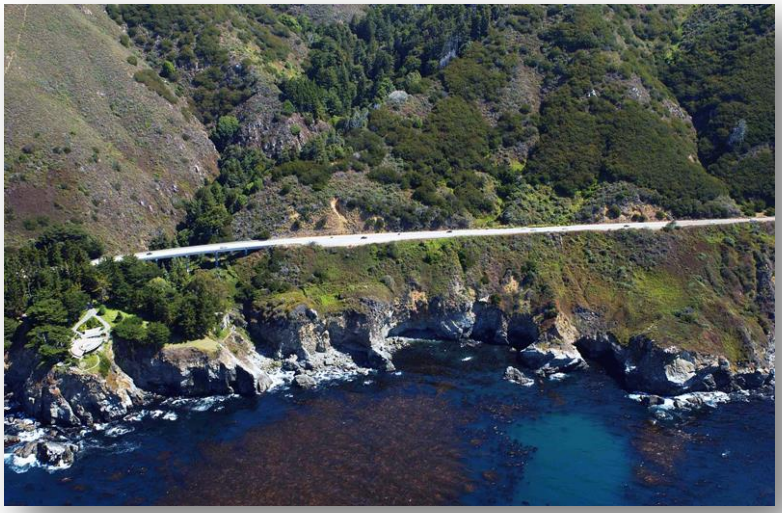
Compliance Plan for Areas of Special Biological Significance



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California Department of Transportation, Division of Environmental Analysis

PO Box 942874, MS-27

Sacramento, CA 94274-0001

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Hardeep Takhar 05/13/2024

Hardeep Takhar, Chief Environmental Engineer Date
Division of Environmental Analysis
California Department of Transportation

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1. Overview

1.1. Purpose of the Compliance Plan

The California Department of Transportation (Caltrans) Compliance Plan for Areas of Special Biological Significance (ASBS Compliance Plan or "Plan") describes Caltrans' strategy to comply with Provision C4 of the *National Pollutant Discharge Elimination System (NPDES) Statewide Stormwater Permit and Waste Discharge Requirements for State of California Department of Transportation, Order 2022-0033-DWQ, NPDES No. CAS000003* (Caltrans NPDES Permit or "Permit") issued by the California State Water Resources Control Board (SWRCB) (SWRCB, 2022).

The Plan describes how Caltrans proposes to comply with the ASBS-related Permit requirements based on the analysis of existing water quality monitoring data. It includes proposed structural and non-structural treatment controls to address pollutant discharge concentrations observed in monitoring data, and a corresponding implementation schedule.

The Plan is a revision based on additional water quality data collected to characterize discharges and determine appropriate controls necessary to achieve Natural Water Quality in the ASBS.

1.2. Background

1.2.1. Regulatory Background

The *California Ocean Plan–Water Quality Control Plan, Ocean Waters of California* (Ocean Plan) was first adopted in 1972 by the SWRCB (SWRCB, 2019). It establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the state's coastal waters. It prohibits waste discharges, including trash, into these coastal areas and states that discharges composed of stormwater runoff will not alter Natural Water Quality in an ASBS. Since 1983, the Ocean Plan has prohibited the discharge of both point and nonpoint source discharges of waste to ASBS, unless the SWRCB grants an exception.

On October 18, 2004, the SWRCB notified a number of parties that they must cease the discharge of stormwater and nonpoint source waste into ASBS or request an exception to the prohibition. Of these parties, 27, including Caltrans, submitted applications to the SWRCB for an exception. In April 2012, the SWRCB approved *State Water Resources Control Board Resolution No. 2012-0012, Approving Exceptions to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, including Special Protections for Beneficial Uses, and Certifying a Program Environmental Impact Report* (SWRCB, 2012), hereinafter referred to as Special Protections (as amended by *State Water Resources Control Board Resolution No. 2012-0031* on June 19, 2012). This resolution adopted the general exception to the Ocean Plan prohibition against waste discharges to ASBS for discharges of stormwater and nonpoint source waste. Approved applicants are required to comply with the provisions in the general exception. Caltrans applied for an exception, which was granted by the SWRCB. Under the exception, Caltrans is allowed to discharge to ASBS if such discharges are deemed conditionally exempt stormwater or non-stormwater discharges. A list of all the applicants is in Attachment A of the Special Protections. The main provisions for compliance with the general exception are contained in Attachment B of Special Protections.

Conditionally exempt stormwater discharges are those from existing stormwater outfalls (constructed or under construction prior to January 1, 2005), provided the discharges are essential for flood control or slope stability, are designed to prevent soil erosion, occur only during wet weather, and are composed of only stormwater runoff. Any proposed or new stormwater runoff discharge will be routed to existing storm water discharge outfalls and will not result in any new contribution of waste to an ASBS (i.e., no additional pollutant loading beyond what would have occurred as of January 1, 2005). A change to an existing stormwater outfall, in terms of relocation or alteration, to comply with these special conditions is allowed and does not constitute a new discharge.

Conditionally exempt non-stormwater discharges include discharges from emergency firefighting operations, foundation drains, hillside dewatering, and groundwater seepage and other naturally occurring flows that enter storm drains. Additionally, non-stormwater discharges from utility vaults and underground structures are conditionally exempt provided they are in compliance with the *General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES CAG990002*, and are deemed not to alter natural ocean water quality or cause or contribute to an exceedance of a water quality objective.

Additional non-stormwater discharges from Caltrans' facilities with a direct discharge to an ASBS are allowed only to the extent the relevant Regional Water Quality Control Board finds that the discharge does not alter natural ocean water quality in the ASBS. The Ocean Plan allows the SWRCB to grant exceptions to this prohibition, provided the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

The Caltrans NPDES Permit contains requirements for the control of conditionally exempt discharges from Caltrans' municipal separate storm sewer system (MS4). As identified in Attachment A of the Caltrans 2012 NPDES Permit, Caltrans discharges stormwater into ten ASBS. Note that only seven of the ten ASBS contain priority discharge locations that represent sites having significant potential to impact the ASBS.

All ten ASBS are listed below, and the seven with priority discharge locations are indicated with an asterisk:

- Redwood National Park ASBS*
- Saunders Reef ASBS*
- James V. Fitzgerald ASBS*
- Año Nuevo ASBS*
- Carmel Bay ASBS*
- Point Lobos ASBS
- Julia Pfeiffer Burns ASBS
- Salmon Creek Coast ASBS
- Laguna Point to Latigo Point ASBS*
- Irvine Coast ASBS*

The Permit requires the Department to submit a ASBS Compliance Plan to the State Water Board Executive Director for approval within 12 months after the adoption date of the Permit.

1.2.2. 2016 Compliance Plan

Caltrans submitted a Draft ASBS Compliance Plan in September 2013, as adequate monitoring data could not be collected due to prevailing drought conditions. In a letter dated June 25, 2013, Caltrans requested an extension of the ASBS Compliance Plan submittal date until September 20, 2015. The SWRCB granted the extension. In subsequent discussions, Caltrans requested further extension of the submittal date to 2016 because of incomplete characterization monitoring due to drought conditions. During discussions in July 2015, the SWRCB agreed to allow Caltrans to submit an Amended Final ASBS Compliance Plan after characterization of discharges were completed.

Caltrans submitted an Amended Final ASBS Compliance Plan on September 20, 2016. The amended ASBS Compliance Plan was based on the results of runoff and receiving water monitoring during the 2012–2013 through the 2015–2016 wet seasons. The 2014–2015 wet season was a very dry year, with some ASBS monitoring locations receiving no measurable runoff.

1.2.3. From 2016 Compliance Plan to 2023

With the exception of ASBS 24, characterization monitoring of all ASBS was completed in the 2016–2017 wet season as sufficient monitoring data had been collected. Characterization monitoring of ASBS 24 was completed in the 2019–2020 wet season. Per Section A4.5.2.a.ii of the Caltrans Permit, the Department has fulfilled its obligations and no additional monitoring is needed.

The minimum number of storm events have been captured at all ASBS. Table 1 presents the number of storm events sampled in each ASBS.

Table 1. Storm Events Sampled at Receiving Water Sites

ASBS Name	Total	Sampling Completed
ASBS 5, Saunders Reef	9	12/7/2016
ASBS 8, Redwood National Park	6	1/18/2017
ASBS 9, Fitzgerald: Ocean Receiving Water Site	9	4/6/2017
ASBS 15, Año Nuevo: Ocean Receiving Water Site	8	1/18/2017
ASBS 34, Carmel Bay	6	4/7/2017
ASBS 24, Laguna Point to Latigo Point	15	4/5/2020
ASBS 33, Irvine Coast: Ocean Receiving Water Site	15	1/9/2017

1.3. Maps of ASBS Discharge Locations (Permit Section C4 Item 2)

Attachment III of the 2012 Caltrans NPDES Statewide Stormwater Permit identifies 77 Priority Discharge Locations that are located within seven Caltrans ASBS. Table 2 contains a summary description of the ASBS and preliminary estimate of drainage area and discharge locations identified in each ASBS. In accordance with provision E.5.b of the 2012 Permit, alternative locations may be authorized by the SWRCB where access limitations or safety considerations make it infeasible to conduct monitoring (SWRCB, 2012, 2014, 2017). During the period of the

ASBS monitoring program, several discharge locations were substituted in consultation with the SWRCB. Table A-1 (Appendix A of this document) summarizes the locations identified in Attachment III of the 2012 Caltrans NPDES Statewide Stormwater Permit. Maps of discharge locations within these ASBS areas are also provided in Appendix A. Each map shows surface drainage of stormwater runoff, sheet runoff, priority discharge locations and their tributary areas, structural best management practices (BMPs) currently employed, and potential future treatment areas.

Table 2. Summary of ASBS Locations

	**ASBS 5: Saunders Reef** *This small ASBS encompasses both rural and urban watersheds, with numerous seepages and earthen channels from bluff houses lining the coast.* • Estimated drainage area from 1.1 miles of US-101 • 10 priority discharges identified
	**ASBS 8: Redwoods National Park** *Rugged cliffs and sparse primitive campgrounds dominate this region, and much of the coastline is limited to foot traffic.* • Estimated drainage area from 10.6 miles of US-101 • 7 priority discharges identified
	**ASBS 9: James V. Fitzgerald** *This ASBS consists of a unique underwater habitat and extensive tide pools, surrounded by an array of land uses.* • Estimated drainage area from 2.5 miles of SR-1 • 1 priority discharge identified
	**ASBS 15: Año Nuevo** *The coastline provides a unique habitat for wintering sea lions and elephant seals. Access to beaches is limited, and most visitors to the park are confined to marked footpaths.* • Estimated drainage area from 3.0 miles of SR-1 • 5 priority discharges identified
	**ASBS 34: Carmel Bay** *This ASBS encompasses the City of Carmel with the southern boundary occurring at the Carmel River mouth. The Pebble Beach Golf Course and the popular Carmel Beach are also located within the boundaries of this ASBS.* • Estimated drainage area from 4.5 miles of SR-1 • 2 priority discharges identified

	**ASBS 24: Laguna Point to Latigo Point** *The largest of the mainland ASBS, this location contains extensive bluffs, and private property on bluffs and beaches.* • Estimated drainage area from 24 miles of SR-1 • 47 priority discharges identified
	**ASBS 33: Irvine Coast** *This ASBS is largely classified as an urban watershed. Additional inputs include parking lots and walkways within the park, and from the development upstream.* • Estimated drainage area from 3.0 miles of SR-1 • 5 priority discharge identified

Discharges causing or contributing to alterations of natural ocean water quality were located in five of the seven Caltrans ASBS, listed in Table C-1 of the 2022 Caltrans NPDES Permit.

1.4. Regional Monitoring Groups

Three regional monitoring groups for ASBS monitoring were set up with stakeholder and SWRCB coordination: (1) Northern California regional monitoring group, (2) Central Coast regional monitoring group, and (3) Southern California regional monitoring group. The ASBS with Caltrans discharges categorized by regional monitoring groups are listed below:

- Northern California regional monitoring group: ASBS 05, ASBS 08
- Central Coast regional monitoring group: ASBS 09, ASBS 15, ASBS 34
- Southern California regional monitoring group: ASBS 24, ASBS 33

Caltrans entered into data sharing agreements with each of the regional monitoring groups. Under these agreements, Caltrans provided the results of its Ocean Receiving Water monitoring. Caltrans did not receive Ocean Receiving Water data from the other dischargers or the Ocean Reference Area data collected by others. Caltrans received the natural water quality values developed by the regional groups that are based on an analysis of the Ocean Reference Area data.

2. Non-Authorized Non-Stormwater Discharges

The Caltrans NPDES Permit prohibits the discharge of non-authorized non-stormwater discharges. The Permit authorizes non-stormwater discharges from certain categories of discharges not composed entirely of stormwater but that do not pose a threat to water quality. In some cases, the discharges may require the implementation of BMPs. Requirements or exemptions of separate NPDES permits are not addressed in this plan.

The following non-stormwater discharges are allowed under the general exception if they are essential for emergency response purposes, structural stability, or slope stability, or if they occur naturally:

- Discharges or flows from emergency firefighting activities;
- Foundation and footing drains;
- Water from crawl space or basement pumps;
- Hillside dewatering;
- Naturally occurring groundwater seepage via a storm drain; and
- Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, provided there are no contributions of anthropogenic runoff.

Additional non-stormwater discharges to a segment of the Caltrans MS4 with a direct discharge to an ASBS are allowed only to the extent the relevant Regional Water Quality Control Board finds that the discharge does not alter natural ocean water quality in the ASBS.

