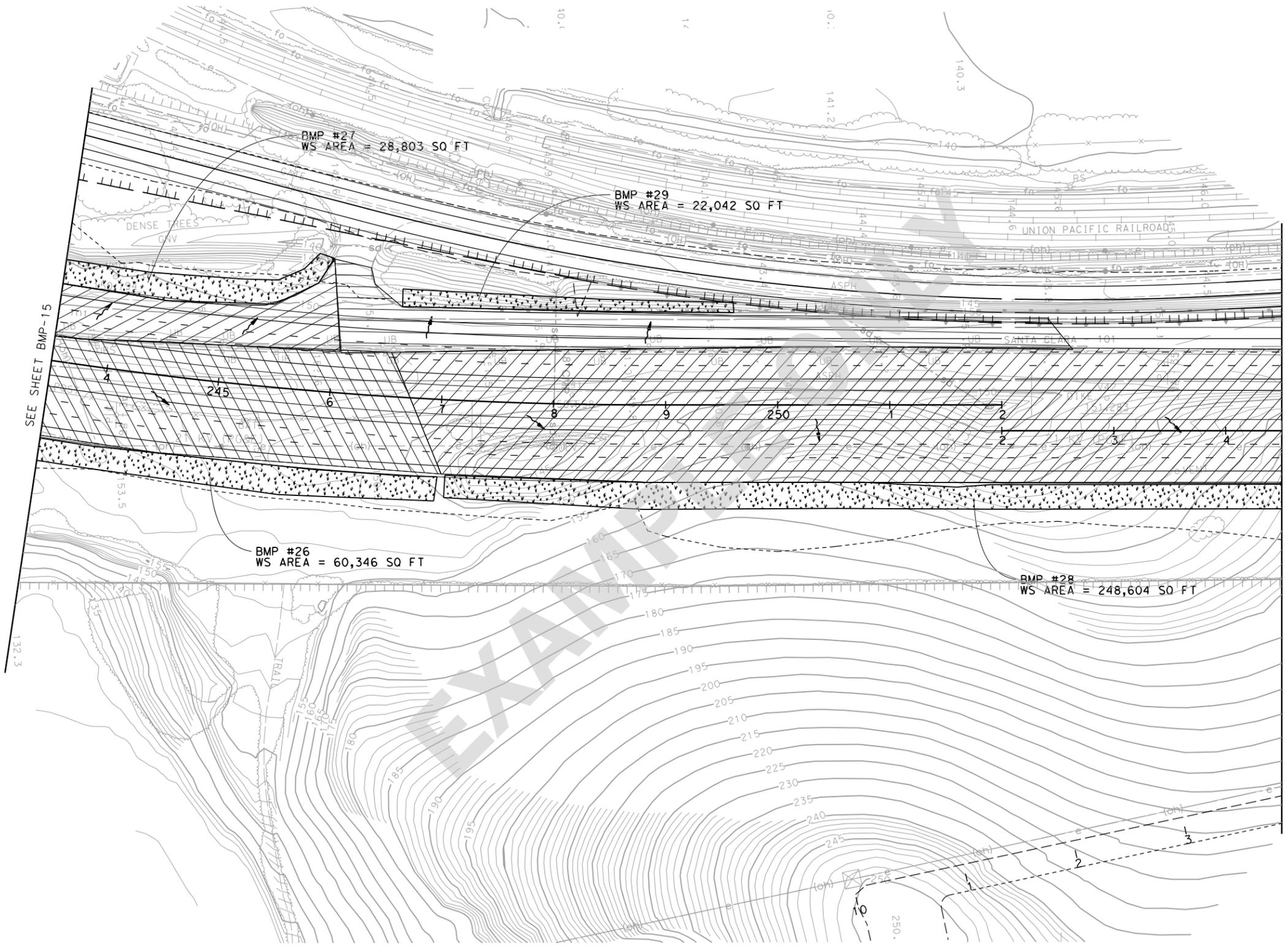
EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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



SEE SHEET BMP-15

SEE SHEET BMP-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	CHECKED BY	B. ROSS
			G. WASHINGTON
			DATE REVISED

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-16**

LAST REVISION DATE PLOTTED => 11/30/2010 10:33:52 AM

EXAMPLE ONLY

EXAMPLE ONLY

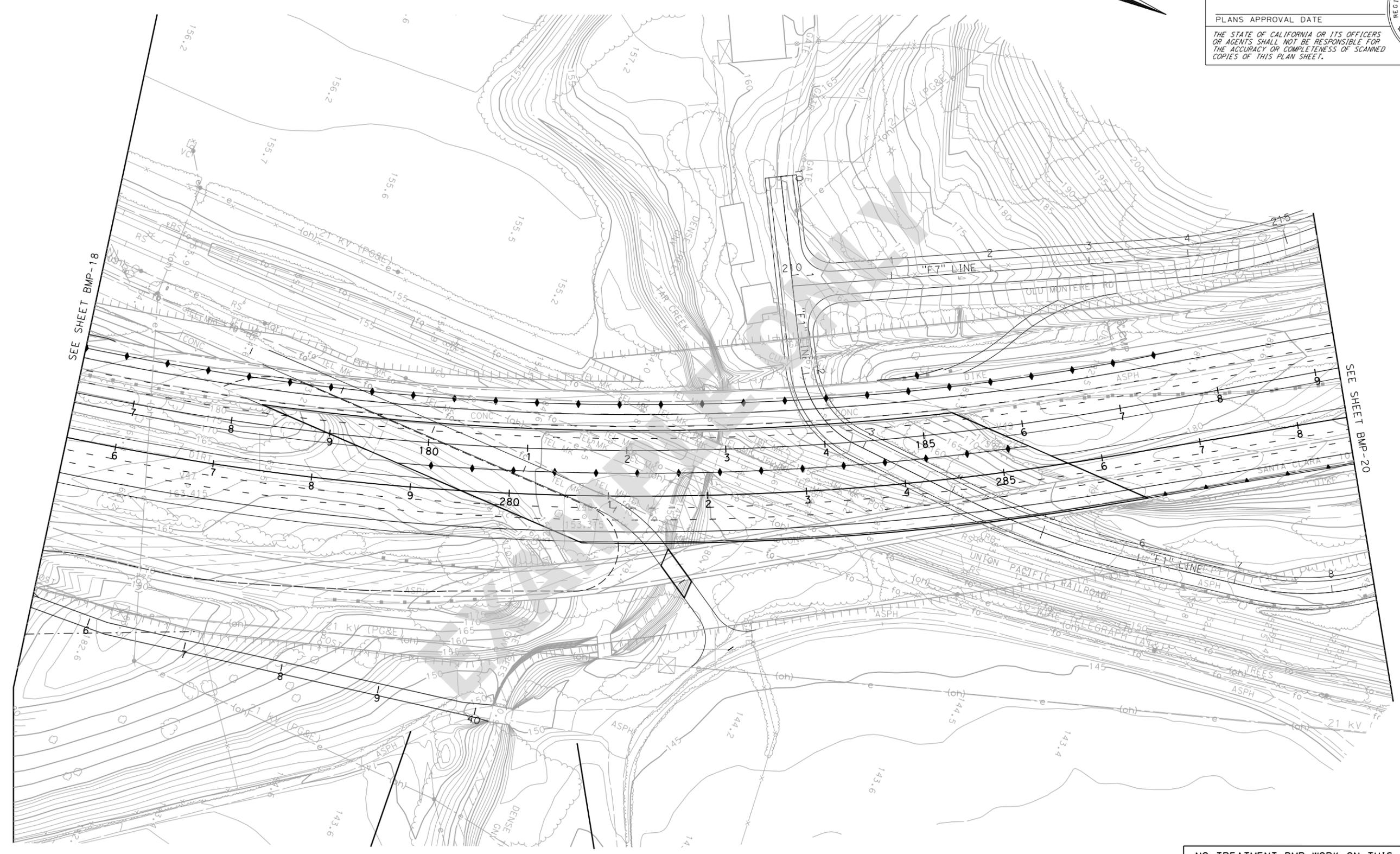
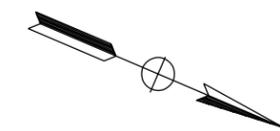
EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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SEE SHEET BMP-18

SEE SHEET BMP-20

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	G. WASHINGTON	B. ROSS
		CHECKED BY	DATE REVISED

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

PRELIMINARY PLANS, SUBJECT TO REVISION

NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP

SCALE 1"=50' **BMP-19**

LAST REVISION DATE PLOTTED => 11/30/2010 TIME PLOTTED => 10:35:27 AM

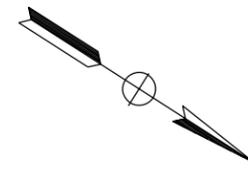
EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

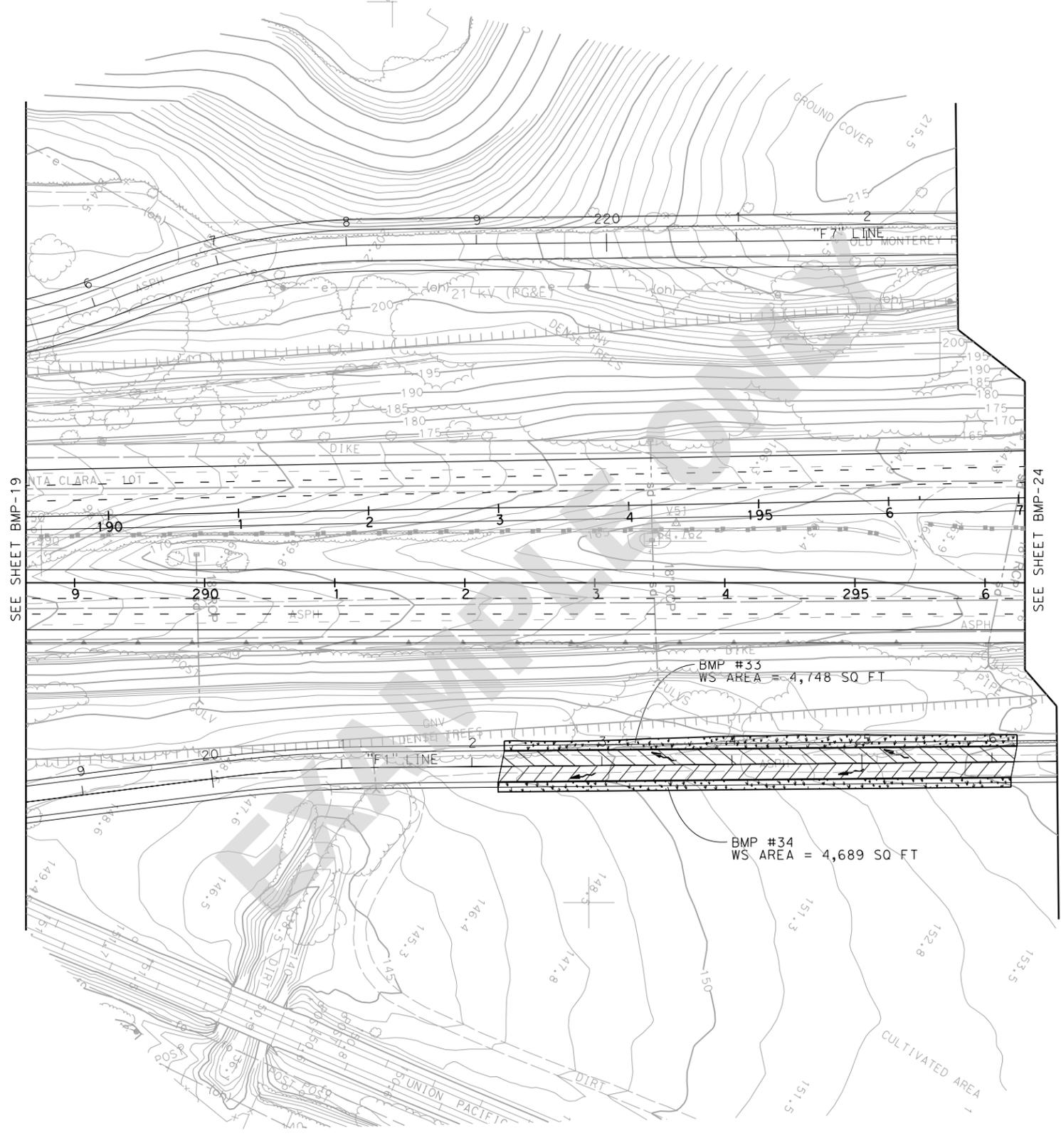
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY
Caltrans	T. PAINE	CHECKED BY	B. ROSS
			G. WASHINGTON
			DATE REVISED