2.1. Non-Authorized Non-Stormwater Discharge Elimination (Permit Section C4 Item 4)

The Permit requires that the ASBS Compliance Plan describe measures Caltrans will use to eliminate all non-authorized non-stormwater discharges. Caltrans developed the Illicit Connection/Illegal Discharge and Illegal Dumping Response Plan (Caltrans, 2013) as required by the Permit. Currently, there are no non-authorized non-stormwater discharges from Caltrans facilities or activities. Caltrans continues efforts to eliminate non-authorized non-stormwater discharges by prevention, identification, and correction of the source of the non-stormwater discharge. Maintenance Supervisors will report non-stormwater discharges to their District Maintenance Stormwater Coordinators. The District Maintenance Stormwater Coordinators will coordinate the reporting of prohibited non-stormwater discharges to the Regional Water Quality Control Boards through the District Stormwater Coordinator, using the Incident Report Form (Attachment G of the Permit). Additional details on the Illicit Connection/Illegal Discharge response plan are located in Section 5.1.5.

Dry weather flow that is the result of groundwater baseflow is not a prohibited discharge. However, to avoid inundating downstream BMPs, Caltrans will consider segregating dry weather flows as identified in the individual ASBS responses described in Section 7.

3. Inspection Frequencies

To ensure trash and other anthropogenic debris are removed, Caltrans will inspect all stormwater outfall drains equal to or greater than 18 inches (457 mm) in diameter or width within ASBS at the following frequency:

- Once before the beginning of the rainy season; and
- Once during the rainy season.

Inspections and cleaning will be conducted in accordance with the *Caltrans Statewide Stormwater Management Plan* Section 8.2.8: Baseline Stormwater Drainage Facilities Inspection and Cleaning Program. This section specifies that a drainage inlet or catch basin will have all waste removed when it has accumulated to a depth of 50 percent. This does not preclude a supervisor's judgment to clean with less accumulated material present (Caltrans, 2016b).

4. Erosion and Sediment Control

This section addresses erosion control and the prevention of anthropogenic sedimentation in ASBS. Natural habitat conditions in the ASBS must not be altered because of anthropogenic sources of sediment. Locations with a high probability of discharging sediment to ASBS may merit the application of temporary or permanent sediment and erosion control BMPs.

4.1. Maintenance Activities (Permit Section C4 Item 7)

Caltrans 2022 NPDES Permit Provision C3.5.3.1, C5.14.5, C5.15 requires Caltrans to develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters. These programs include:

- Collection and appropriate disposal of trash before mowing vegetated areas;
- Prioritization of pollutant reduction opportunities (e.g., improvements to existing BMPs). Priority shall be given to sites in sensitive watersheds or where there is an existing or potential threat to water quality;
- Establishment of schedules for implementing appropriate BMPs; and
- Prioritization of road segments with slopes that are prone to erosion and sediment discharge in order to stabilize these slopes to control the discharge of pollutants to the maximum extent practicable. An inventory of vulnerable road segments will be addressed in the Caltrans District Work Plans (Caltrans, 2018b). Stabilization activities are described in the Annual Report.

Road segments within each ASBS that are prone to erosion are identified in Appendix B. These locations will be monitored continuously for erosion, and, where erosion is found, slopes will be stabilized according to the Design Guidance for Final Soil Stabilization (Caltrans, 2016a).

Final soil stabilization will be achieved through the implementation of permanent perennial vegetation or the application of long-term, non-degradable materials to cover 100 percent of the disturbed soil areas. Permanent planting consists of hydroseeding with native grasses and forbs. Permanent vegetation consists of trees, shrubs, and ground cover. These plants will be installed with short-term, degradable erosion control practices consisting of compost, rolled erosion control products, and fiber rolls. The permanent vegetation is expected to establish within three years, with at least 70 percent cover after the first rainy season, and to mature over 15 years. An irrigation system will be installed to establish the planting. All of the disturbed soil areas will be covered with a combination of plantings and wood chip mulch. Long-term, non-degradable materials consist of rock slope protection (80 percent) and gore paving (20 percent) of disturbed soil areas and are expected to provide immediate cover.

5. Non-Structural Best Management Practices

This section describes the non-structural BMPs currently employed and those planned in the future (including those for construction activities). Non-structural BMPs are incorporated in all Caltrans design, operations, and maintenance projects. The *Caltrans Statewide Stormwater Management Plan* details all currently employed procedures for these BMPs (Caltrans, 2016b) and is referenced for each procedure described below.

5.1. Currently Employed Procedures (Permit Section C4 Item 8)

5.1.1. Accidental Spills (*Caltrans Statewide Stormwater Management Plan* Section 10.2) (Permit Section C4 Item 8)

Accidental spills are illicit discharges resulting from one-time deposits of materials or wastes onto roadways or the right-of-way, which could threaten water quality by potential discharge to water conveyances. Caltrans notifies the appropriate agencies of reported or discovered spills consistent with applicable California Emergency Management Agency procedures in California Water Code Sections 13271 and 13272.

5.1.2. Spill Response (*Caltrans Statewide Stormwater Management Plan* Section 10.2.1) (Permit Section C4 Item 8)

Generally, the responsible party (transporter, etc.) is required by state law to report any spill that threatens public health or the environment. When spills are discovered on Caltrans right-of-way, properly credentialed personnel are mobilized to assess the situation. The agency with jurisdiction assumes authority as the incident commander, generally the California Highway Patrol. These spills are illicit discharges resulting from one-time deposits of materials or wastes. Caltrans is the lead in charge of the cleanup activity, unless directed otherwise by the incident commander. All spilled materials are managed to protect public safety and the environment, including water quality. Caltrans coordinates with local health agencies and other local, state, and federal agencies (e.g., Department of Fish and Wildlife, Coast Guard, Regional Water Quality Control Board, etc.) as appropriate to determine the approach and level of cleanup needed. This coordination is accomplished through direct communication with the agency involved or through the California Emergency Management Agency, depending on the circumstances of the spill.

5.1.3. Cleanup Activities (*Caltrans Statewide Stormwater Management Plan* Section 10.2.2) (Permit Section C4 Item 8)

Caltrans' District Hazardous Materials Manager within District Maintenance is in charge of the spill cleanup activity unless directed otherwise by the incident commander (e.g., California Highway Patrol for highways, etc.). Caltrans has trained in-house and contract hazardous response staff with the responsibility to manage and clean up spills to protect public safety and the environment. Caltrans coordinates with local, state, and federal agencies (e.g., County Environmental Health, County Agriculture, Department of Fish and Wildlife, Coast Guard,

Regional Water Quality Control Board, etc.), as appropriate to determine the approach and level of cleanup needed. Depending on the circumstances or significance of the spill, this coordination is made directly or through the California Emergency Management Agency. Each district prepares and implements a District Hazardous Spill Contingency Plan on an annual basis for describing the details of the above activities.

5.1.4. Construction Projects (*Caltrans Statewide Stormwater Management Plan* Section 10.2.3) (Permit Section C4 Item 8)

The Resident Engineer reports accidental spills occurring on a construction project to the District Hazardous Waste Coordinator, the District NPDES Coordinator, and/or the District HazMat Manager, as appropriate. The cleanup activities described above are also applicable to construction projects.

5.1.5. Illegal Connections and Illegal Dumping (*Caltrans Statewide Stormwater Management Plan* Section 10.3) (Permit Section C4 Item 8)

Maintenance, Construction, or Encroachment Permit staff report illegal connections to the District NPDES Coordinator. The District NPDES Coordinator reports any discharges that threaten public health or the environment to the Office of Emergency Services and other agencies, as appropriate. In addition, illegal connections outside the right-of-way and up gradient flows entering Caltrans' stormwater conveyances are reported to the Regional Water Quality Control Board for enforcement.

Illegal dumping is a type of discharge characterized by one or multiple occasions of intentional dumping of trash, debris, or other wastes on state highways or facilities. Such activity is prohibited by state and local laws and is enforced by the California Highway Patrol and/or local law enforcement agencies. Caltrans relies primarily upon the California Highway Patrol for investigation, surveillance, and apprehension of suspects believed to have illegally dumped wastes within the highway system and other Caltrans facilities. If an investigation reveals sufficient evidence, the case is referred to the District Attorney or County Environmental Health Department for enforcement. Responsible parties are billed for cleanup and disposal costs incurred.

Caltrans developed an *Illicit Connection/Illegal Discharge and Illegal Dumping Response Plan* (Caltrans, 2013) that includes the procedures for the following:

- Investigating reports or discoveries of Illicit Connections/Illegal Discharges or incidents of illegal dumping, for remediating or eliminating the Illicit Connections/Illegal Discharges, and for cleanup of illegal dumpsites;
- Preventing illegal dumping at sites subject to repeat or chronic incidents of illegal dumping; and
- Educating the public, raising awareness and changing behaviors regarding illegal dumping, and encouraging the public to contact the appropriate local authorities if they witness illegal dumping.

5.1.6. Public Education and Outreach (*Caltrans Statewide Stormwater Management Plan* Section 12) (Permit Section C4 Item 8)

Revisions to the public education strategy are largely based on the results of a litter reduction study discussed in the *District 7 Litter Management Pilot Study Final Report* (Caltrans, 2000). "Don't Trash California" was Caltrans' largest public education campaign to promote actions to reduce the amount of highway litter entering the highway storm drain systems. Caltrans collaborated with various organizations at both the state and local levels. The effectiveness of this campaign as well as lessons learned were documented in the *Caltrans Public Education Research Study Final Report* (Caltrans, 2003). These lessons have shaped subsequent public education and outreach programs.

5.1.7. Current Public Education and Outreach Campaigns (Permit Section C4 Item 8)

Caltrans launched the "Protect Every Drop" campaign in 2016 as a statewide comprehensive stormwater pollution prevention public education program. This program used lessons learned from the previous "Don't Trash California" campaign and expanded the subject matter to include all stormwater pollutants. The educational materials developed by Caltrans are available free of charge to local and regional agencies and have been tailored by these agencies to target high priority pollutants in their area.

In addition to the "Protect Every Drop" campaign, Caltrans launched another campaign in October of 2021 that specifically targets trash in regards to water quality. The "Let's Change This to That" campaign focuses on striking visual comparisons between heavily littered beaches, roadsides, and landscapes and pristine versions of the same. This is a statewide campaign with many local and regional partnerships as well as direct funding opportunities, such as the Clean California Local Grant Program.

Caltrans participates in additional statewide and district-specific public education campaigns. Statewide programs include anti-litter campaigns, such as Adopt-A-Highway, anti-litter signs, and regular employee training about stormwater management. District programs typically include collaborating with local agencies, participating in state and county fairs, sponsoring cleanup events, and distributing educational materials to local agencies and the public.

5.1.8. Maintenance BMPs (*Caltrans Statewide Stormwater Management Plan* Section 8.2.3) (Permit Section C4 Item 8)

Maintenance BMPs are implemented by Caltrans wherever maintenance activities are performed; this includes ASBS. These maintenance BMPs ensure that maintenance activities are conducted in a manner that reduces or eliminates the potential for pollutants being discharged to surface waters via stormwater drainage systems. Potential pollutants from Caltrans maintenance activities include petroleum products, sediment, trash and debris, metals, caustic and acidic substances, nutrients, solvents, paint, pesticides, and other materials. Many of these potential pollutants can be prevented from being discharged via stormwater drainage systems by selecting and implementing BMPs appropriate for the activity and task being conducted.

Maintenance activities are grouped into "families" based on crew assignment (e.g., asphalt paving is in the 'A' Family, which covers Flexible Pavement). Caltrans' Division of Maintenance develops stormwater BMPs for each activity and provides training to staff about proper implementation. Maintenance Supervisors are responsible for implementation of BMPs for all maintenance activities, as identified in the *Caltrans Stormwater Quality Handbook Maintenance Staff Guide* (Caltrans, 2018a).

5.1.9. Construction Site Controls (*Caltrans Statewide Stormwater Management Plan* Section 5.3) (Permit Section C4 Item 8)

Caltrans implements Construction Site BMPs on every project within ASBS locations by including details and specification requirements in the project's contract documents. Construction Site BMPs are implemented in conformance with the project Water Pollution Control Program or Storm water Pollution Prevention Plan. Construction site BMPs that Caltrans implements, as appropriate, on construction sites are listed in the *Caltrans Construction Site Best Management Practices (BMP) Manual* (Caltrans, 2017). These BMPs are required under the Statewide Construction General Permit and are intended to implement its technical requirements. The selected BMPs focus on reducing or eliminating pollutants in stormwater discharges.

Caltrans inspects all construction sites within ASBS as specified in Attachment D of the 2022 Construction General Permit. When the Department or a Department contractor has an industrial facility subject to the Stormwater Discharges Associated with Industrial Activities Permit (Industrial General Permit), such as a concrete batch plant or borrow area, the Department or the Department contractor complies with all of the requirements of the 2014 Industrial General Permit as specified in Section C3.4 of Attachment C of the 2022 Caltrans NPDES Statewide Stormwater Permit.

Implementation of inspection and enforcement activities are ensured through the Construction Enforcement Response Program detailed in the *Caltrans Statewide Stormwater Management Plan* Section 2.8.3. This program identifies and resolves compliance issues though a methodical escalating approach to ensure that conformance is achieved (Caltrans, 2016b).

5.2. BMPs for Future Consideration (Permit Section C4 Item 8)

5.2.1. Public Education and Outreach (Permit Section C4 Item 8)

To expand on "Let's Change This to That" public education and outreach effort, the campaign will focus on trying to educate the public on what the most common pollutants are in each region and how to prevent them from ending up in our waterways. Solidifying close partnerships around the state is another focus of the campaign. along with solidifying close partnerships around the state. Additional campaign components will include: radio, outdoor (billboards), paid digital ads, and paid and organic social media (Facebook and Twitter).

6. ASBS Compliance Strategy

6.1. Key Terms and Relationships

- **Ocean Receiving Water Site:** The one monitoring site chosen to represent the impact that stormwater outfalls have on the ocean for that ASBS. These sites are located where the associated coupled outfall discharge meets the ocean water in the surf zone.
- **Coupled Outfall:** A stormwater conveyance (pipe, channel, culvert, etc.) whose discharge reaches the surf zone of the ocean during a storm event. Water quality sampling is performed at the outfall during a storm event. Ocean Receiving Water sampling is performed where the outfall water meets the ocean.
- **Storm Event (Event):** The date a rainstorm occurred at a specific location and caused sufficient runoff for stormwater to discharge from the outfall, reach the ocean, and be monitored.
- **Natural Water Quality:** A set of water quality values established to ensure the protection of the beneficial uses identified in the Ocean Plan.
- **Exceedance of Natural Water Quality:** Two consecutive storm events in which the constituent concentration values of the Post-Storm Ocean Receiving Water Site are greater than the Natural Water Quality value and the respective pre-storm constituent concentration values.

The ASBS Special Protections require monitoring of ASBS receiving water for a minimum of six storm events over two wet seasons to evaluate Natural Water Quality exceedances. This six-storm requirement has been met in all ASBS in which Caltrans has priority discharges.

The process for determining an exceedance of Natural Water Quality at an ASBS is detailed in the 2012 NPDES Permit (SWRCB 2012, 2014, 2017). The process relies solely on sample data for the receiving water. The assumption in this method is that if a constituent concentration in the receiving water increases during a storm event, the constituent increase must be caused by the coupled outfall, though the coupled outfall sample data is not used in this determination. However, a footnote states: "Note, when sampling data is available, end of pipe effluent concentrations will be considered by the Water Boards in making this determination" (SWRCB, 2012, 2014, 2017).

The following sections present a proposed strategy to demonstrate that Caltrans is not causing or contributing to alteration of Natural Water Quality for each location/parameter pair in Table C-1 of the Caltrans NPDES Permit. The strategy relies on generally accepted BMP approaches of treatment and source control. Compliance with Natural Water Quality is evaluated at the receiving water.

6.2. Implementation Strategies (Permit Section C4 Item 10)

The *Caltrans Project Planning and Design Guide* requires that all projects incorporate certain minimum measures with respect to stormwater quality, which include the following (*Caltrans Project Planning and Design Guide* Section 6.4.7.2):

- Minimize Impervious Surfaces: Impervious surfaces will be minimized to reduce the volume of runoff.

- Prevent Downstream Erosion: Stormwater drainage systems will be designed to avoid downstream erosion.
- Stabilize Disturbed Soil Areas: Disturbed Soil Areas will be appropriately stabilized to prevent erosion.
- Maximize Vegetated Surfaces: Vegetated surfaces will be maximized to prevent erosion, promote infiltration (which reduces runoff), and remove pollutants from stormwater.

The following site design principles shall be incorporated as feasible for all projects:

- Conserve natural areas, including existing trees, stream buffer areas, vegetation, and soils.
- Minimize the impervious footprint of projects.
- Minimize disturbances to natural drainages.
- Design pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope, and other design factors.
- Implement landscape and soil-based BMPs, such as amended soils and vegetated strips and swales, where feasible.
- Use climate-appropriate landscaping that minimizes irrigation and runoff. This promotes surface infiltration and minimizes the use of pesticides and fertilizers.

To ensure implementation of the above strategies, Caltrans uses a peer-review process of the stormwater data report that accompanies each project. This includes review by the functional groups: construction, maintenance, design, and environmental.

6.3. Enhanced BMP Siting and Selection at Impacted ASBS (Permit Section C4 Item 1)

Table 3 lists locations and parameter pairs for which the Department is required to demonstrate compliance.

Table 3. Areas of Special Biological Significance with Exceedances

Area of Special Biological Significance Index No. and Name	Ocean Receiving Water Site Identification Number	Reported Exceedances of Natural Ocean Water Quality
ASBS 08, Redwood National Park	1-323	Total suspended solids, arsenic, copper, lead, mercury, nickel, selenium
ASBS 09, James G. Fitzgerald	4-342	Dissolved orthophosphate, total suspended solids, copper, lead, zinc, toxicity
ASBS 15, Año Nuevo	4-346	Fecal coliform, enterococcus, total suspended solids, oil & grease, nitrogen, arsenic,

Area of Special Biological Significance Index No. and Name	Ocean Receiving Water Site Identification Number	Reported Exceedances of Natural Ocean Water Quality
		cadmium, chromium, copper, lead, mercury, nickel, zinc
ASBS 34, Carmel Bay	5-305	Cadmium, lead, mercury, zinc
ASBS 24, Laguna Point to Latigo Point	7-407	Ammonia, selenium, polycyclic aromatic hydrocarbons

Source: 2022 Caltrans NPDES Permit, Table C-1.

Department discharges associated with the receiving water locations listed in Table 3 are listed in Table 4. These locations (outfalls) within ASBS could be potential candidates for enhanced BMPs, subject to technical feasibility.

Table 4. Caltrans Coupled Outfall Locations Associated with the Ocean Receiving Water Sites in Table 3

Area of Special Biological Significance Index No. and Name	Department Coupled Outfall Site Identification Number	Reported Exceedances of Natural Ocean Water Quality
ASBS 08, Redwood National Park	1-322	Total suspended solids, arsenic, copper, lead, mercury, nickel, selenium
ASBS 09, James G. Fitzgerald	4-341	Dissolved orthophosphate, total suspended solids, copper, lead, zinc, toxicity
ASBS 15, Año Nuevo	4-345	Fecal coliform, enterococcus, total suspended solids, oil & grease, nitrogen, arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc
ASBS 34, Carmel Bay	5-304	Cadmium, lead, mercury, zinc
ASBS 24, Laguna Point to Latigo Point	7-345	Ammonia, selenium, polycyclic aromatic hydrocarbons

6.3.1. BMP Selection Process (Permit Section C4 Item 10)

1. Consider source control BMPs (e.g., additional sweeping or roadside erosion control) for all locations identified for enhanced BMPs.
2. Consider retrofit controls with diversion and/or approved BMPs for locations where:
    a. Source controls are not expected to reduce the discharge concentrations to a level that would be less than the Natural Water Quality value, and
    b. Location is listed in the permit as a priority, and
    c. Primary pollutant sources are highway, vehicle, and aerial deposition,[1] and
    d. Discharge concentration > 1.2 times[2] the Natural Water Quality value, and
    e. Pollutant can be treated by diversion and/or an approved BMP that controls stormwater runoff discharges during a design storm, including the achievement, on average, of the following target levels (Section C4.11 of the Caltrans NPDES Permit 2022):
        1. Instantaneous Maximum Water Quality Objectives in Chapter II, Table 3, of the Ocean Plan; or
        2. A 90 percent reduction in pollutant loading during storm events, for the Department's total discharges.
    f. Consider, and use where feasible, approved low-impact development practices to infiltrate, use, or evapotranspire stormwater runoff on site, if low-impact development practices are the most effective at reducing pollutants from entering the areas of special biological significance.
3. Consider retrofit controls with unapproved or enhanced approved BMPs for locations where:
    a. An approved BMP is not expected to infiltrate or achieve, on average, the Instantaneous Maximum Water Quality Objectives in Chapter II, Table 3, of the Ocean Plan or a 90 percent reduction in pollutant loading during storm events, and
    b. An enhanced, approved BMP or modification to Caltrans-approved BMPs includes or enhances a removal mechanism that is expected to reduce the target pollutant. Examples of enhanced or modified BMPs are alternative media filters and multi-benefit gross solids removal devices.

[1]Pollutant sources from the Department properties, facilities, and activities include motor vehicles, highway surface materials such as fine particles of asphalt and concrete, highway maintenance products, construction activities, erodible shoulder materials, eroding cut and filled slopes, abrasive sand and deicing salts used in winter operations, abraded tire rubber, maintenance facilities, illegal connections, illegal dumping, fluids from accidents and spills, and landscape care products.

Pollutant categories include, but are not limited to, metals (such as copper, lead, and zinc), synthetic organic compounds (pesticides), Polycyclic Aromatic Hydrocarbons from vehicle emissions, oil and grease, Total Petroleum Hydrocarbons, sediment, nutrients (nitrogen and phosphorus fertilizers), debris (trash and litter), pathogens, and oxygen-demanding substances (decaying vegetation, animal waste, and other organic matter) (Caltrans, 2012).

[2] A factor of 1.2 allows for laboratory analysis error and uncertainty, avoiding the risk of installing a BMP for a location that may not be needed if the site were better characterized during the couple of storm events that identified the ASBS as experiencing a change in natural water quality.

7. Corrective Action Plan

A comparison of runoff discharge quality from Caltrans outfalls to the Instantaneous Maximum Water Quality Objectives in Chapter II, Table 3, of the Ocean Plan indicates that Caltrans runoff is generally in compliance for most of the constituents identified in Table C-1 of the Permit. For these constituents, little or no additional treatment is required to meet the objectives in Chapter II, Table 3, of the Ocean Plan.

The objective of the corrective actions described below is to control stormwater runoff discharges and achieve, on average, a 90 percent reduction in pollutant loading during design storm events for constituents that do not meet Chapter II, Table 3 of the Ocean Plan objectives. Targeting a 90 percent reduction in pollutant loading through volume reduction is expected to meet water quality objectives.

In some instances, cultural/tribal and endangered species issues might preclude the installation of structural treatment measures and source control/institutional measures could be better alternatives.

The proposed corrective actions and the methods to demonstrate compliance for the Department's discharges to the ASBS with exceedances of Natural Water Quality are listed in Tables 5 through 9.

The corrective actions are based on preliminary site assessments provided in Appendix C. Many potential BMPs were evaluated, including diversion, infiltration devices, media filters, bioretention, and Design Pollution Prevention Infiltration Area low-impact development BMPs (see Appendix D). BMPs that have been installed or that are proposed in ASBS areas are provided in Appendix E.

A direct discharge to an ASBS that is diverted to another water body is considered an indirect discharge to the ASBS and is not subject to the ASBS Special Protections. This is stated in the ASBS Special Protections Environmental Impact Report (SWRCB, 2012):

> Historically, the State Water Board has applied the prohibition to "direct discharges" regardless of whether the discharge represents point or nonpoint source. The prohibition does not apply to upstream discharges to rivers that flow into ASBS. These indirect discharges into naturally occurring streams are regulated under the Basin Plans by the Regional Water Boards to protect downstream beneficial uses.

These concepts are underscored by findings of the State Water Board's Office of Chief Counsel in *Applicability of the Ocean Plan to Inland Discharges* **Invalid source specified.**, provided in Appendix F. Diversions will be implemented only where no other treatment measures are feasible and the receiving conveyance will not be significantly impacted by the diverted flows. Caltrans will assess the receiving conveyance's ability to convey the increased flows resulting from the diversion in terms of hydrology, hydraulic capacity, and stability. Construction activities within the conveyance will be avoided. Caltrans will follow established guidelines on assessing hydromodification impacts described in the *Caltrans Hydromodification Requirements Guidance* (Caltrans, 2015).

The assessments indicate that Design Pollution Prevention Infiltration Areas are generally feasible for the treatment of on-site flows. Design Pollution Prevention Infiltration Areas are

structural BMPs consisting of vegetated and non-vegetated pervious areas, depending on site-specific conditions, that promote infiltration of stormwater runoff. Design Pollution Prevention Infiltration Areas can be adjacent to impervious areas to allow stormwater runoff to flow over the infiltration area as sheet flow, or Design Pollution Prevention Infiltration Areas can receive concentrated flows (e.g., from rock-lined ditches). Infiltration is the primary means of pollutant removal from the water quality volume, but additional removal by sedimentation, adsorption to soil particles, and filtration through vegetation may also occur. Design Pollution Prevention Infiltration Areas are highly effective at removing sediments, nutrients, pesticides, total and dissolved metals, mercury, pathogens, bacteria, and turbidity (Caltrans, 2023). Design Pollution Prevention Infiltration Area effectiveness varies with the amount of infiltration.

Caltrans will use the *Caltrans Design Pollution Prevention Infiltration Area Design Guidance* (Caltrans, 2021a) to implement Design Pollution Prevention Infiltration Areas that satisfy permit requirements while considering site-specific soil conditions and adequate maintenance protocols. The *Caltrans Design Pollution Prevention Infiltration Area Design Guidance* is based on Caltrans' pilot studies of infiltration-type devices and design experience. The pilot studies and design experience have demonstrated that successful Design Pollution Prevention Infiltration Areas must be stabilized areas that promote infiltration. To achieve stabilization and infiltration, both vegetative and non-vegetative methods can be effective, depending on site-specific conditions.

Caltrans has developed and implemented the Caltrans Infiltration Tool to help engineers design Design Pollution Prevention Infiltration Areas. The Caltrans Infiltration Tool is used to help design amendments and to determine storage capacity and infiltration properties of the soils and amendments. The tool is designed to provide a hydrograph-based, design storm calculation methodology to help Caltrans designers estimate and track the volume of stormwater infiltration into amended soils. The Caltrans Infiltration Tool calculates and tracks areas (pervious, impervious, and treated) and volumes (rainfall, abstraction, infiltration, flow-through treatment, bypass, and runoff) at different scales (project, individual drainage area, and treatment BMP area).

Caltrans will use the EPA Storm Water Management Model (https://www.epa.gov/water-research/storm-water-management-model-swmm) to show compliance with either the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges or the Instantaneous Maximum Water Quality Objectives in Table 3 of the Ocean Plan (see Appendix G). The EPA Storm Water Management Model is a continuous simulation model that allows analyses of a full range of historical meteorological conditions, rather than just a single design storm event. Tailored to urban stormwater management, the model can simulate overland and pipe flow, perform water flow and pollutant loading calculations, and be used to assess control of site runoff using green infrastructure practices. The model also takes into account local soil conditions, land cover, and meteorology to estimate the amount of stormwater runoff generated from a site under different control scenarios. The resulting time series of rainfall and runoff can be used to report various runoff and retention statistics.

To demonstrate compliance using the EPA Storm Water Management Model, Caltrans will:

1. Ensure an average 90 percent volume reduction over all storm events. The Design Pollution Prevention Infiltration Area sizing (footprint) will be adjusted, if feasible, to meet this goal.

2. Evaluate pollutant load reductions and compare treatment to the Instantaneous Maximum Water Quality Objectives in Table 3 of the Ocean Plan if an average 90 percent volume reduction is not feasible (e.g., due to insufficient space).