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-20**

LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 10:35:46 AM

EXAMPLE ONLY

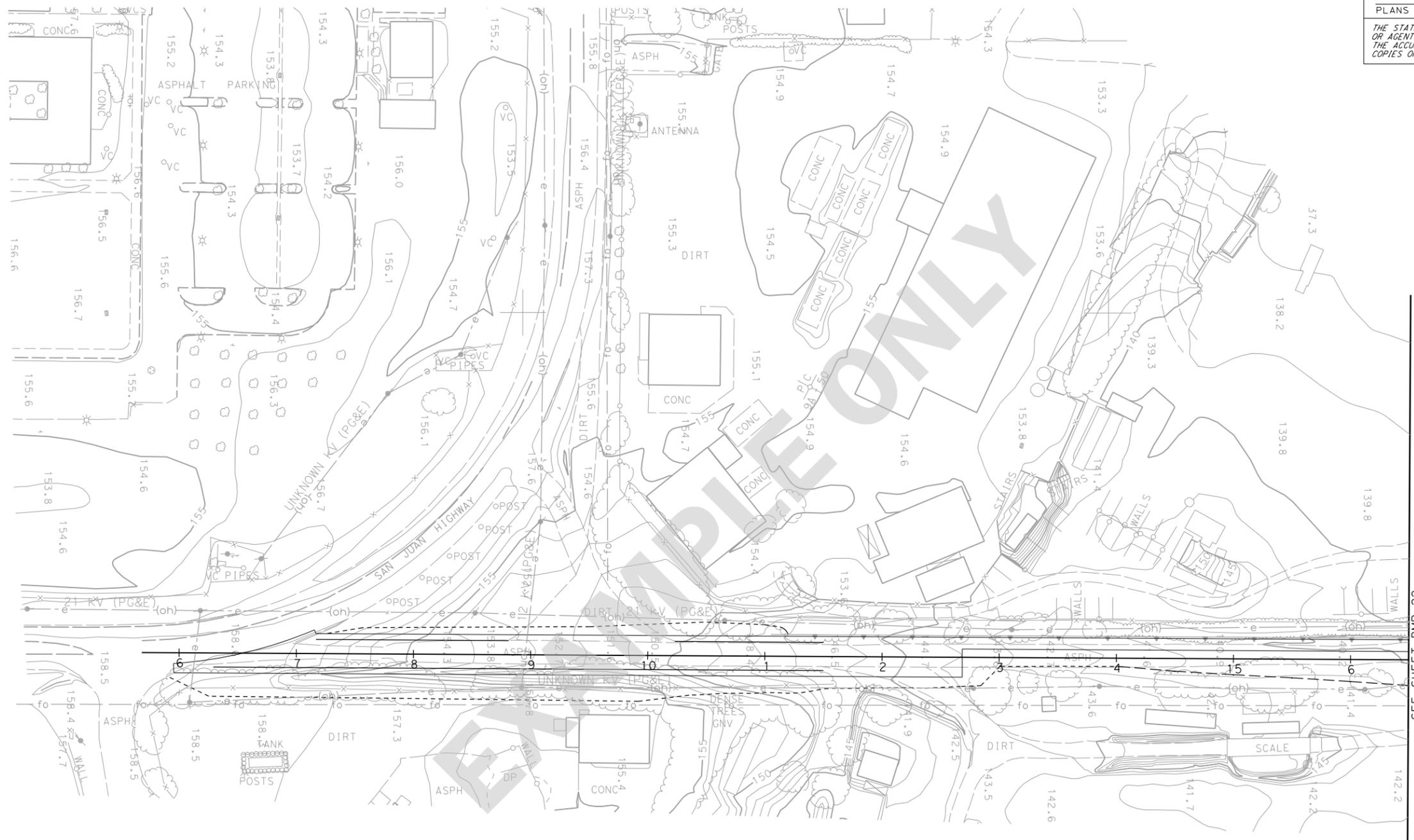
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA



SEE SHEET BMP-22

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CHECKED BY	REVISOR	DATE
Caltrans	T. PAINE	G. WASHINGTON	B. ROSS	

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET

**TREATMENT BMPs AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-21**

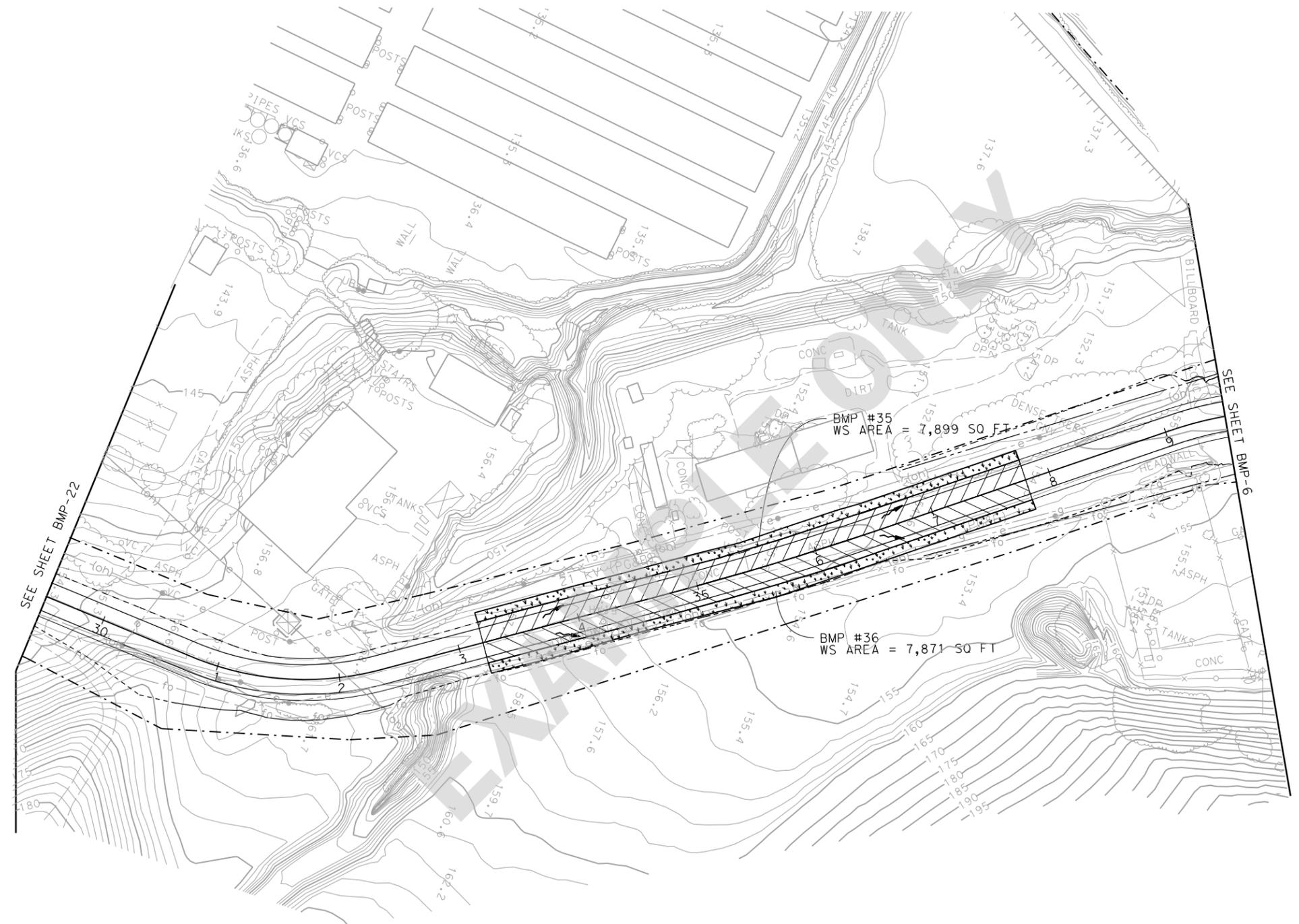
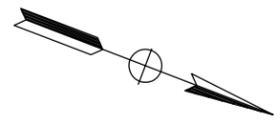
EXAMPLE ONLY

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI, SBT	101	0.0-5.0, 4.9-7.5		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPs AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-23**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	T. PAINE	CHECKED BY	B. ROSS
			G. WASHINGTON
			DATE REVISOR