Level 1 analysis focuses on retention to maximize pollutant load reduction but may not be feasible at all sites.

Level 2 analysis focuses on load reductions and expected discharge concentrations and may be the only feasible option at some sites. Caltrans runoff is generally in compliance for most constituents, based on a comparison of runoff discharge quality from Caltrans outfalls to the Instantaneous Maximum Water Quality Objectives in Table 3 of the Ocean Plan.

7.1. ASBS 8, Redwoods National Park (Permit Section C4 Items 6, 10)

Four seasons of monitoring data at the Redwood National Park ASBS resulted in exceedances of natural water quality for arsenic, copper, lead, mercury, nickel, selenium, and total suspended solids in this ASBS. No receiving or outfall water toxicity was detected.

Constituents Requiring Action: total suspended solids, arsenic, copper, lead, mercury, nickel, and selenium

7.1.1. Planned Corrective Actions (Permit Section C4 Item 6)

Source Control: Sediment control, sweeping, drain cleaning

Off-site Flows: Segregate off-site flows

Structural BMPs: Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas individually, Design Pollution Prevention Infiltration Areas as part of a treatment train

7.1.2. Demonstration of Compliance Strategy (Permit Section C4 Item 10)

Table 5. ASBS 8 Coupled Outfall and Receiving Water Demonstration of Compliance Strategy

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
1-323 (RED028RW), 1-322 (RED028)	Total suspended solids, arsenic, copper, lead, mercury, nickel	Sediment control, sweeping, drain cleaning, segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	Modeling based on available science and supported by additional monitoring, as needed
1-323 (RED028RW), 1-322 (RED028)	Selenium	Sediment control, sweeping, drain	Modeling based on available science and

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
		cleaning, segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas Because selenium is not a known vehicle- or roadway-based pollutant and occurs in coastal formations, erosion control and separation of baseflow from cut slopes are also potential corrective actions.	supported by additional monitoring, as needed

[1]Caltrans plans to use the EPA Storm Water Management Model to show compliance with the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges.

7.2. ASBS 9, James V. Fitzgerald (Permit Section C4 Items 6, 10)

Four seasons of monitoring data at the James V. Fitzgerald ASBS resulted in exceedances of natural water quality for copper, lead, zinc, total suspended solids, dissolved orthophosphate, and toxicity.

Constituents Requiring Action: copper, lead, zinc, total suspended solids, dissolved orthophosphate, and toxicity

7.2.1. Planned Corrective Actions (Permit Section C4 Item 6)

Source Control: Sediment control, sweeping, drain cleaning

Off-site Flows: Segregate off-site flows

Structural BMPs: Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas individually, Design Pollution Prevention Infiltration Areas as part of a treatment train, wet weather diversion to sanitary sewer

7.2.2. Demonstration of Compliance Strategy (Permit Section C4 Item 10)

Table 6. ASBS 9 Coupled Outfall and Receiving Water Demonstration of Compliance Strategy

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
4-342 (FIT012ORW), 4-341 (FIT012)	Dissolved orthophosphate, total suspended solids, copper, lead, zinc, toxicity	Sediment control, sweeping, drain cleaning, segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas, wet weather diversion to sanitary sewer	Modeling based on available science and supported by additional monitoring, as needed Toxicity is assumed to be attributed to copper, lead, or zinc

[1]Caltrans plans to use the EPA Storm Water Management Model to show compliance with the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges.

7.3. ASBS 15, Año Nuevo (Permit Section C4 Items 6, 10)

Four seasons of monitoring data at the Año Nuevo ASBS resulted in exceedances of natural water quality for arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, total suspended solids, oil and grease, nitrogen, fecal coliform, and enterococcus. There were no receiving water toxicity exceedances.

Constituents Requiring Action: arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, total suspended solids, oil and grease, nitrogen, fecal coliform, and enterococcus

7.3.1. Planned Corrective Actions (Permit Section C4 Item 6)

Source Control: Sediment control, sweeping, drain cleaning

Off-site Flows: Segregate off-site flows

Structural BMPs: Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas individually, Design Pollution Prevention Infiltration Areas as part of a treatment train

7.3.2. Demonstration of Compliance Strategy (Permit Section C4 Item 10)

Table 7. ASBS 15 Coupled Outfall and Receiving Water Demonstration of Compliance Strategy

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
4-346 (ANO033ORW), 4-345 (ANO033)	Total suspended solids, nitrogen, arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc	Sediment control, sweeping, drain cleaning, segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	Modeling based on available science and supported by additional monitoring, as needed
4-346 (ANO033ORW), 4-345 (ANO033)	Oil & grease	Source control is sufficient to meet the Instantaneous Maximum Water Quality Objectives in Chapter II, Table 3, of the Ocean Plan	Additional monitoring for design storm events that are not infiltrated or diverted
4-346 (ANO033ORW), 4-345 (ANO033)	Fecal coliform and enterococcus	Segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	Additional monitoring, as needed, for design storm events that are not infiltrated or diverted

[1]Caltrans plans to use the EPA Storm Water Management Model to show compliance with the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges.

7.4. ASBS 34, Carmel Bay (Permit Section C4 Items 6, 10)

Three seasons of monitoring data at the Carmel Bay ASBS resulted in exceedances of natural water quality for cadmium, lead, mercury, and zinc in this ASBS. No receiving or outfall water toxicity was detected.

Constituents Requiring Action: cadmium, lead, mercury, and zinc

7.4.1. Planned Corrective Actions (Permit Section C4 Item 6)

Source Control: Sediment control, sweeping, drain cleaning, product replacement for items that might contribute zinc

Off-site Flows: Segregate off-site flows

Structural BMPs: Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas individually, Design Pollution Prevention Infiltration Areas as part of a treatment train

7.4.2. Demonstration of Compliance Strategy (Permit Section C4 Item 10)

Table 8. ASBS 34 Coupled Outfall and Receiving Water Demonstration of Compliance Strategy

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
5-305 (CAR007B-ORW), 5-304 (CAR007B)	Cadmium, lead, mercury, zinc	Sediment control, sweeping, drain cleaning, segregating comingled flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	Modeling based on available science and supported by additional monitoring, as needed

[1]Caltrans plans to use the EPA Storm Water Management Model to show compliance with the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges.

7.5. ASBS 24, Laguna Point to Latigo Point (Permit Section C4 Items 6, 10)

Five seasons of monitoring data at the Laguna Point to Latigo Point ASBS resulted in exceedances of natural water quality for selenium, Polycyclic Aromatic Hydrocarbons, and ammonia in this ASBS. There were no receiving water toxicity exceedances.

Constituents Requiring Action: selenium, Polycyclic Aromatic Hydrocarbons, and ammonia

7.5.1. Planned Corrective Actions (Permit Section C4 Item 6)

Source Control: Sediment control, sweeping, drain cleaning

Structural BMPs: Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas individually, Design Pollution Prevention Infiltration Areas as part of a treatment train

7.5.2. Demonstration of Compliance Strategy (Permit Section C4 Item 10)

Table 9. ASBS 24 Coupled Outfall and Receiving Water Demonstration of Compliance Strategy

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
7-407 (MUG010RW), 7-345 (MUG010)	Selenium	Sediment control, sweeping, drain cleaning, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas Because selenium is not a known vehicle- or roadway-based pollutant and occurs in coastal formations, erosion control and separation of baseflow from cut slopes are also potential corrective actions	Treatment effectiveness monitoring
7-407 (MUG010RW), 7-345 (MUG010)	Ammonia	Sediment control, sweeping, drain cleaning, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas Because ammonia is not a known vehicle- or roadway-based pollutant, erosion control, vegetation management (especially in temporary stockpiles), and animal management are also potential corrective actions	Modeling based on available science and supported by additional monitoring, as needed

Locations	Constituent	Corrective Actions	Demonstration of Compliance Method[1]
7-407 (MUG010RW), 7-345 (MUG010)	Polycyclic aromatic hydrocarbons	Sediment control, sweeping, drain cleaning, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas Because polycyclic aromatic hydrocarbons are potential roadway-based pollutants, disposal of pavement raveling or decomposition and prevention measures for asphalt concrete grindings leachate discharges and control of illegal campfires or campground debris are also potential corrective actions	Modeling based on available science and supported by additional monitoring, as needed

[1]Caltrans plans to use the EPA Storm Water Management Model to show compliance with the target 90 percent reduction in pollutant loading during storm events, on average, for Caltrans' total discharges.

7.6. Cooperative Agreements

Caltrans has started contacting other ASBS dischargers to identify possible opportunities for BMP collaborations.

8. Implementation Schedule

The five locations identified for corrective actions have been included in the 2023 State Highway System Management Plan inventory, as first steps toward addressing these rehabilitation needs. The planning for these projects may have been initiated as early as 2023 depending on district priorities and funding availability. The districts prioritize projects proposed in the State Highway System Management Plan and include them in their respective Portfolio of Projects. Once that happens, Project Initiation Documents are prepared, and then projects become candidate projects to be included in the State Highway Operations and Protection Plan. The Project Initiation Documents for projects addressing ASBS locations include implementation schedules with milestone dates. Caltrans has completed a preliminary site-specific feasibility evaluation of non-structural and structural controls at the five locations.

Table 10. Implementation Schedule

ASBS Priority Discharge Location	BMP Type	BMP Description	Schedule			
			Project Initiation Documents	Project Approval/ Environmental Documents	Plans, Specifications, and Estimates	Project Completion
8-Redwoods National Park	Non-Structural	Sediment control, sweeping, drain cleaning	N/A	N/A	N/A	Ongoing
	Structural	Segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	FY24/25	FY25/26	FY27/28	TBD
9-James V. Fitzgerald	Non-Structural	Sediment control, sweeping, drain cleaning	N/A	N/A	N/A	Ongoing
	Structural	Segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas, wet weather diversion to sanitary sewer	June 2025	FY28/29	FY29/30	TBD
15- Año Nuevo	Non-Structural	Sediment control, sweeping, drain cleaning	N/A	N/A	N/A	Ongoing

ASBS Priority Discharge Location	BMP Type	BMP Description	Schedule			
	Structural	Segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	June 2025	FY28/29	FY29/30	TBD
34-Carmel Bay	Non-Structural	Sediment control, sweeping, drain cleaning	N/A	N/A	N/A	Ongoing
	Structural	Segregating off-site flows, diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	June 2025	FY28/29	FY29/30	TBD
24-Laguna Point to Latigo Point	Non-Structural	Sediment control, sweeping, drain cleaning, separation of baseflow from cut slopes (selenium), vegetation and animal management (ammonia), disposal of pavement raveling or decomposition and removal or capping of asphalt concrete grindings (Polycyclic Aromatic Hydrocarbons), control of illegal campfires or campground debris (Polycyclic Aromatic Hydrocarbons)	FY24/25	FY25/26	FY27/28	Ongoing
	Structural	Diversion to non-ASBS waterbody, Design Pollution Prevention Infiltration Areas	June 2025	FY28/29	FY29/30	TBD

8.1. Environmental Planning Process

For any planned activity within the coastal zone, a series of permits must be obtained. These permits include approval from the California Coastal Commission or local coastal program, and before construction, local jurisdiction's approval. Additional agencies that may have jurisdiction over the aforementioned include:

- California Department of Fish and Wildlife
- California Department of Parks and Recreation
- County governments
- National Marine Sanctuaries
- Regional Water Quality Control Boards
- US Army Corps of Engineers
- USDA Forest Service
- US Fish and Wildlife Service

The processing time for permits can vary from a couple months to more than a year.

9. Adaptive Management

Caltrans will evaluate, modify, and manage the treatment BMPs proposed in Section 7 to ensure that the goals of ASBS compliance are met. Caltrans supports adaptive management alternatives consistent with the *Caltrans Statewide Stormwater Management Plan* (Caltrans, 2016b).

To qualify for use, treatment BMPs must be tested and proven to be compatible with the linear nature of highway infrastructure and to efficiently remove roadway pollutants. As part of this testing process, Caltrans performs a desktop evaluation and develops BMP fact sheets summarizing key design elements, advantages, and constraints. BMP fact sheets serve as preliminary screening tools for selecting BMPs when approved BMPs cannot meet project-specific treatment performance requirements, or when they cannot be deployed due to other constraints. BMP fact sheets are presented in the *Treatment BMP Technology Report* (Caltrans, 2021b). Some adaptive management alternatives for potential future evaluation are open-graded friction course, pervious asphalt pavement, linear sand filters with alternative media, and linear biofiltration trenches.

9.1. Open-Graded Friction Course (Permit Section C4 Item 11)

Open-graded friction course is a porous pavement overlay that uses filtration through the void space of the open-graded friction course layer as its pollutant removal treatment mechanism. Open-graded friction course provides a water quality benefit primarily related to particulate-bound pollutants. Open-graded friction course is not effective at treating dissolved pollutants, and thus would not be used as a stand-alone BMP for treating direct discharges of these pollutants to an ASBS. Open-graded friction course may be incorporated as part of a treatment train with other structural BMPs, such as Design Pollution Prevention Infiltration Areas, to provide additional treatment that may be required to meet water quality objectives.

9.2. Pervious Asphalt Pavement (Permit Section C4 Item 11)

Pervious asphalt pavement has become popular in the area of stormwater management. The treatment method is infiltration. Pervious asphalt pavement is composed of a permeable asphalt surface placed over a granular "choke" course that is on top of a reservoir of large stone. The lower reservoir layer is designed to meet load requirements and provide water storage capacity. An overflow for the reservoir layer is recommended in case of insufficient infiltration. Pervious asphalt pavement may be designed to accept run-on from adjacent impervious areas (e.g., roofs), parking lots, park-and-ride areas, maintenance access roads, rest areas, and maintenance stations. The advantages of pervious asphalt pavement include:

- elimination of surface discharge up to the design storm when properly sized in suitable soils;
- below-grade infiltration, which inhibits access for mosquitoes;
- reduction or elimination of space needed for other BMPs;
- ability to address all pollutants (except litter); and
- a lifespan of 20 years or more.

While pervious pavement has become very popular, its applicability to the highway environment is still unclear. Additional studies are required to determine the feasibility and life-cycle costs for pervious pavement for highway application. If feasible, pervious pavement can also be used as

part of a treatment train with other structural BMPs, such as Design Pollution Prevention Infiltration Areas, to provide additional treatment that may be required to meet water quality objectives.

9.3. Alternative Media (Permit Section C4 Item 11)

Alternative media, such as an adsorptive manufactured media that removes dissolved metals, may be added to a conventional BMP such as an Austin Sand Filter or Design Pollution Prevention Infiltration Areas. Alternative media tested by Caltrans includes activated alumina, iron-modified activated alumina, biochar, and limestone (Caltrans, 2021b).

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Appendix A: ASBS Locations (Permit Section C4 Item 1)

Maps of Caltrans ASBS Current Discharge Locations and existing BMPs are presented in this Appendix. Each map shows the priority discharge locations listed in Attachment III of the 2012 Caltrans NPDES Statewide Stormwater Permit as green circles. Tributary drainage areas to the priority discharge locations are identified in red. Sheet flow from the highway is shown in blue. Areas that drain to discharge points that were identified as a safety hazard are identified in gray. Other areas that drain to non-priority discharge points are shown in green. These areas discharge indirectly to ASBS either through vegetation or infiltration into surrounding soil, or to adjacent streams.

Table A-1. ASBS Priority Discharge Locations (Caltrans Permit, Table C-1)

Sample ID	RWQCB	ASBS Name	Longitude	Latitude
RED028	1	Redwoods National Park	-124.10101	41.59729
FIT012	2	James V. Fitzgerald	-122.516861	37.531406
ANO033	3	Año Nuevo	-122.29881	37.11202
CAR007B	3	Carmel Bay	-121.923798	36.52499
MUG010	4	Laguna Point to Latigo Point	-119.014826	34.070804

Figure A-1. RED028

Figure A-2. FIT012

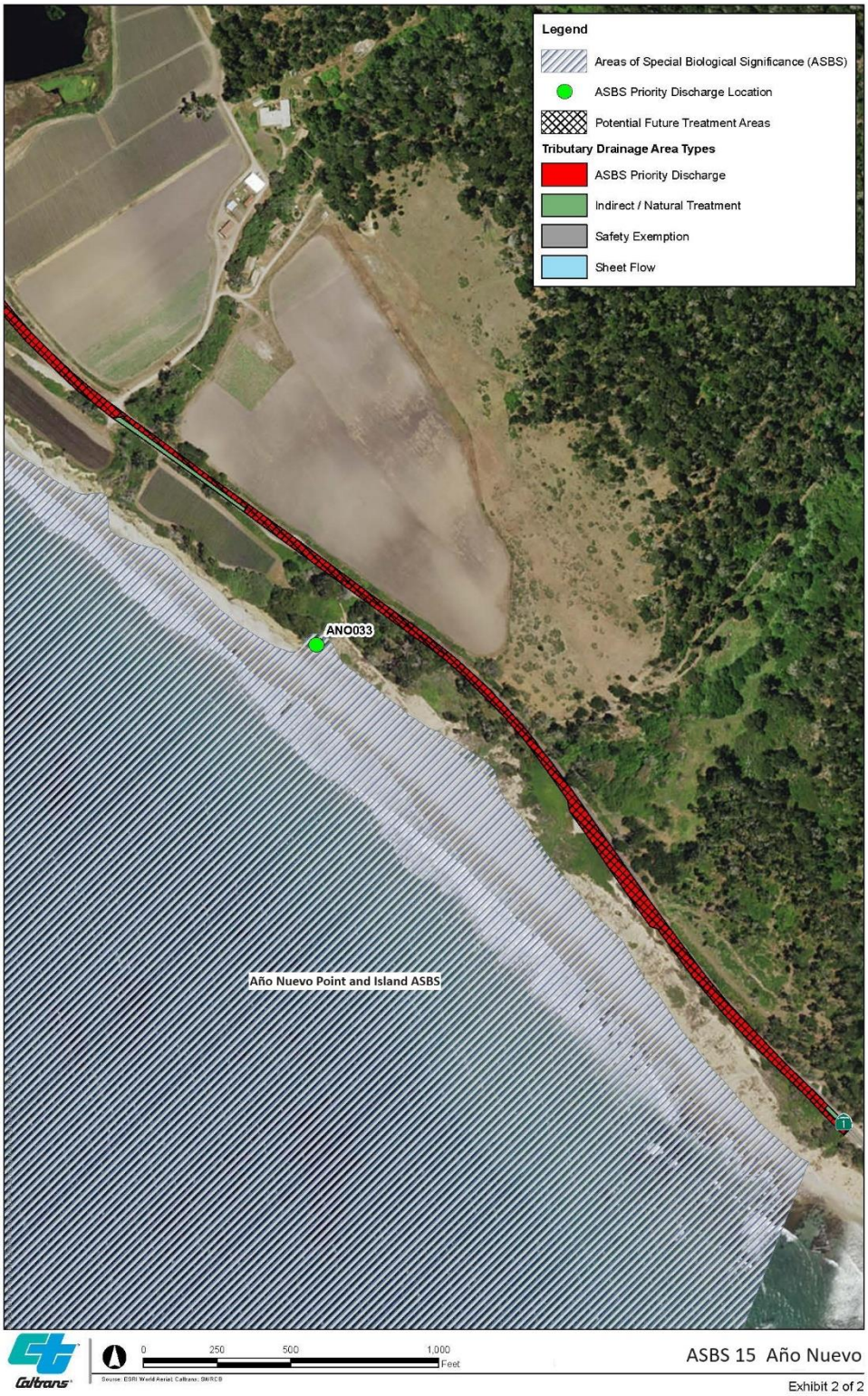

Figure A-3. ANO033

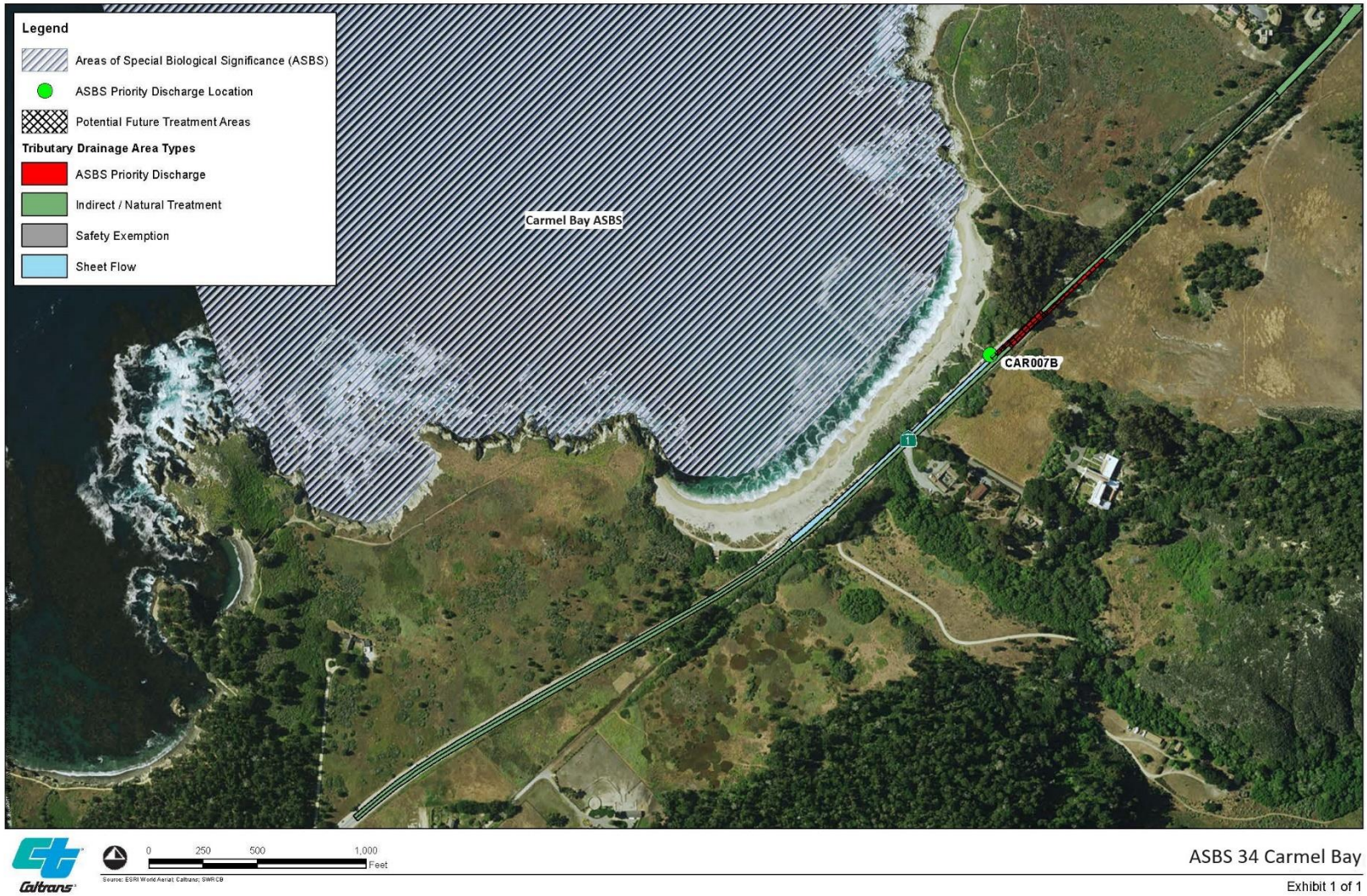

Figure A-4. CAR007B

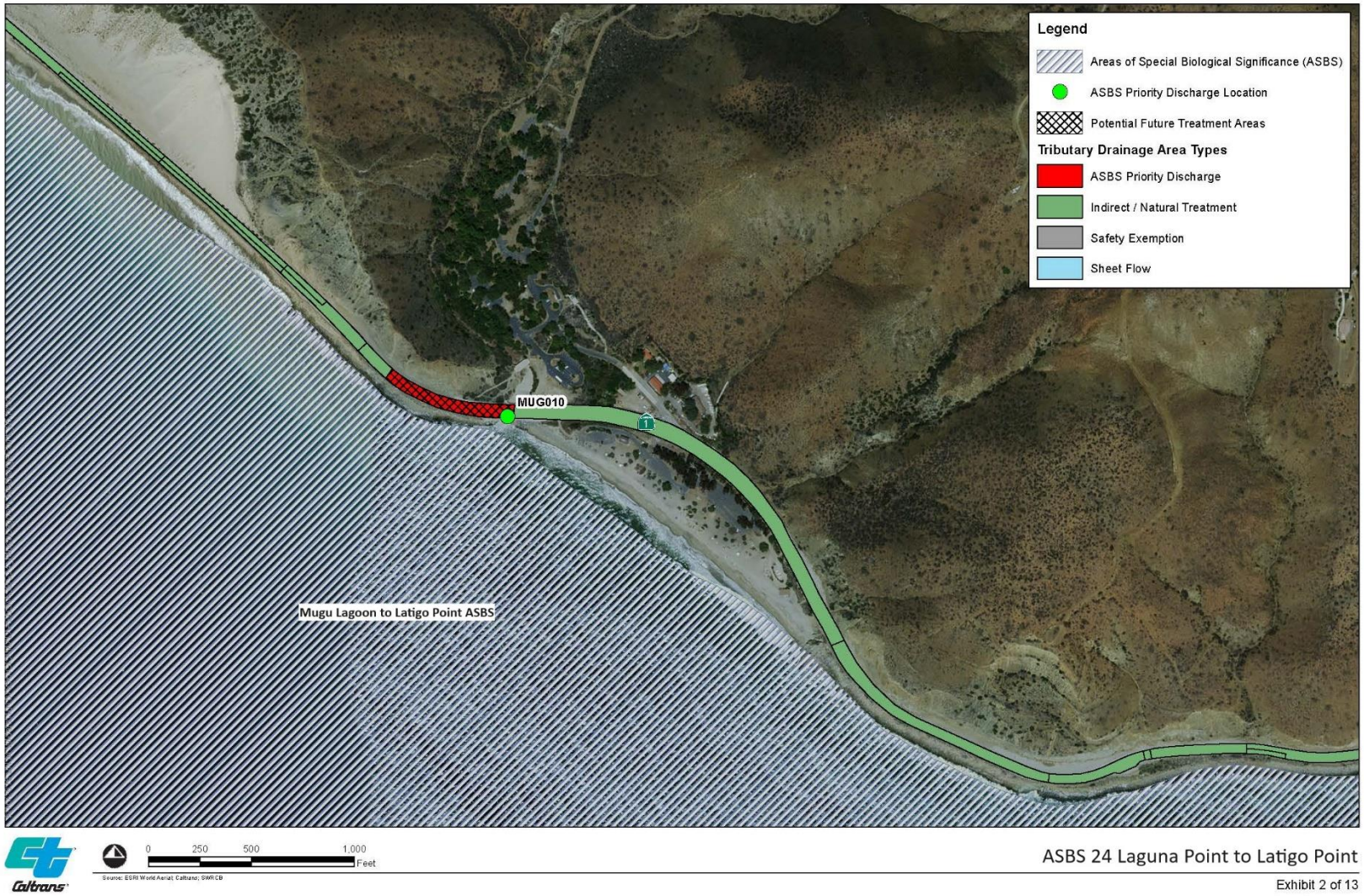

Figure A-5. MUG010

Appendix B: Erosion-Prone Areas

Areas prone to erosion within the ASBS are listed in Table B-1. Maintenance work at both of these locations was completed in December 2022.