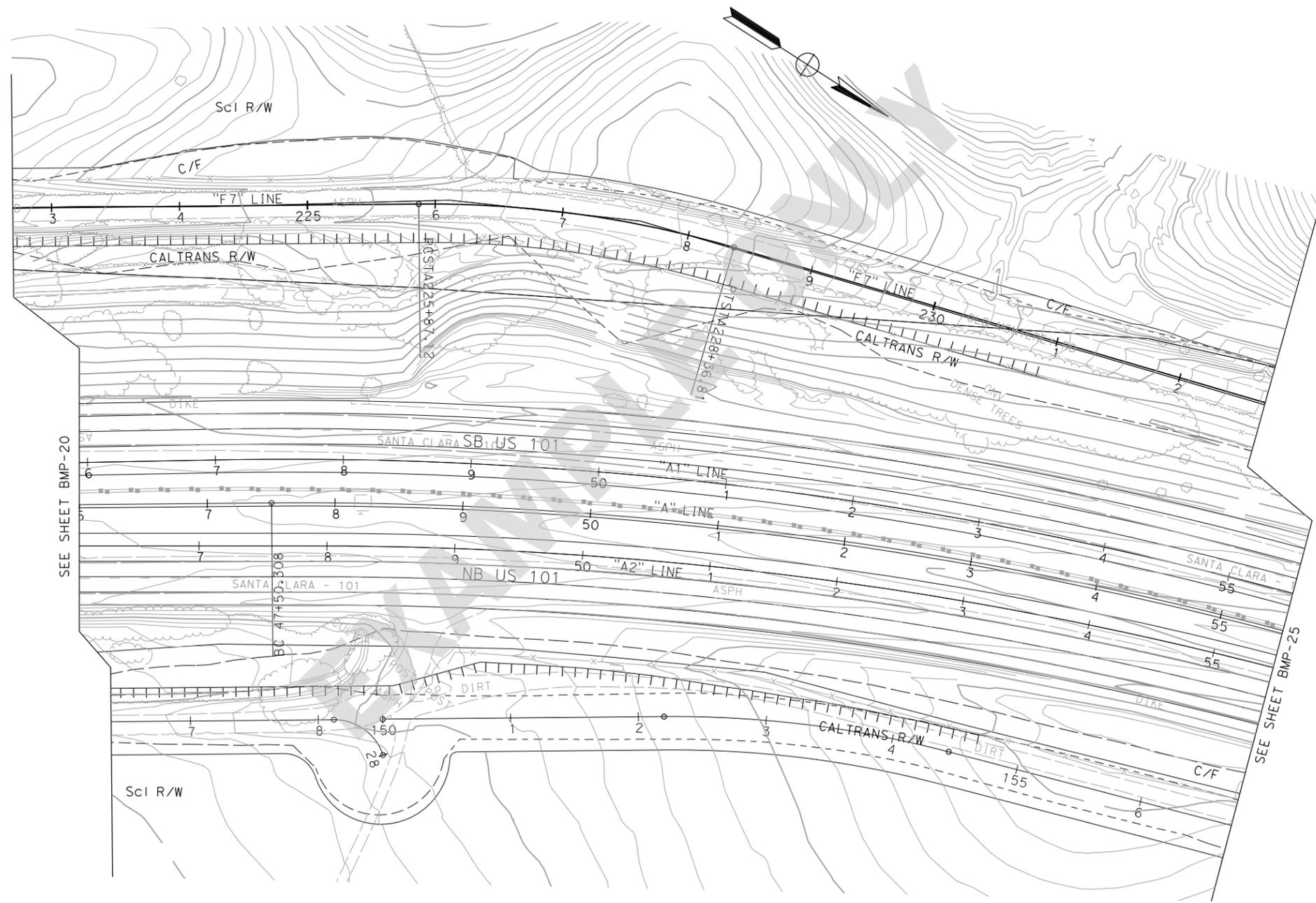
LAST REVISION | DATE PLOTTED => 11/30/2010
00-00-00 | TIME PLOTTED => 10:37:04 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



SEE SHEET BMP-20

SEE SHEET BMP-25

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

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET
**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-24**

EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY

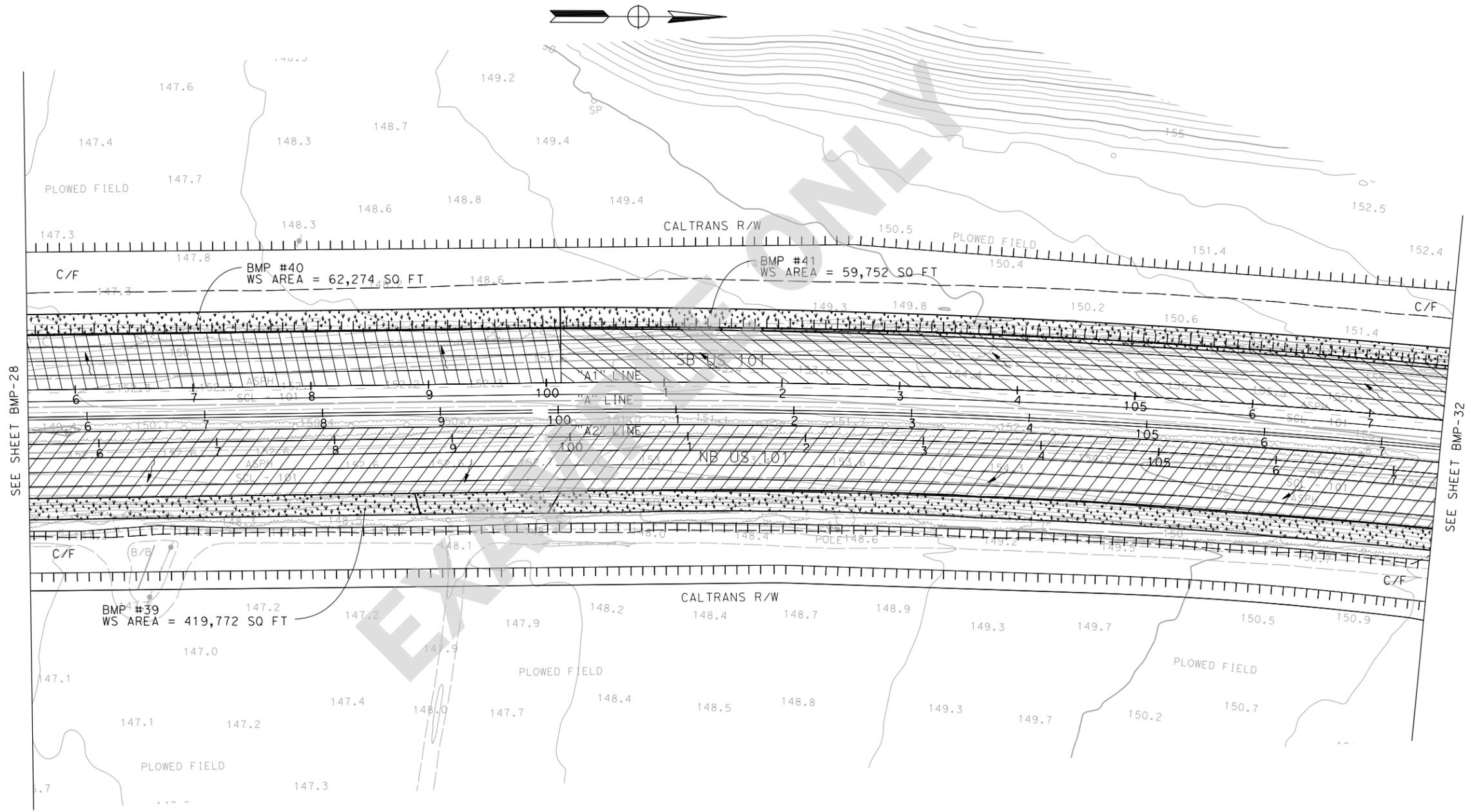
EXAMPLE ONLY

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP-30

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

EXAMPLE ONLY

EXAMPLE ONLY

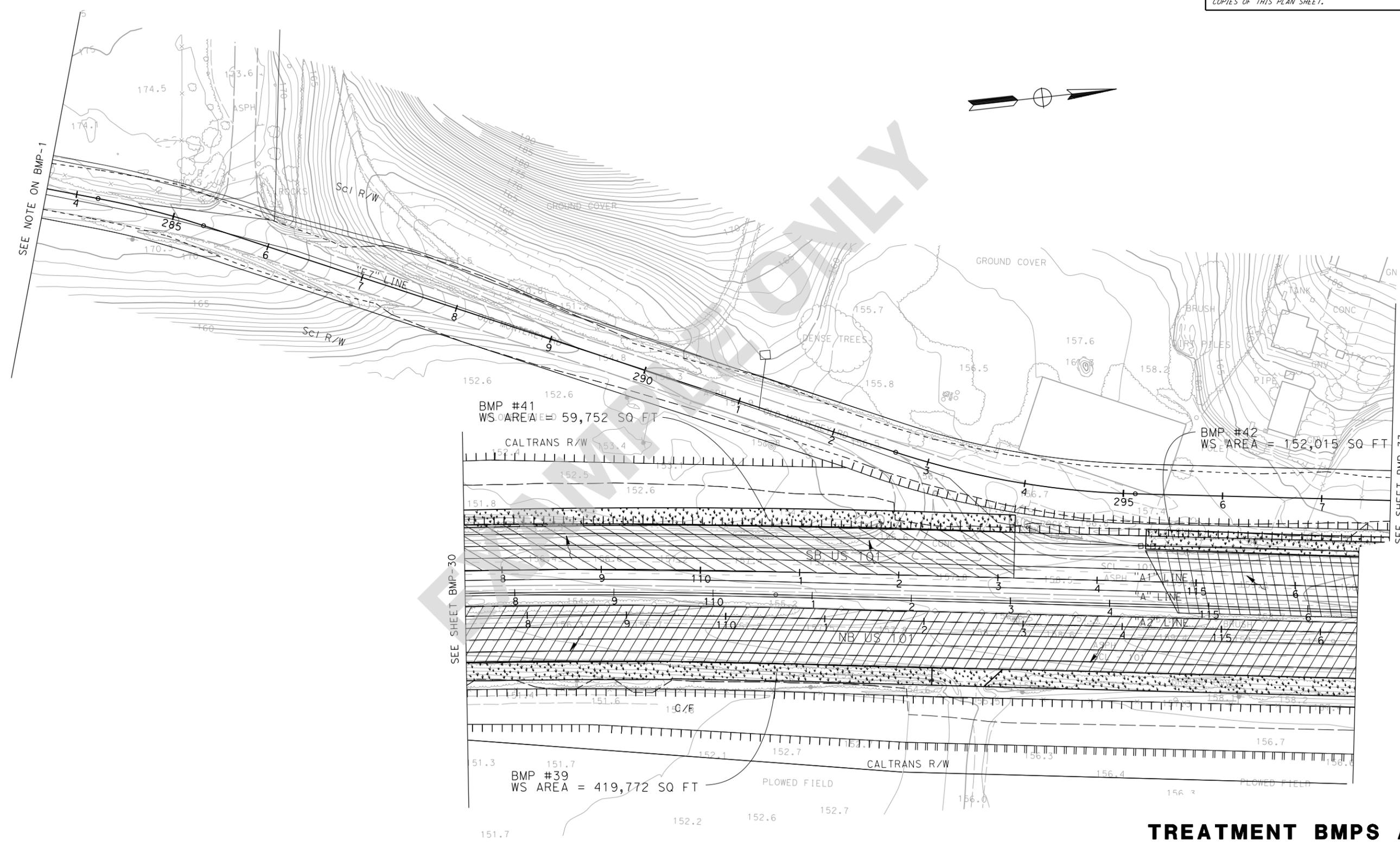
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP- 32