Table B-1. Slopes Prone to Erosion FY23

District	Co	Route	Dist County Route	From PM	To PM	Regional Board	Watershed	Scheduled Stabilization Date	Initiation Date	Completion Date	Length
7	VEN	1	7-VEN-1	4.538	4.57	4	Big Sycamore Canyon-Frontal Santa Monica Bay		10/19/2020	12/11/2022	0.032
7	VEN	1	7-VEN-1	7	7.5	4	Big Sycamore Canyon-Frontal Santa Monica Bay		1/11/2021	12/11/2022	0.5

Source: IMMS's past three years of segments with recurring S3 and S4 activities.

Appendix C: Preliminary BMP Feasibility Studies

This Appendix contains the graphics showing the results of the Preliminary Feasibility Studies. The detailed feasibility Memoranda and high-resolution images of the Preliminary Feasibility Studies are included in the Addendum to this document (CTSW-RT-23-438-01.03-Addendum).

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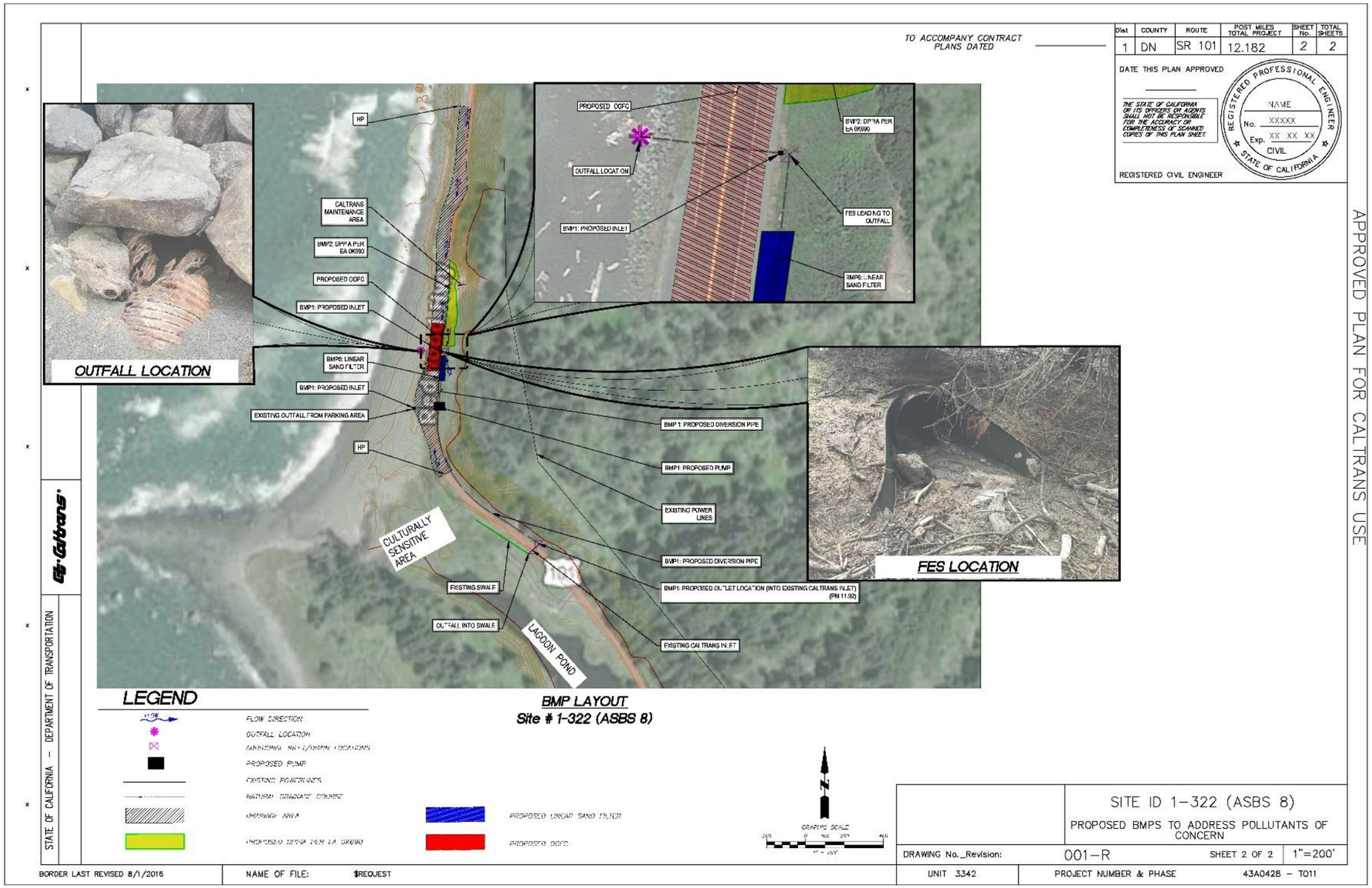


Figure C-1. SITE ID 1-322 (ASBS 8)

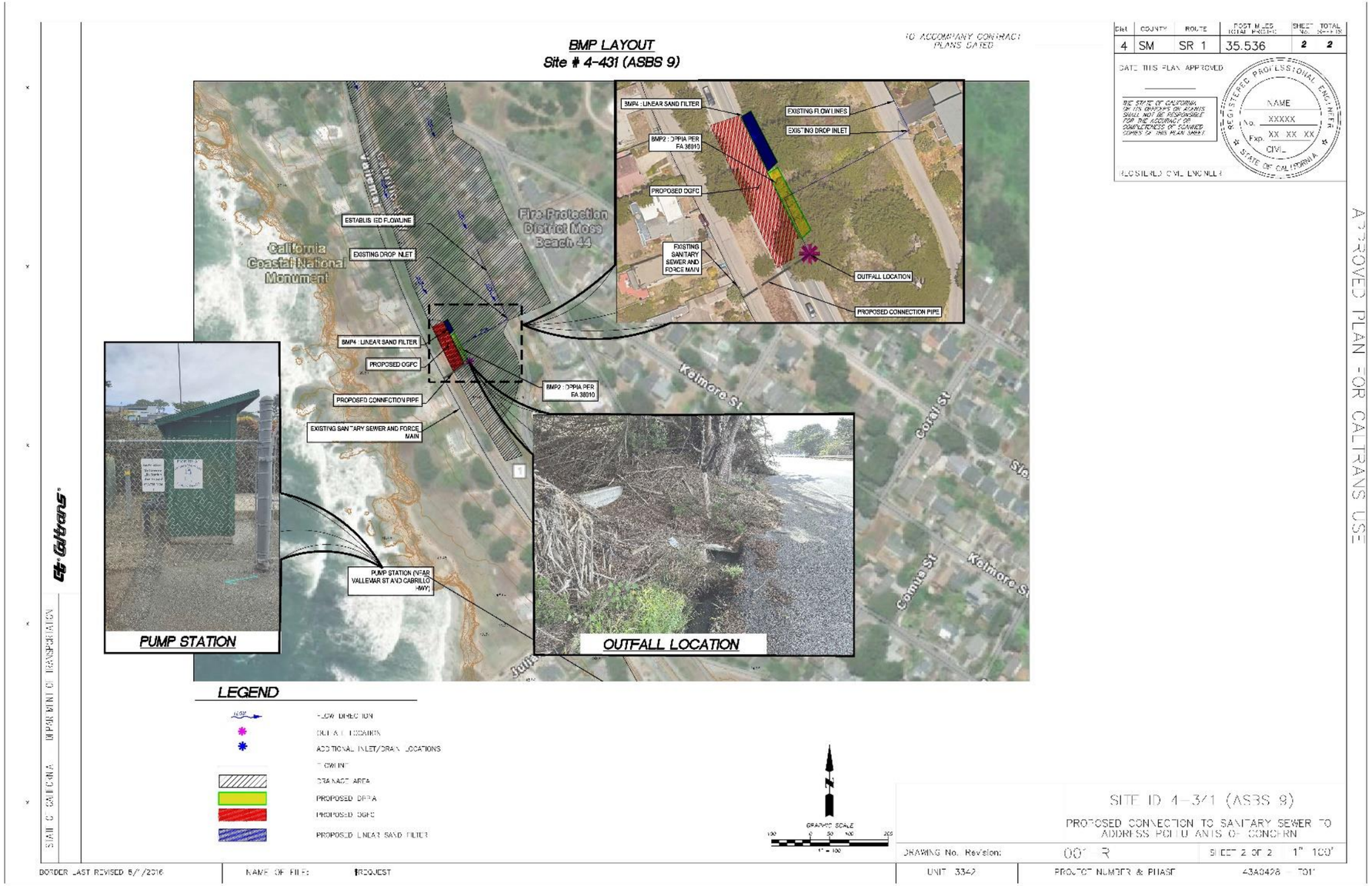


Figure C-2. SITE ID 4-341 (ASBS 9)

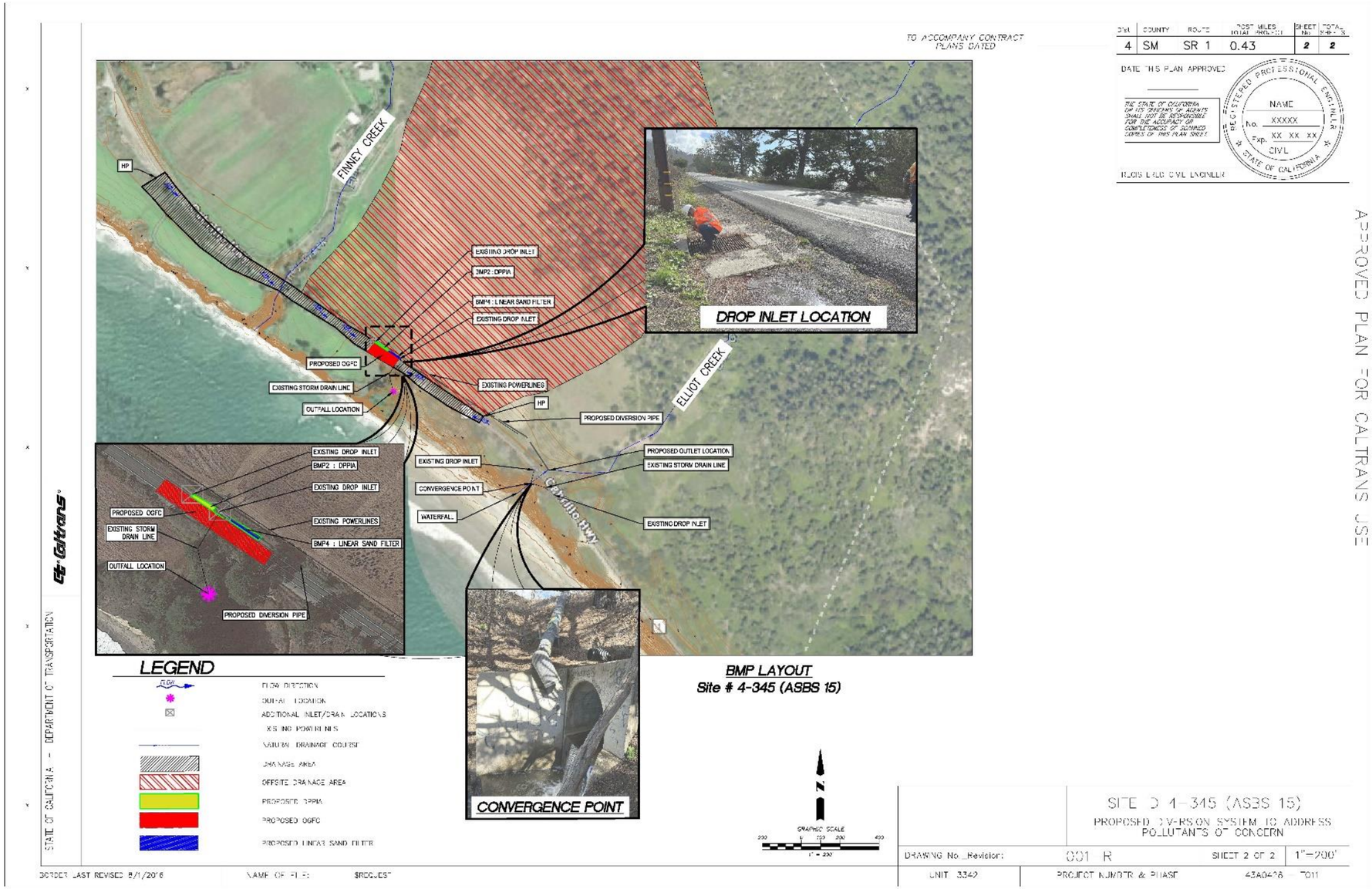


Figure C-3. SITE ID 4-345 (ASBS 15)

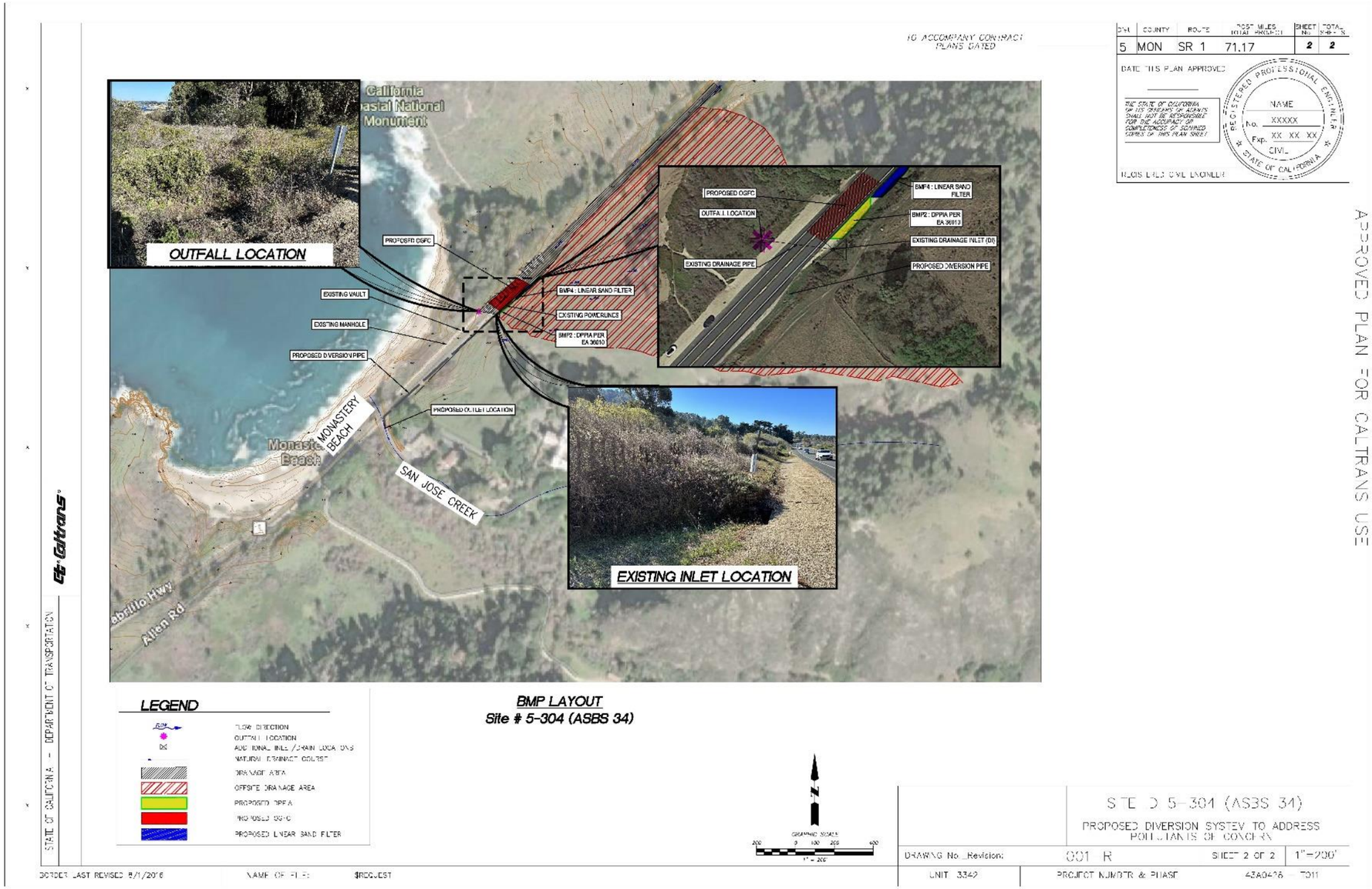


Figure C-4. SITE ID 5-304 (ASBS 34)

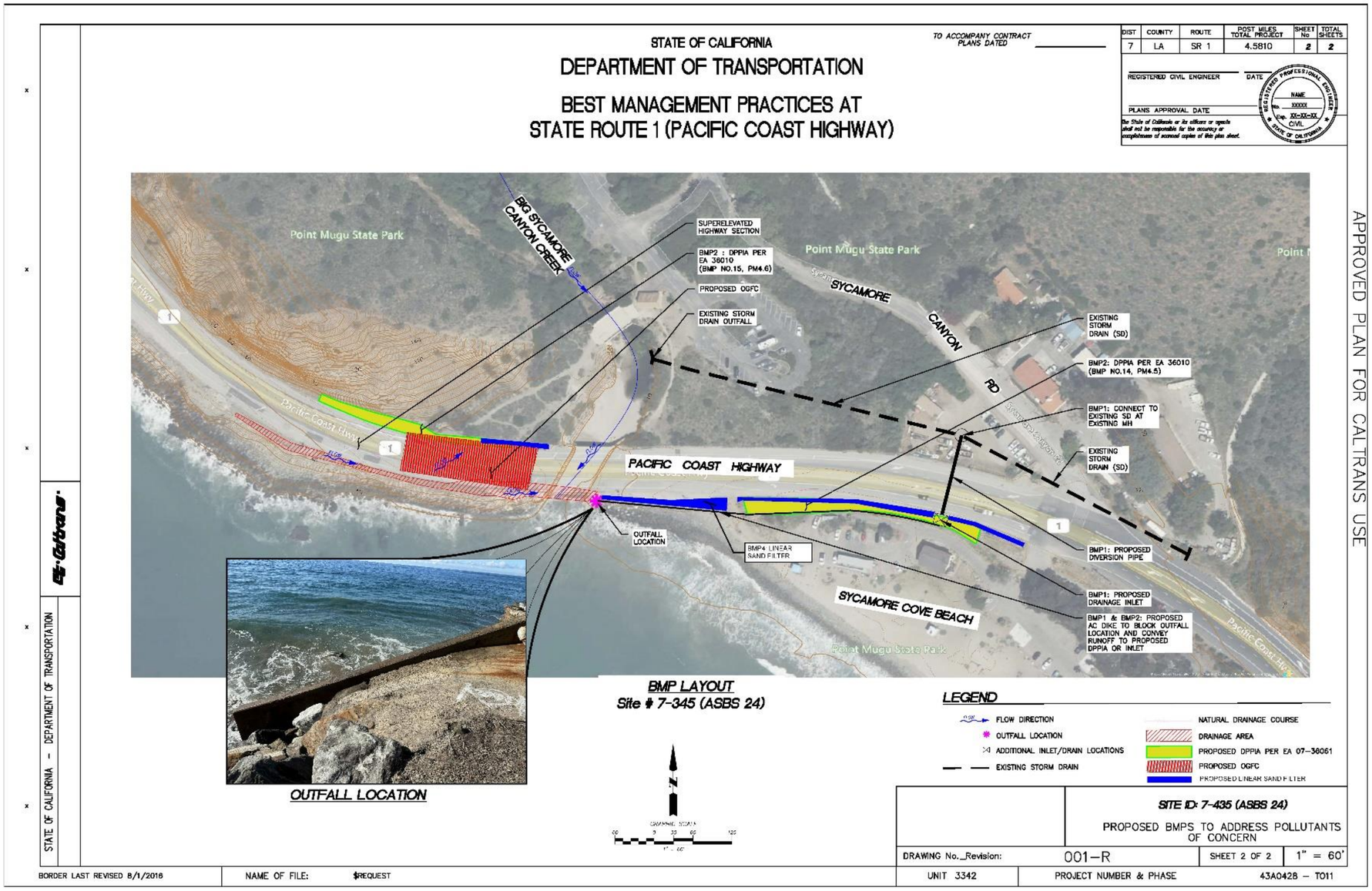


Figure C-5. SITE ID 7-345 (ASBS 24)

Appendix D: Best Management Practices to Control Stormwater Runoff (Permit Section C4 Items 9, 11)

This appendix describes the institutional and structural Best Management Practices (BMPs), including low-impact development measures generally used by the Department (Table D-1).

BMPs are measures designed to remove pollutants from stormwater runoff prior to discharging to receiving waters. The process for establishing compliance within the ASBS relies on the comparison of water quality at the receiving water site to the appropriate reference site in order to determine exceedance of natural water quality as illustrated in Figure 2 of the Caltrans NPDES Permit. Caltrans has been monitoring at the ASBS Priority Discharge locations (as modified) to determine compliance and the need for installation of structural BMPs.

Considerations for deployment of structural BMPs are based on, but not limited to, safety, available funding, field conditions, contaminant levels, sources, regulatory approval, and space available.

Section 7 discusses specific implementation items for each ASBS location and cooperative efforts with other ASBS dischargers.

Table D-1. Non-treatment, Treatment, and Institutional BMPs

Non-treatment BMP
Diversion
Treatment BMP – Infiltrate (Caltrans LID/Soil Based BMPs)
Biofiltration: Strips/Swales
Media Filters (earthen)
Bioretention
Design Pollution Prevention Infiltration Areas
Treatment BMP – Capture and Treat
Media Filters (vault type)
Institutional BMP
Sediment control
Sweeping
Drain cleaning
Other source control (site specific)

The following sections describe the structural BMPs, including low-impact development measures, currently employed and planned for priority discharges.

D.1. Diversion

Caltrans will assess the receiving conveyance's ability to convey the increased flows resulting from the diversion in terms of hydrology, hydraulic capacity, and stability. Diversions will be implemented only where the receiving conveyance will not be significantly impacted by the diverted flows. Construction activities within the conveyance will be avoided.

D.2. Design Pollution Prevention Infiltration Areas

Design Pollution Prevention Infiltration Areas are vegetated and non-vegetated areas, depending on site-specific conditions, that have been designed or evaluated for infiltration capabilities. Pollutants are removed primarily through sedimentation, infiltration of surface discharge through the soil, and adsorption to soil particles. When vegetation is incorporated into the Design Pollution Prevention Infiltration Area, filtration through the vegetation provides additional pollutant removal.

Design Pollution Prevention Infiltration Areas are sized to capture the water quality volume, or a portion thereof, generated by the contributing drainage area. A Design Pollution Prevention Infiltration Area may be a new, modified, or existing slope, ditch, embankment, roadside area, or facility within the project limits that may be used to achieve treatment requirements. Schematic illustrations of a Design Pollution Prevention Infiltration Area are shown in Figures D-1 and D-2.