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

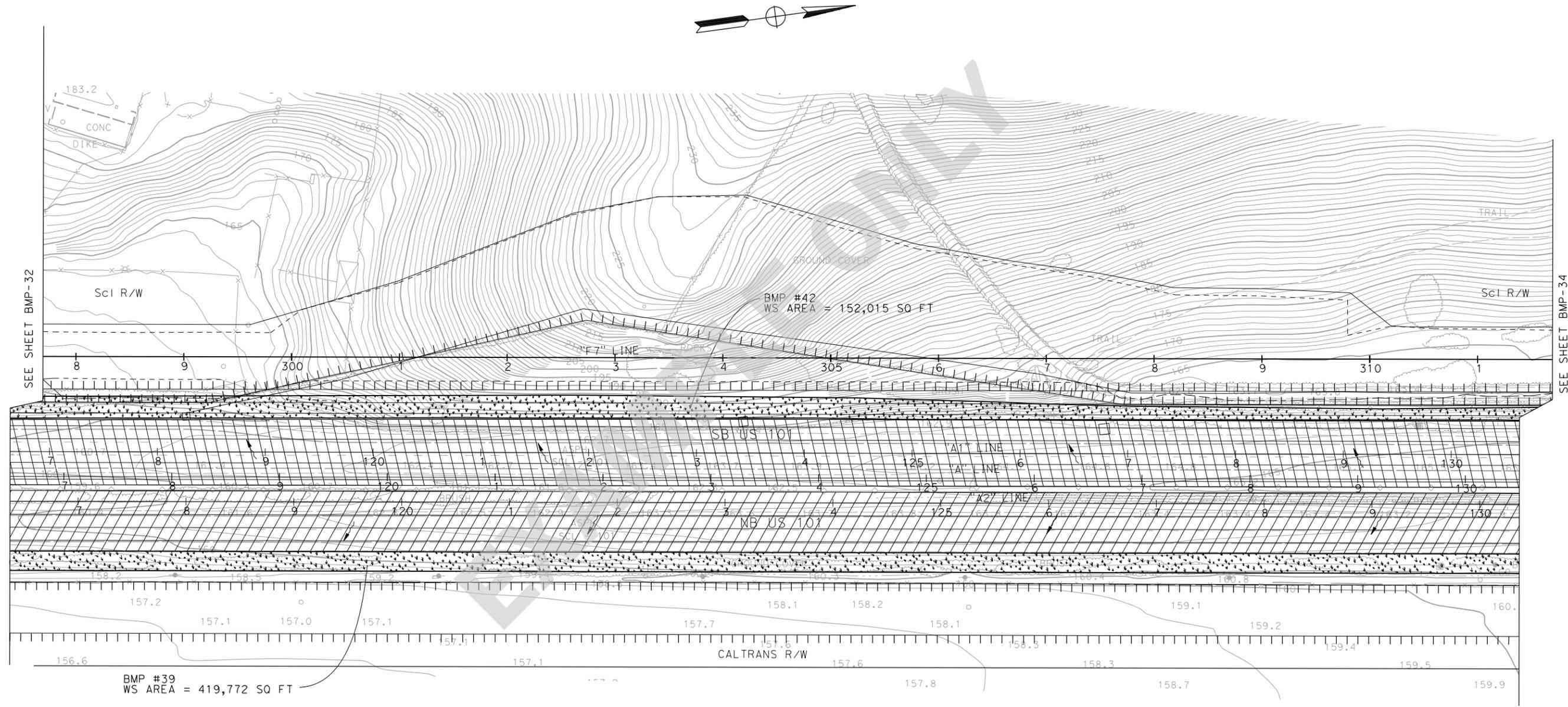


EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
 SCALE 1"=50'
BMP - 33

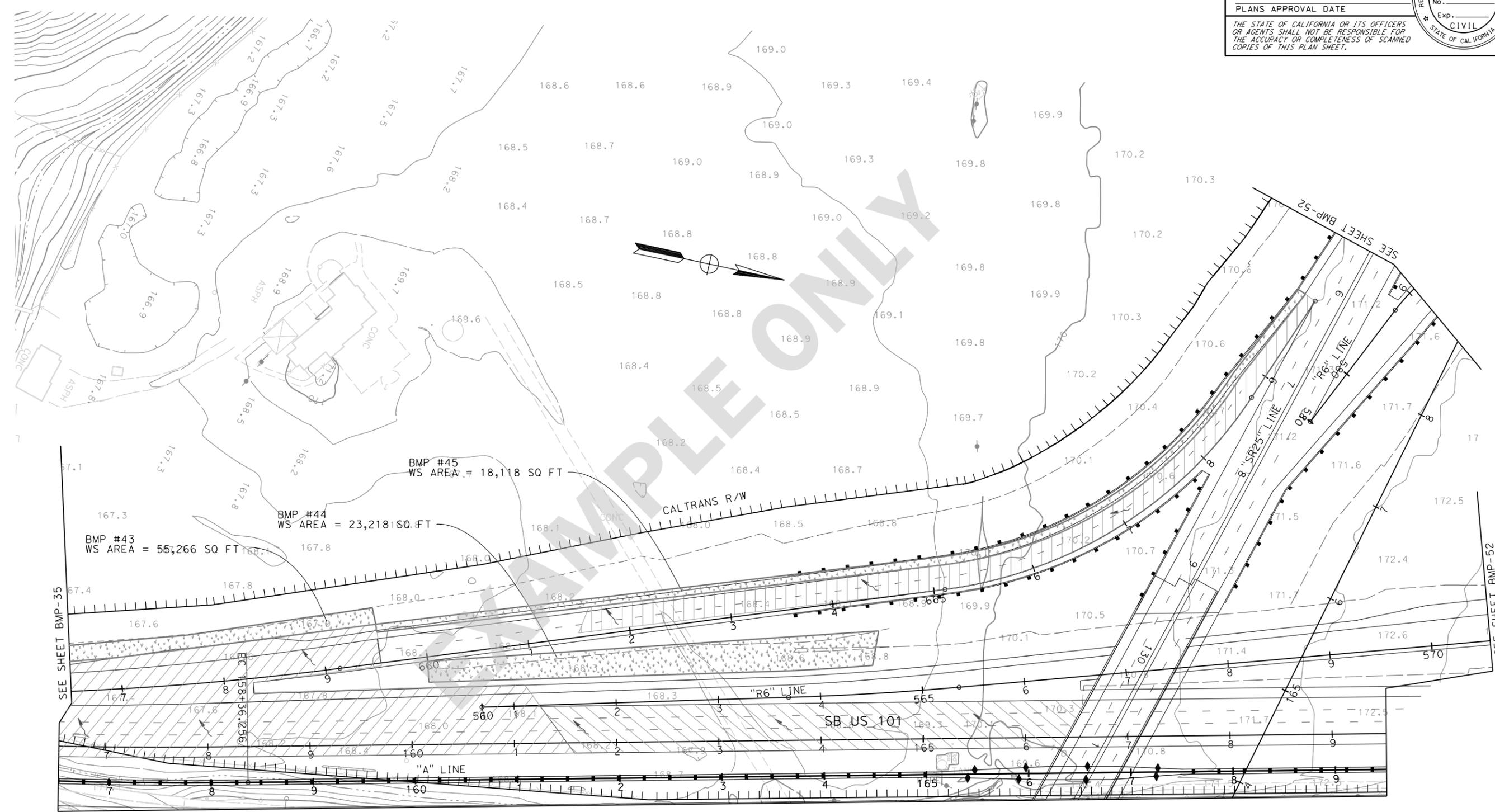
LAST REVISION: 00-00-00 DATE PLOTTED => 11/30/2010 TIME PLOTTED => 11:43:35 AM

EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP-36

LAST REVISION DATE PLOTTED => 11/30/2010 00:00:00 TIME PLOTTED => 11:45:41 AM

EXAMPLE ONLY

EXAMPLE ONLY

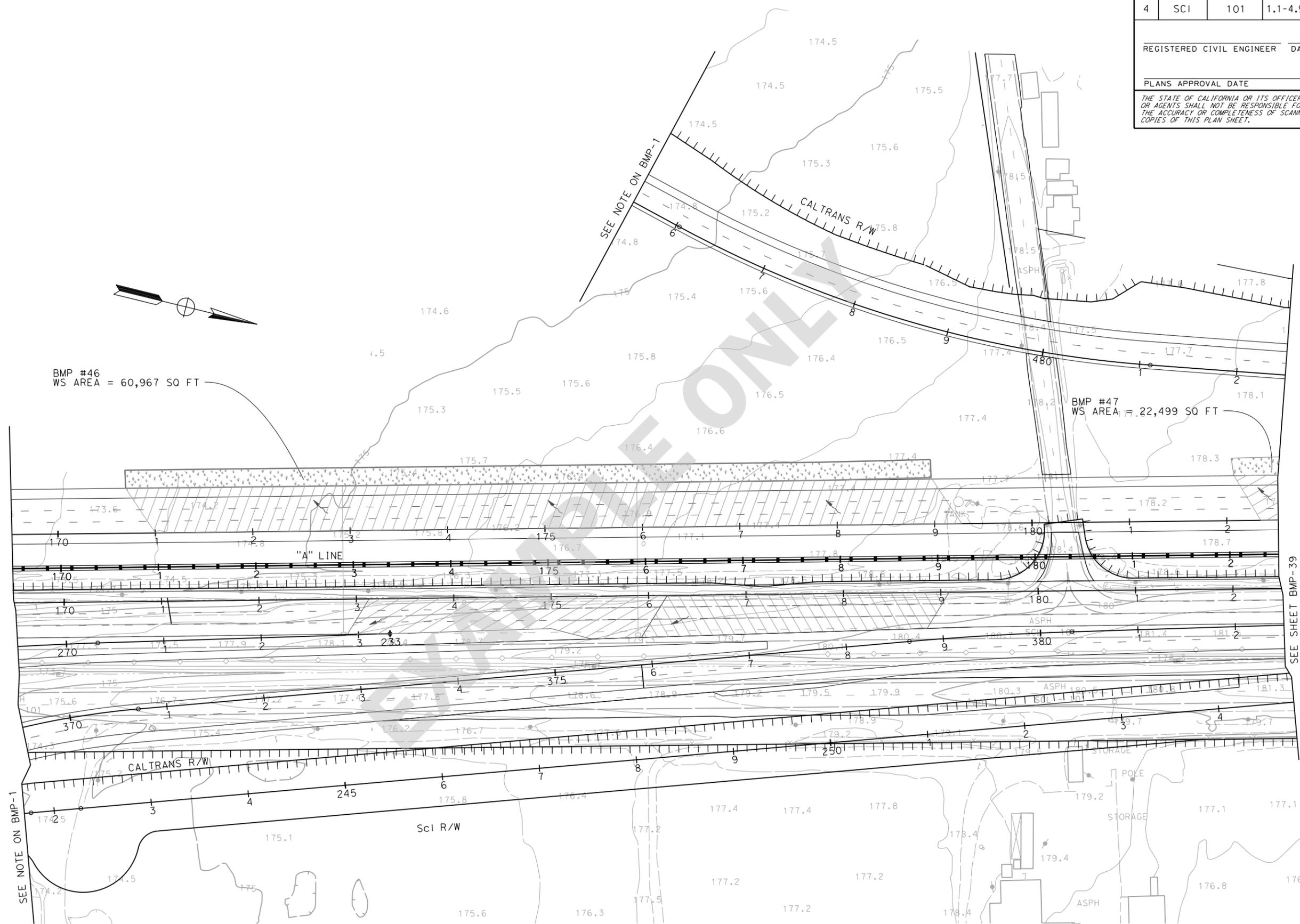
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



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



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP- 38

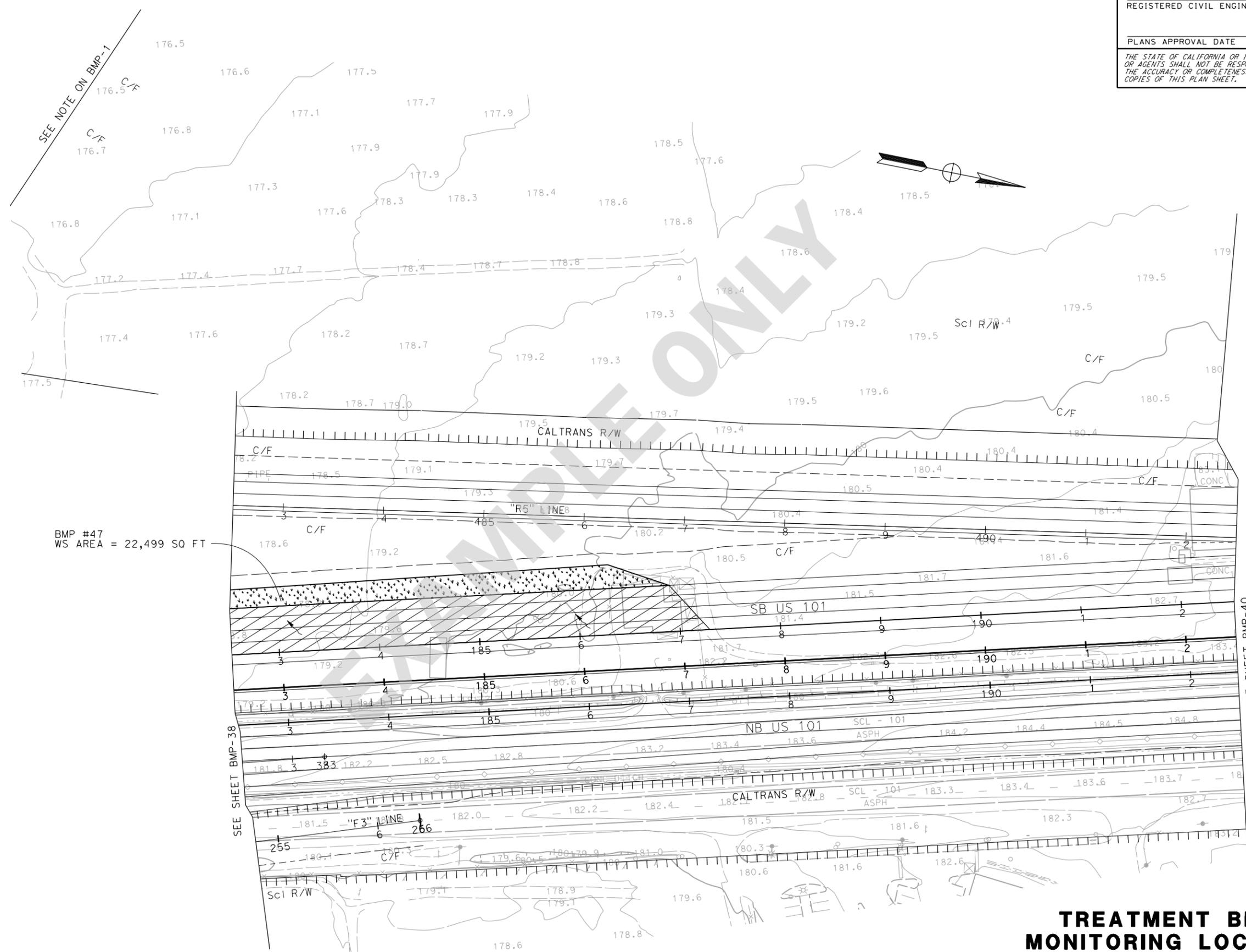
LAST REVISION: DATE PLOTTED => 11/30/2010 00:00:00 TIME PLOTTED => 11:46:54 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP-39

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

BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
DGN FILE => ... \Dwg\SWDR12\BMP-039.dgn



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

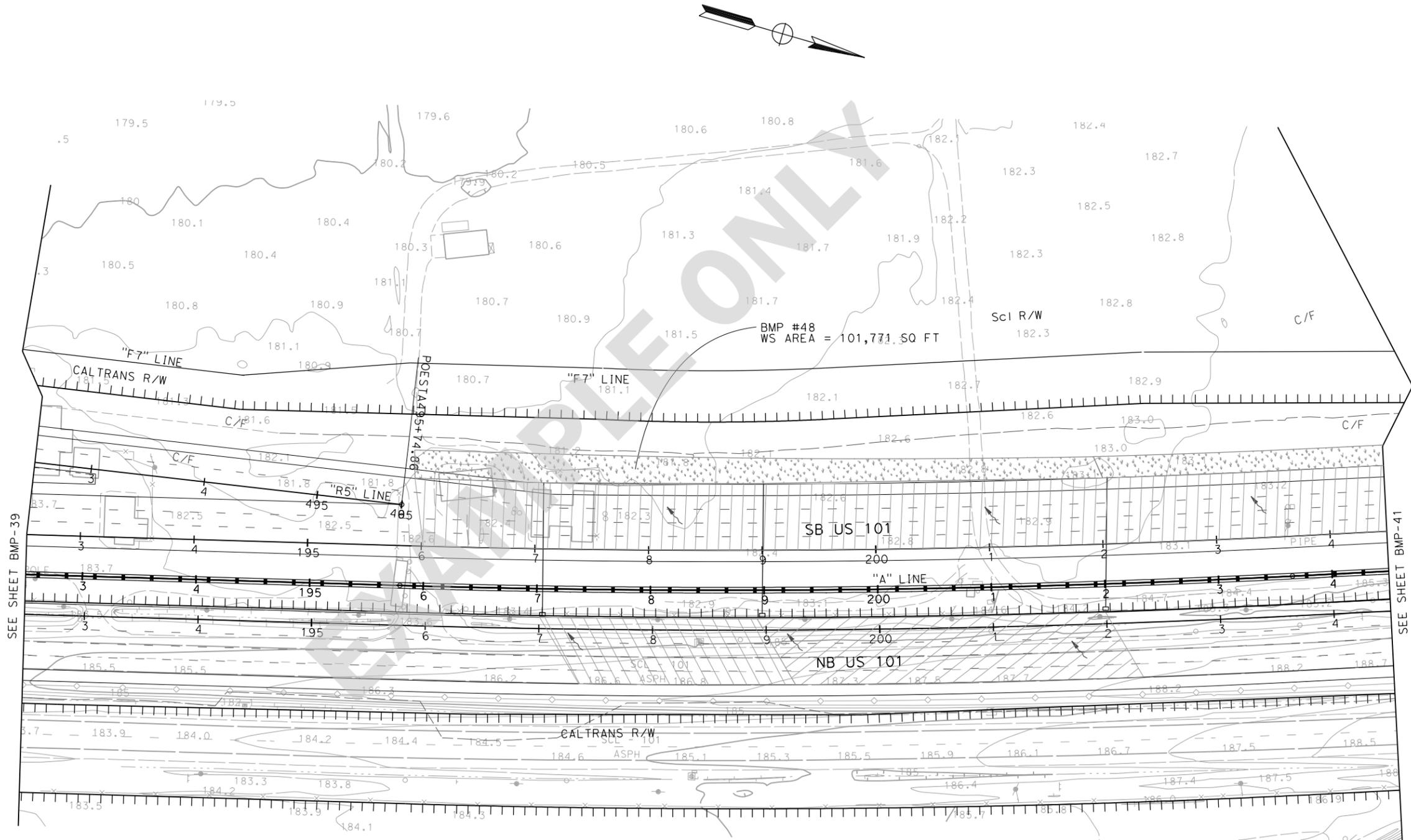
LAST REVISION DATE PLOTTED => 11/30/2010
00-00-00 TIME PLOTTED => 11:47:40 AM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50'
BMP- 40

EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY

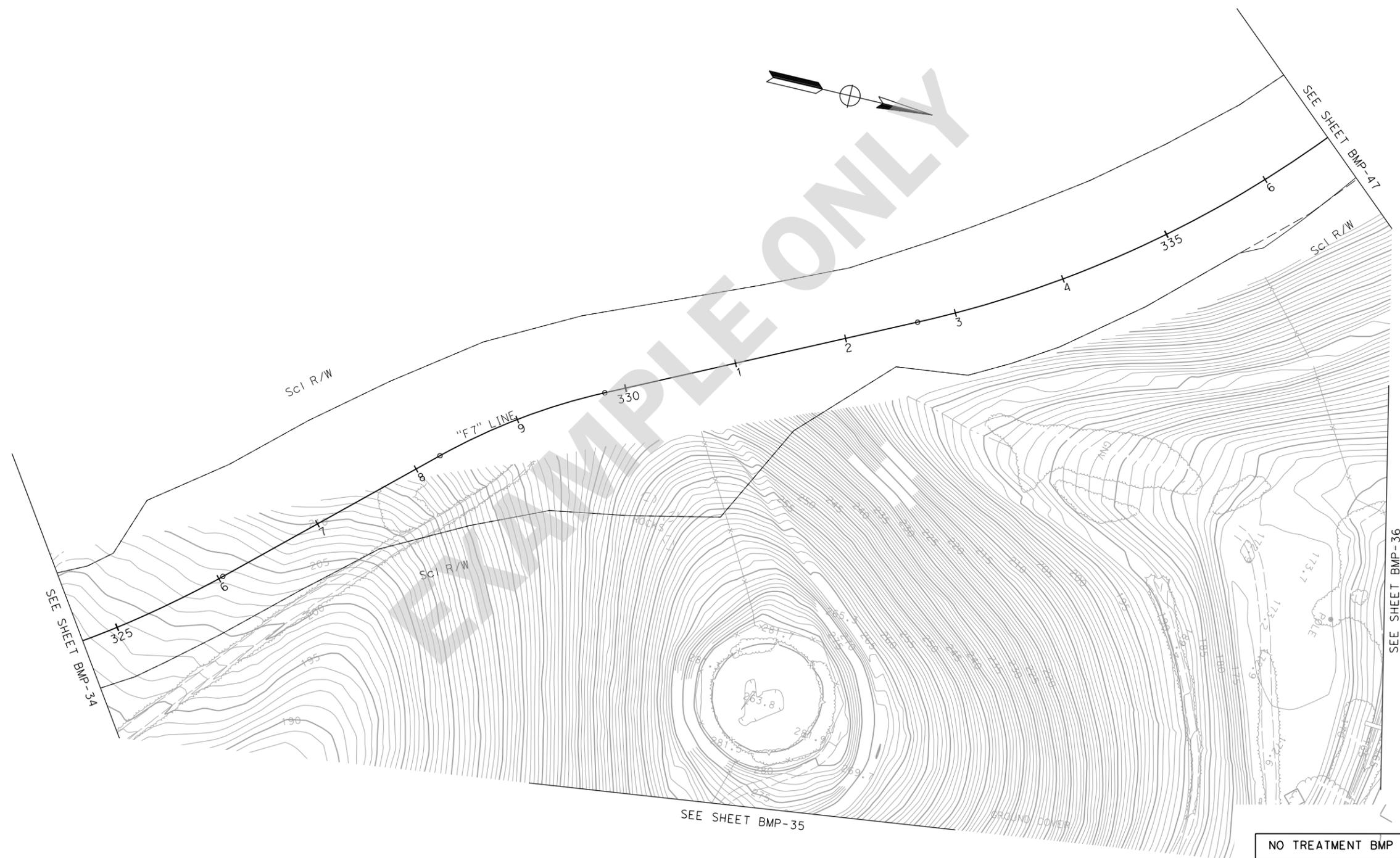
EXAMPLE ONLY

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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Caltrans		CHECKED BY	DATE REVISED



NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP

SCALE 1"=50' **BMP-46**

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

PRELIMINARY PLANS, SUBJECT TO REVISION



EXAMPLE ONLY

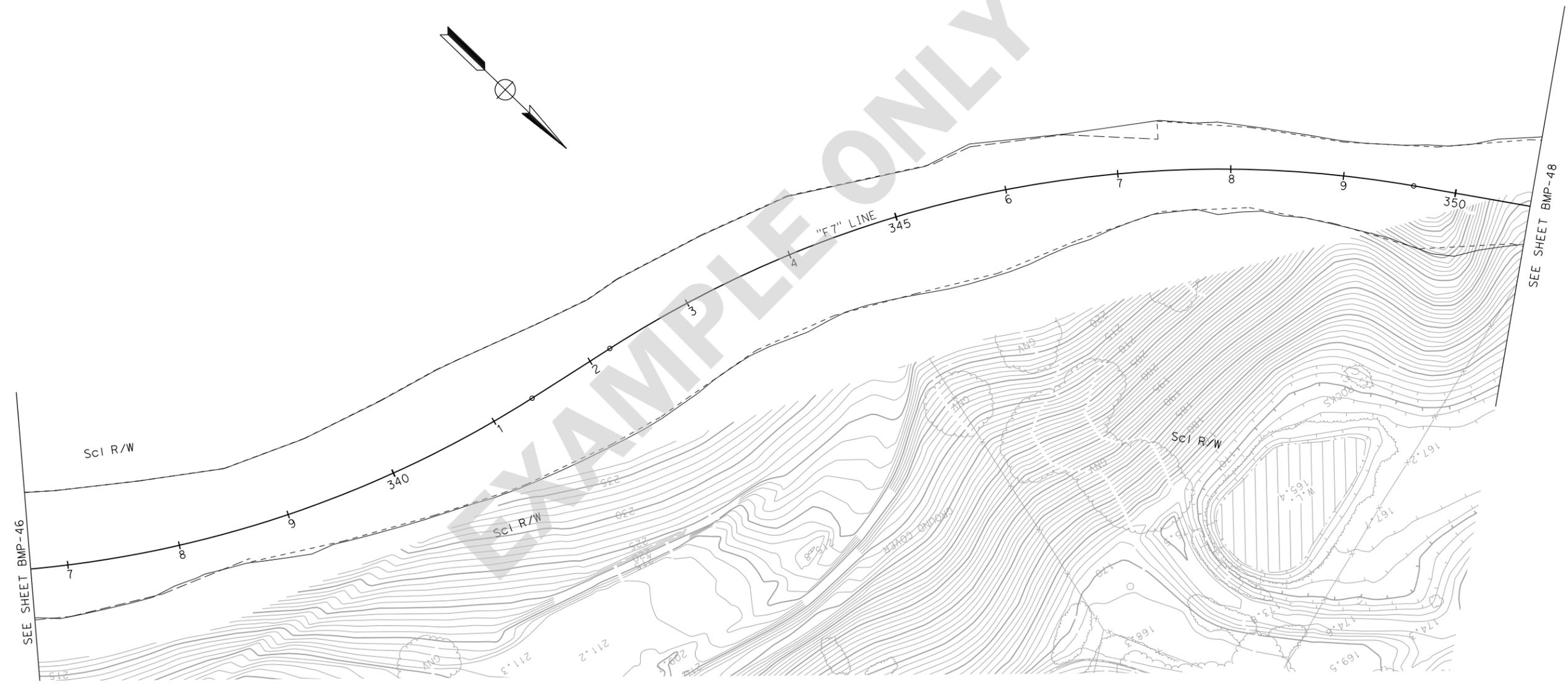
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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



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Caltrans		CHECKED BY	DATE



EXAMPLE ONLY

NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP

SCALE 1"=50' **BMP-47**

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

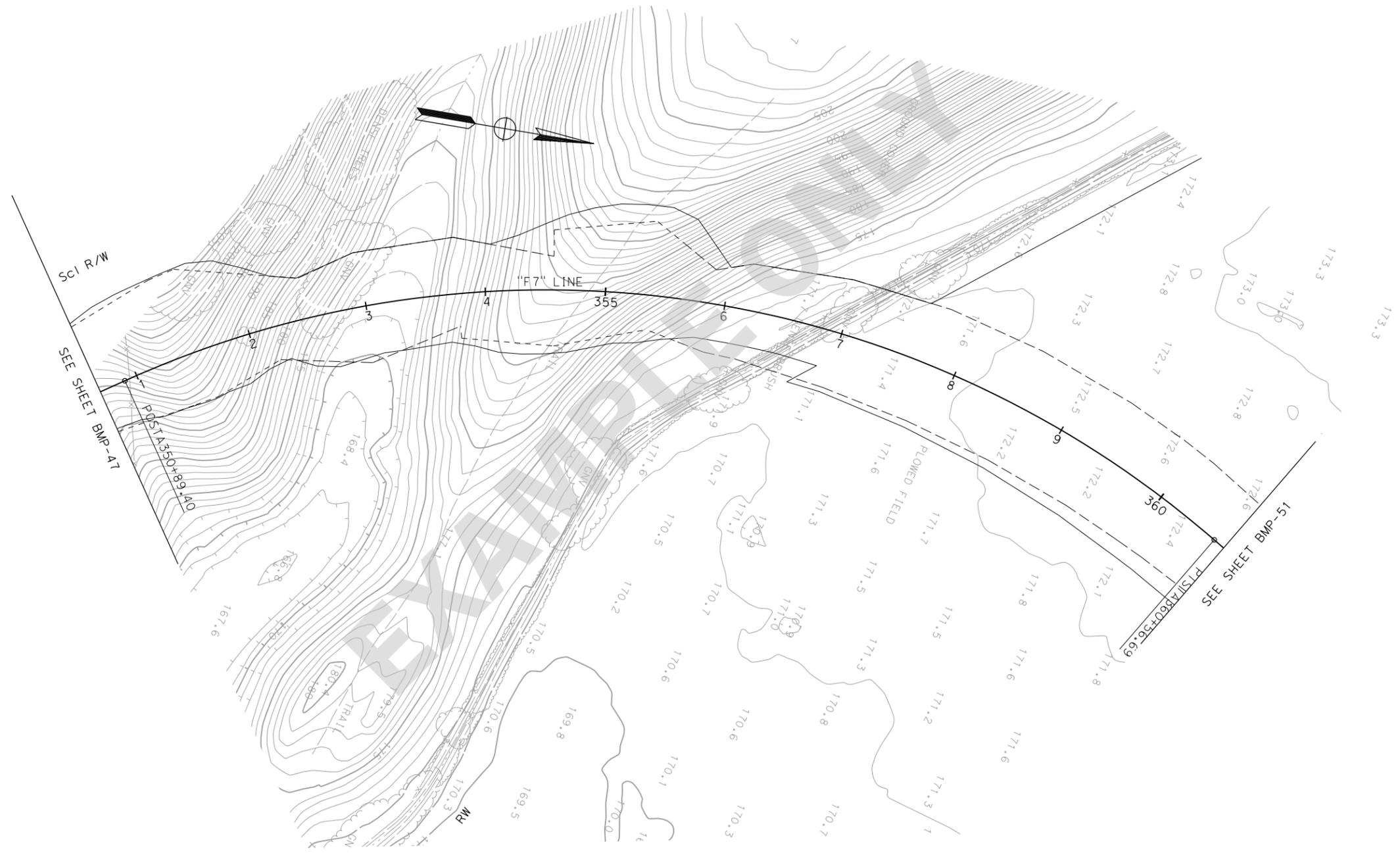
**PRELIMINARY PLANS,
SUBJECT TO REVISION**

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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Caltrans		CHECKED BY	DATE REVISED



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET

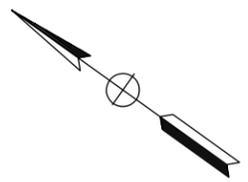
**TREATMENT BMPS AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-48**

LAST REVISION | DATE PLOTTED => 11/30/2010
00-00-00 | TIME PLOTTED => 12:10:20 PM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



SEE SHEET BMP-50

NO TREATMENT BMP WORK ON THIS SHEET

TREATMENT BMPS AND MONITORING LOCATION MAP
 SCALE 1"=50' **BMP-49**

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

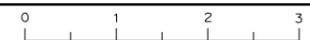
PRELIMINARY PLANS, SUBJECT TO REVISION

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

BORDER LAST REVISED 7/2/2010

USERNAME => hongchao_yu
 DGN FILE => ... \Dwg\SWDR12\BMP-049.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT XXXX

PROJECT NUMBER & PHASE

XXXXXXXXXX

LAST REVISION DATE PLOTTED => 11/30/2010
 00-00-00 TIME PLOTTED => 12:10:42 PM

EXAMPLE ONLY

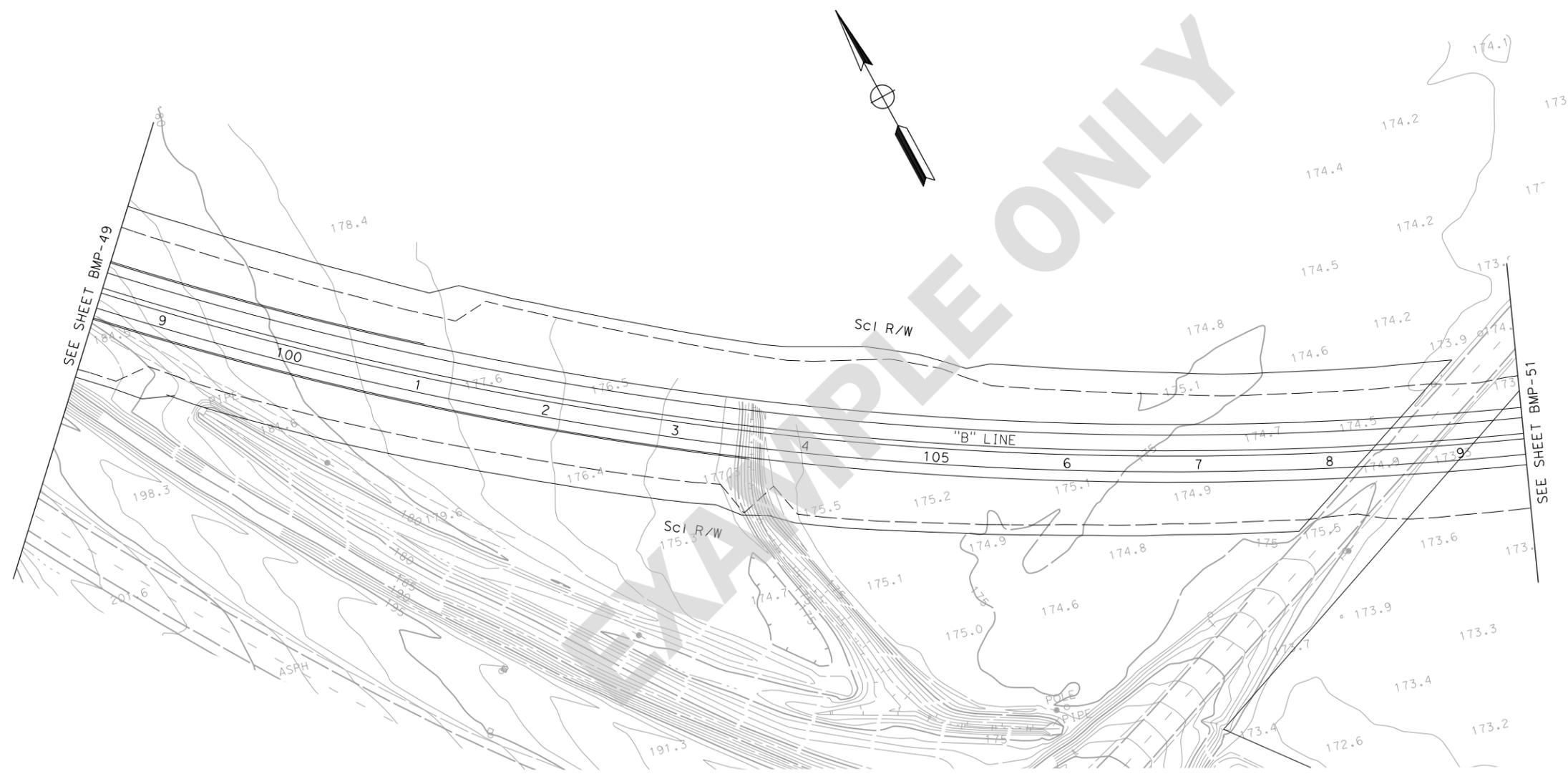
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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Caltrans		CHECKED BY	DATE



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET

**TREATMENT BMPS AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-50**

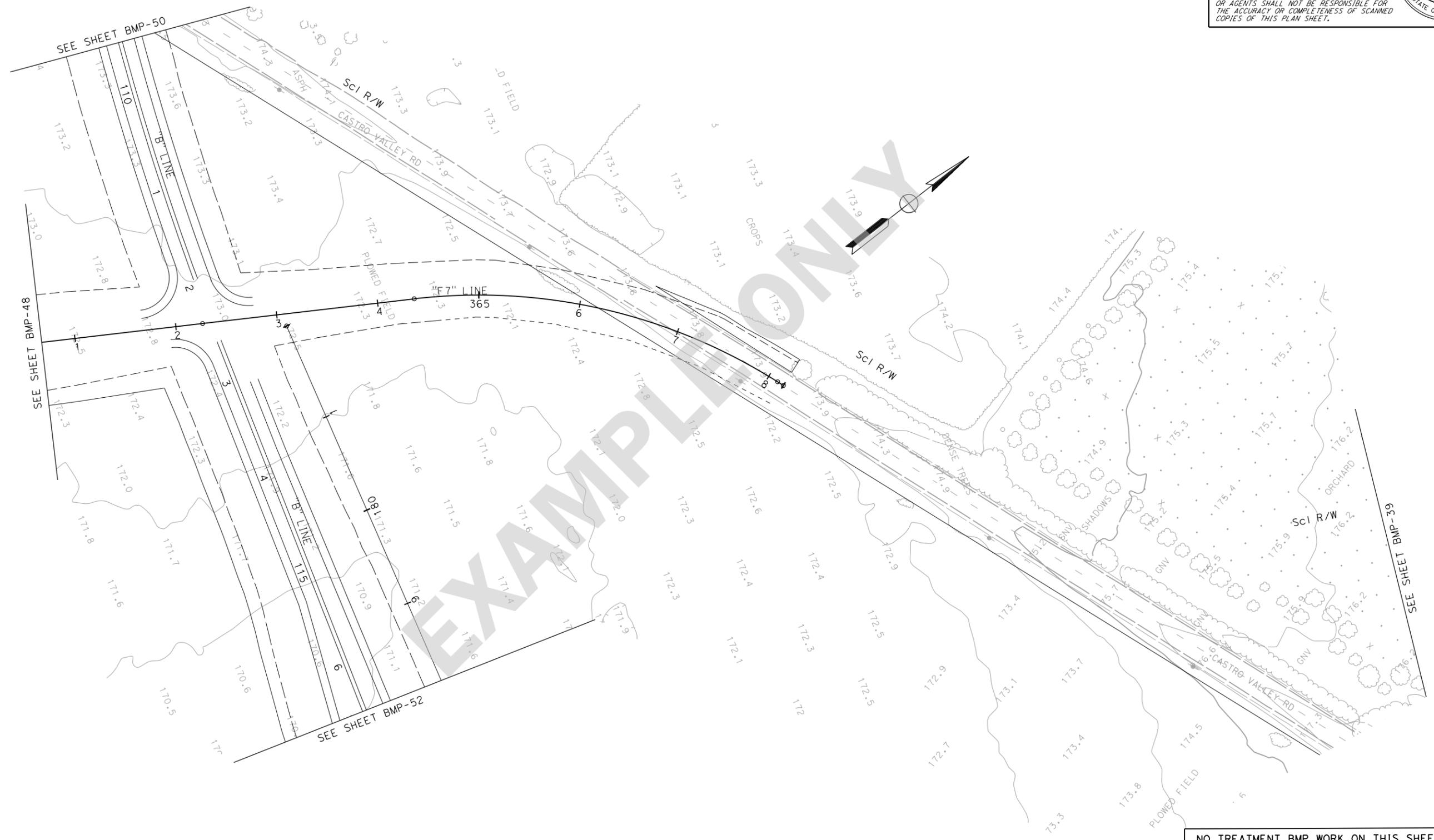
LAST REVISION: 00-00-00 DATE PLOTTED => 11/30/2010 TIME PLOTTED => 12:11:08 PM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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Caltrans		CHECKED BY	DATE REVISED



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

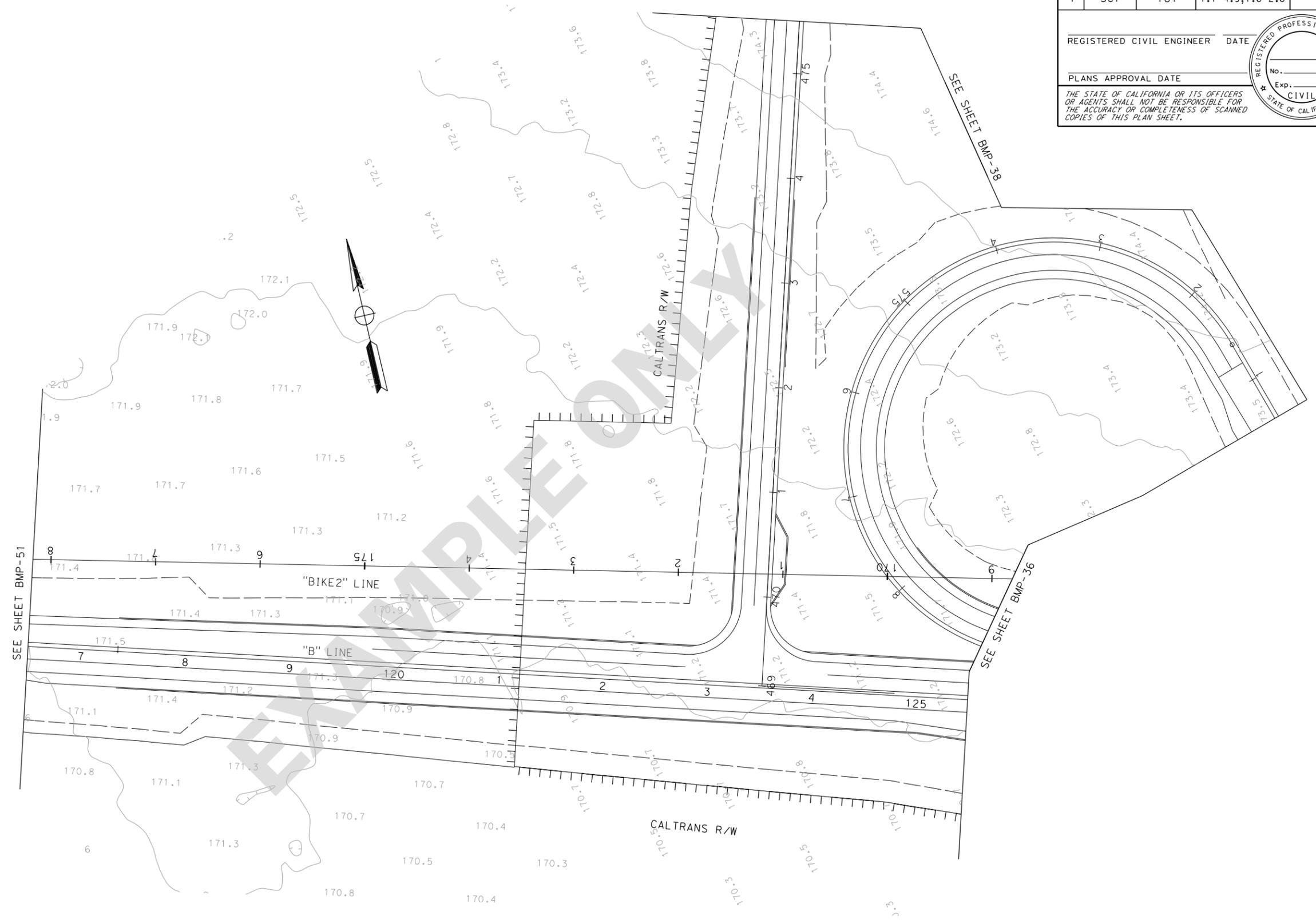
NO TREATMENT BMP WORK ON THIS SHEET

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP- 51**

LAST REVISION: 00-00-00 DATE PLOTTED => 11/30/2010 TIME PLOTTED => 12:11:32 PM

EXAMPLE ONLY

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9,1.6-2.6		
REGISTERED CIVIL ENGINEER				DATE	
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



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Caltrans		CHECKED BY	DATE REVISED

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET
**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-52**

LAST REVISION: 00-00-00 DATE PLOTTED => 11/30/2010 TIME PLOTTED => 12:11:53 PM

EXAMPLE ONLY

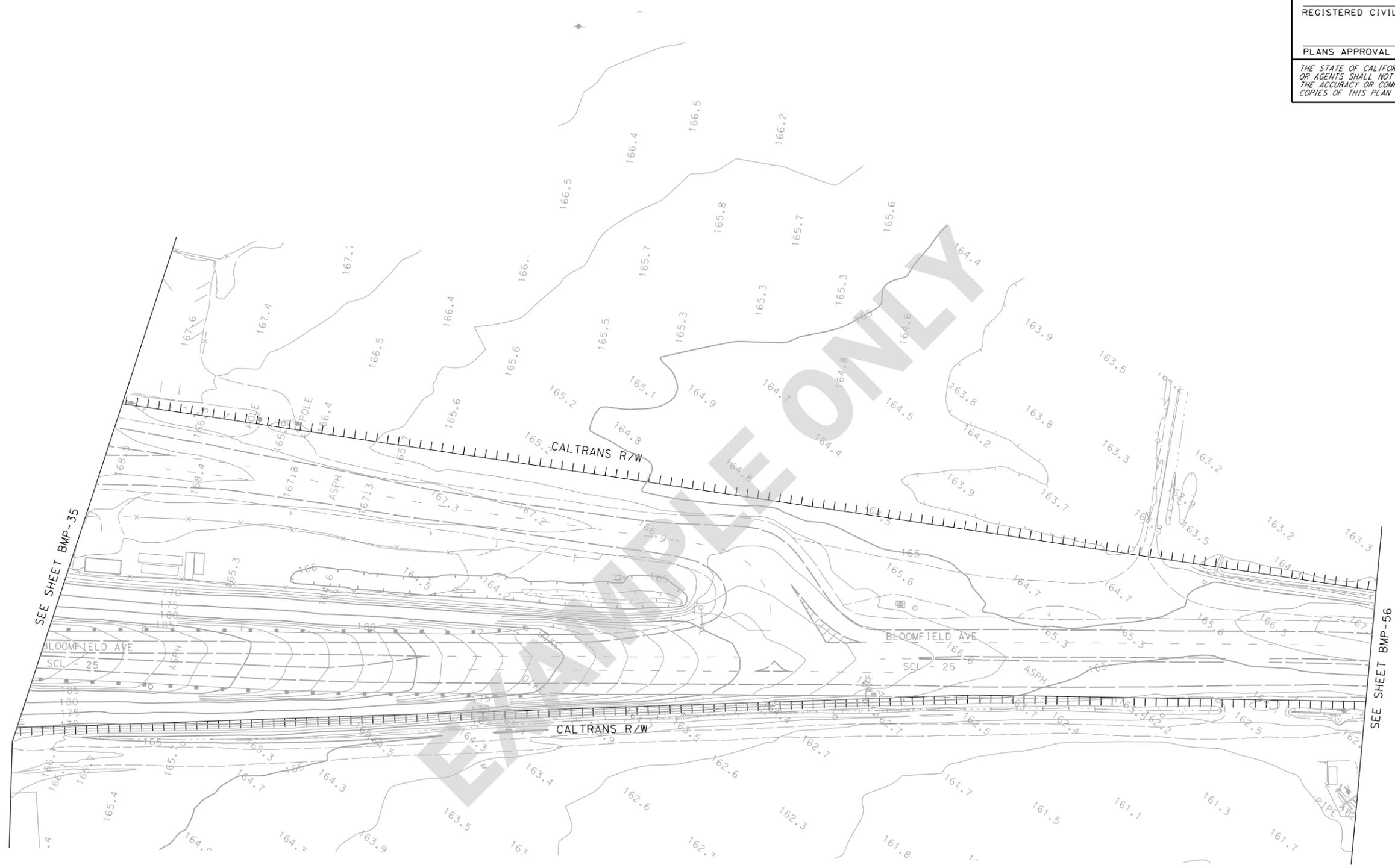
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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Caltrans		CHECKED BY	DATE REVISED



SEE SHEET BMP-35

SEE SHEET BMP-56

FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

NO TREATMENT BMP WORK ON THIS SHEET

**TREATMENT BMPS AND
MONITORING LOCATION MAP**

SCALE 1"=50' **BMP-53**

LAST REVISION DATE PLOTTED => 11/30/2010 00:00:00 TIME PLOTTED => 12:12:15 PM

EXAMPLE ONLY

EXAMPLE ONLY

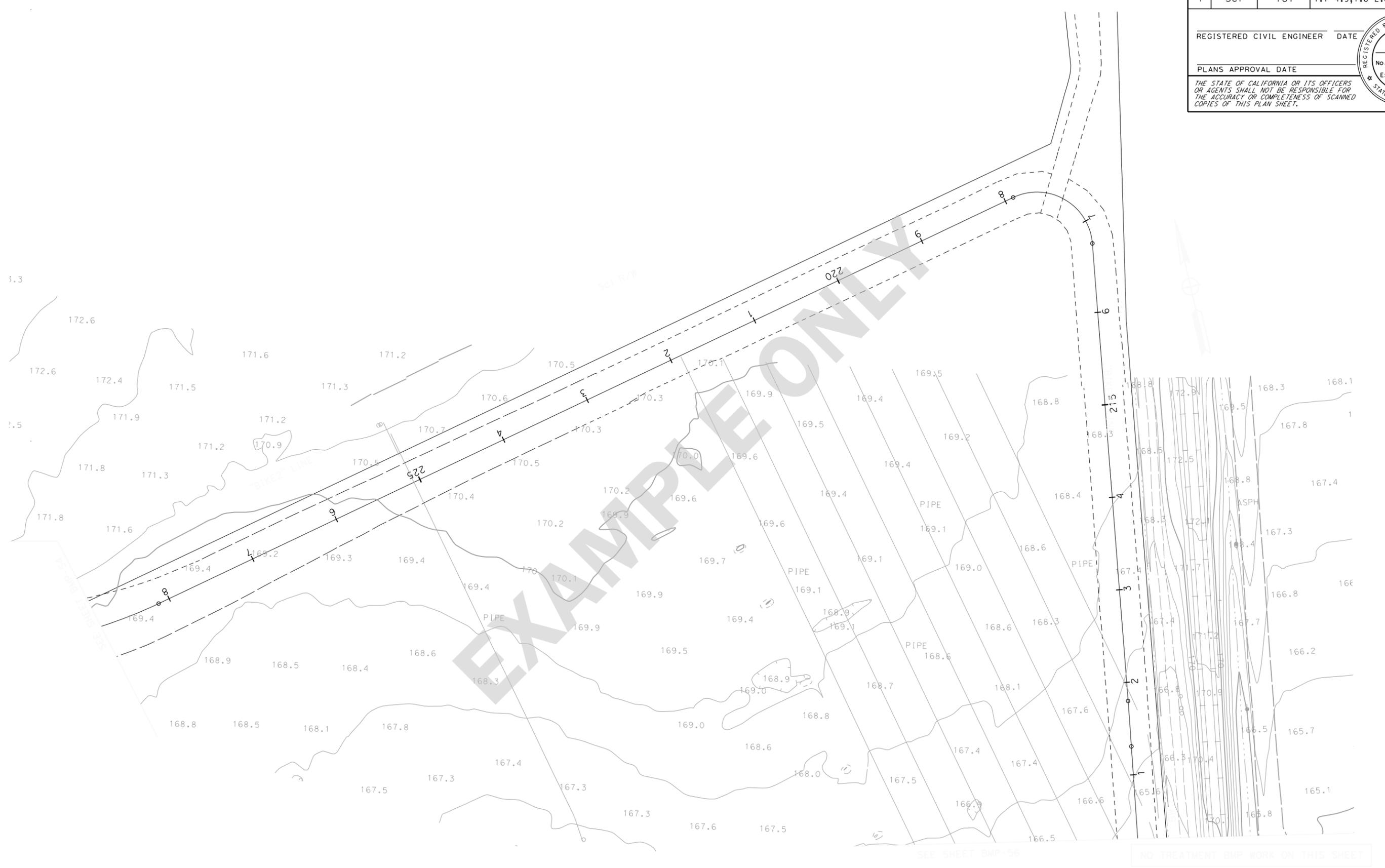
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
4	SCI	101	1.1-4.9, 1.6-2.6		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
 No. _____
 Exp. _____
 CIVIL
 STATE OF CALIFORNIA

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REVISOR
DATE
REVISOR
DATE



FOR NOTES, ABBREVIATIONS, AND/OR LEGEND, SEE SHEET BMP-1

**PRELIMINARY PLANS,
SUBJECT TO REVISION**

**TREATMENT BMPS AND
MONITORING LOCATION MAP**
SCALE 1"=50' **BMP-55**



EXAMPLE ONLY

EXAMPLE ONLY

EXAMPLE ONLY