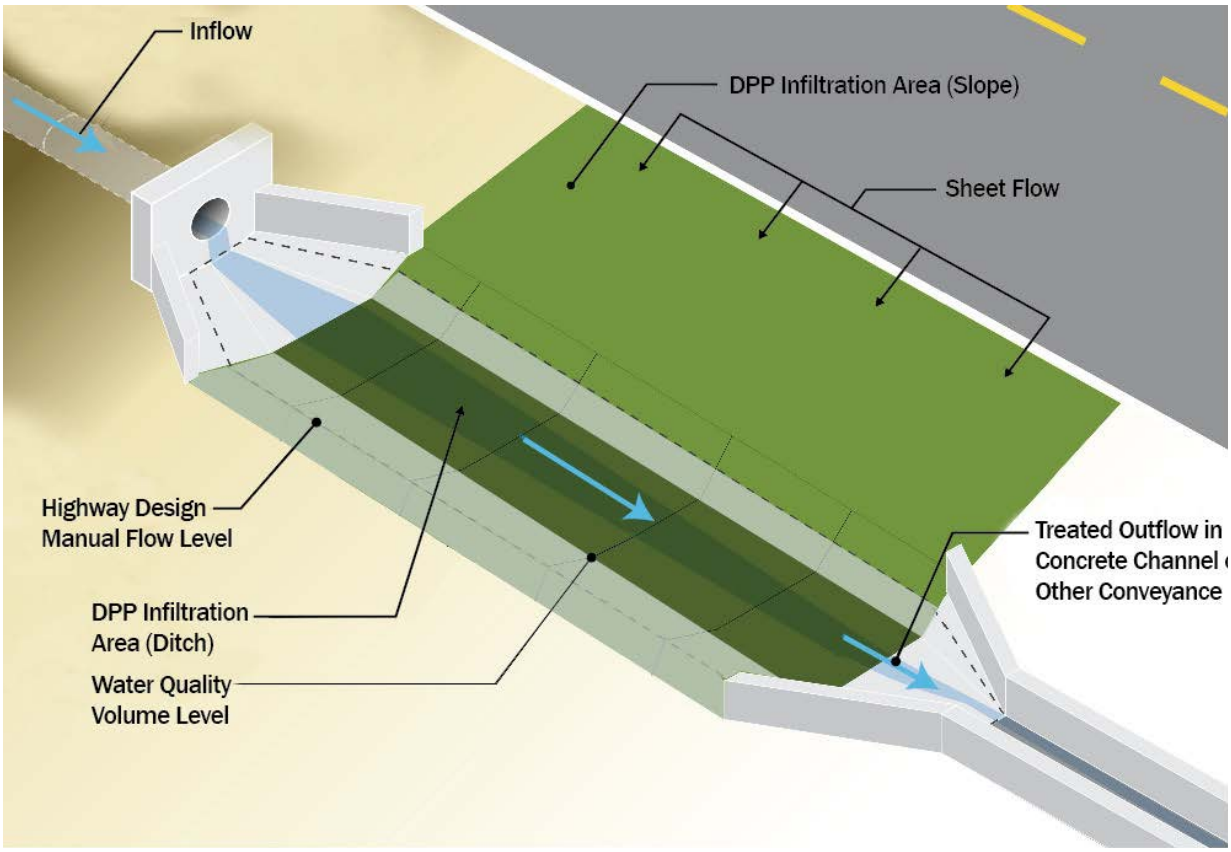


Figure D-1. Schematic of a Design Pollution Prevention Infiltration Area

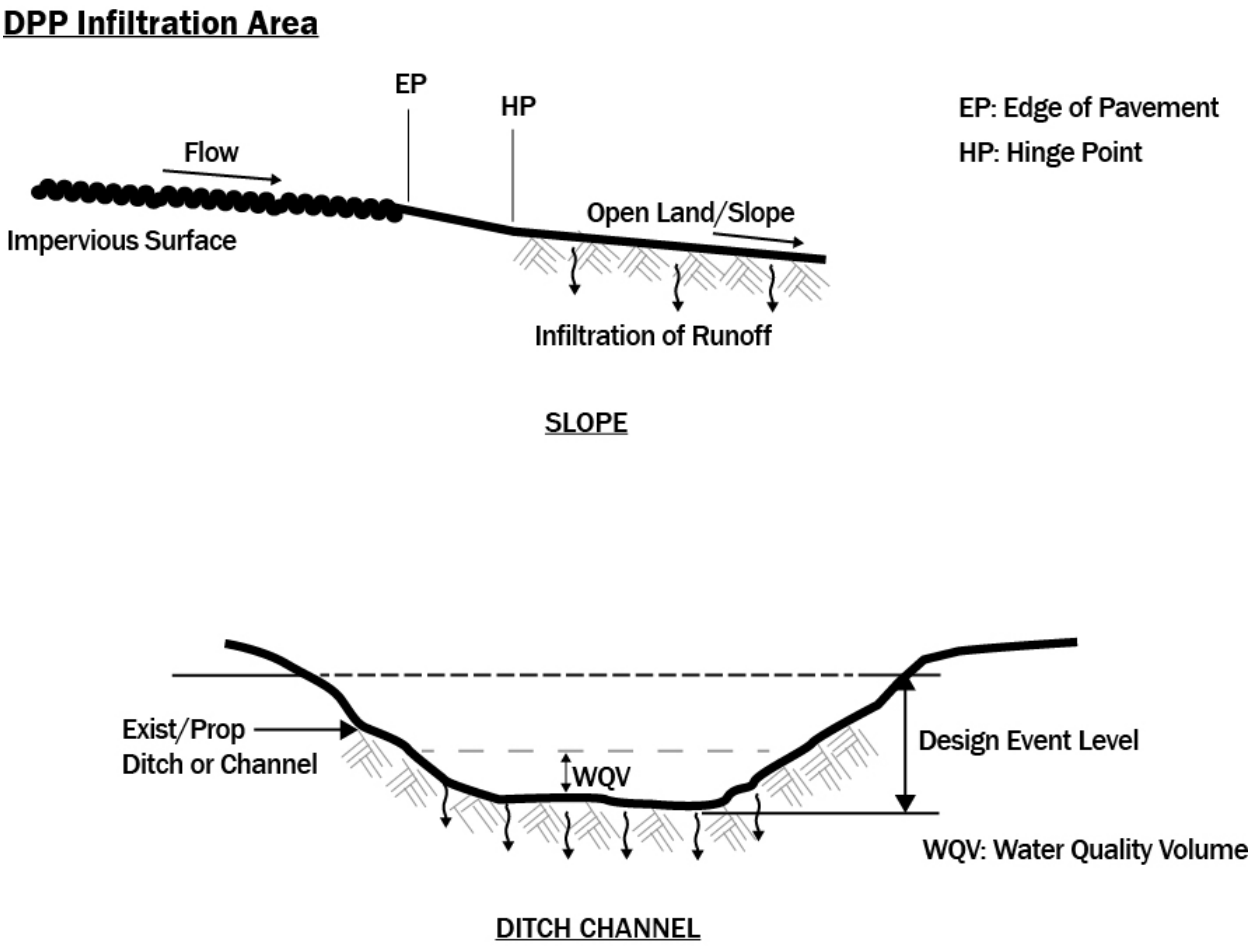


Figure D-2. Schematic of a Design Pollution Prevention Infiltration Area

Design Pollution Prevention Infiltration Areas should be used to meet treatment objectives and maximize infiltration. These areas must be stabilized to prevent erosion, and are most commonly used within pervious roadway embankment areas. Design Pollution Prevention Infiltration Areas are not only used as a treatment mechanism for pollutants but are used to maximize infiltration and reduce discharges downstream.

D.3. Vegetated Biofiltration Strips and Swales

Biofiltration strips and biofiltration swales are primarily effective at removing total suspended solids, particulate metals and turbidity, though infiltration can also remove nutrients and dissolved metals. Compost- or biochar-amended swales may be more effective than unamended swales in removing some pollutants. The vegetation mix for the biofiltration strips and biofiltration swales must be approved by the District Landscape Architect to ensure it is appropriate for the climate and location.

Biofiltration swales have been installed along the northbound shoulder of ASBS 33 (Irvine Coast) to treat the runoff from State Route 1. The maps located in Appendix A show the location of these swales.

D.4. Bioretention

Bioretention is a low-impact development, vegetation and soil-based practice using the chemical and biological properties of soil, as well as its physical characteristics, to reduce pollutants and attenuate stormwater flows. The treatment mechanisms are filtration through vegetation, sedimentation, adsorption to soil particles, and infiltration. Bioretention reduces peak discharge and runoff volume by detaining water through surface ponding and storage in soil and gravel layers, and by allowing it to infiltrate into the subsoil or dissipate through evapotranspiration (Caltrans, 2021b).

A linear bioretention trench is an adaptation of existing bioretention designs, consisting of a vegetated trench into which stormwater flows as sheet flow. It is designed for the narrow right-of-way typical of roadside areas. Removal mechanisms include filtration, infiltration, and plant uptake (Caltrans, 2021b).

D.5. Infiltration Devices

An infiltration device is designed to remove pollutants from surface discharges by capturing the water quality volume, or a portion thereof, and infiltrating it directly to the soil rather than discharging it to surface waters. Because infiltration devices, including Design Pollution Prevention Infiltration Areas, are considered the most effective treatment BMP against all pollutants of concern from typical highway runoff, infiltration is always considered first when selecting treatment BMPs for a Caltrans project. Infiltration devices primarily remove total suspended solids, particulate metals, nutrients, dissolved metals, turbidity and mercury. A schematic illustration of an Infiltration Basin is shown in Figure D-3.

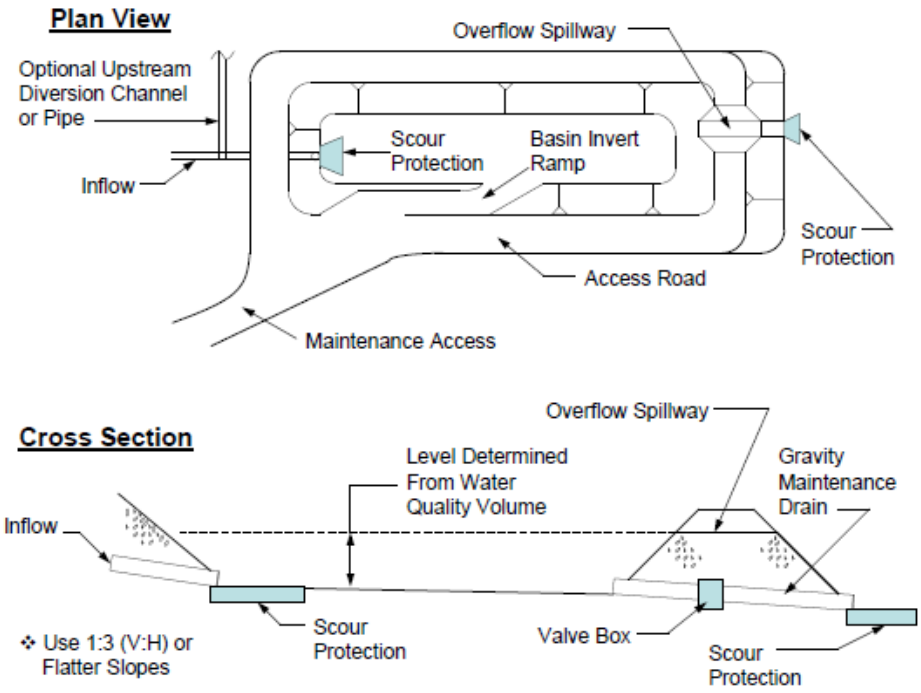


Figure D-3. Schematic of an Infiltration Basin

A schematic illustration of an Infiltration Trench is shown in Figure D-4.

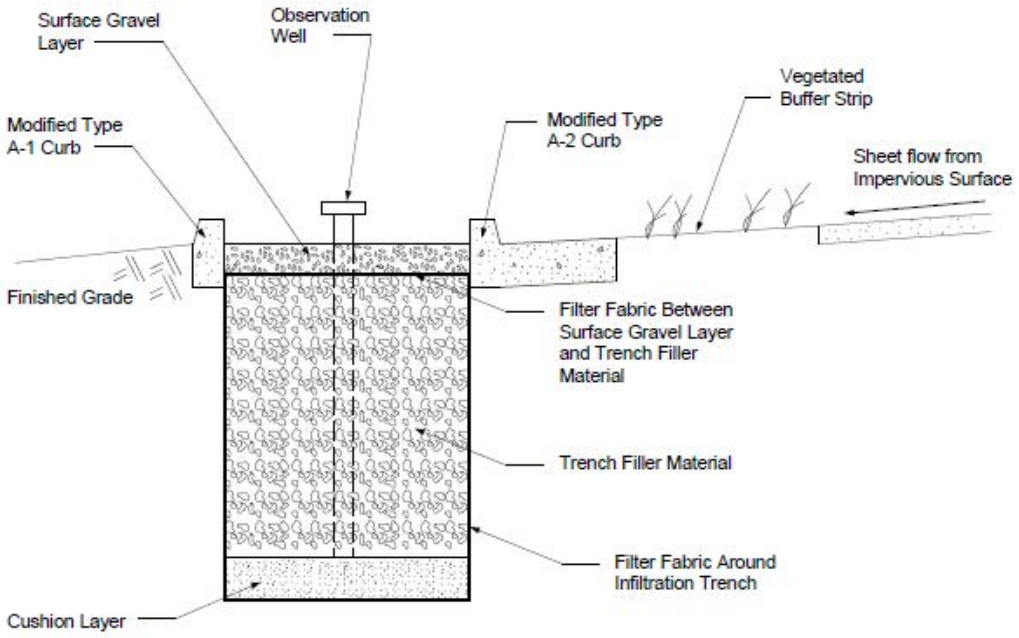


Figure D-4. Schematic of an Infiltration Trench

D.6. Media Filters

A media filter treatment BMP device primarily removes total suspended solids pollutants (sediments and metals) from runoff by sedimentation and filtering. A media filter device is also effective for dissolved metals, litter, and potentially some nutrients (depending upon the type of media filter selected). Media filter devices are configured using two chambers. An Austin Sand Filter is usually open and at grade with no permanent pool of water. A Delaware Sand Filter is always configured with closed chambers below grade and has a permanent pool of water.

In both types of media filters, stormwater is directed into the first chamber where the larger sediments and particulates settle out, and the partially treated effluent is metered into the second chamber to be filtered through media. In the Austin Sand Filter, the first chamber may be sized for the entire water quality volume, or 'full sedimentation' (see Figure D-6), or as a 'partial sedimentation' chamber, holding only about 20 percent of the water quality volume (see Figure D-7). The Delaware Sand Filter holds the entire water quality volume in the initial chamber (see Figure D-8).

Figure D-5. Caltrans Media Filters (Austin Sand Filter [left], Delaware Sand Filter [right])

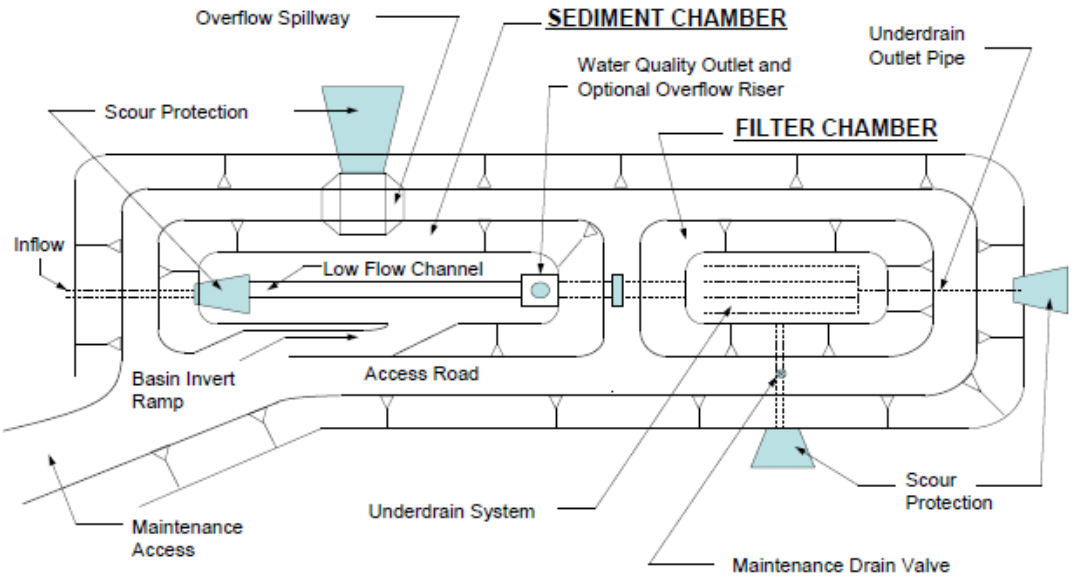
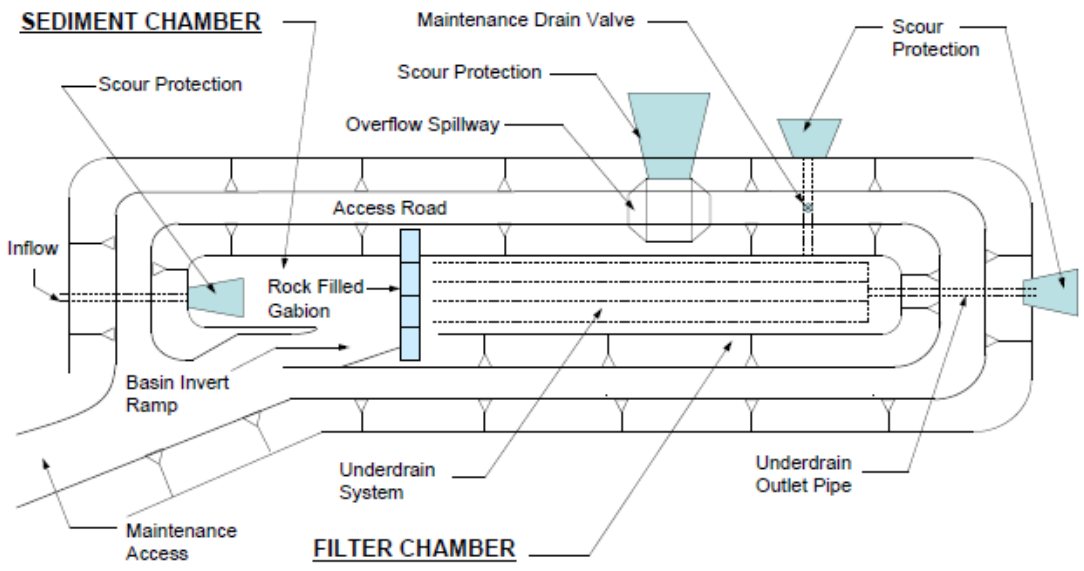


Figure D-6. Schematic of an Austin Sand Filter—Full Sedimentation (Earthen Type)



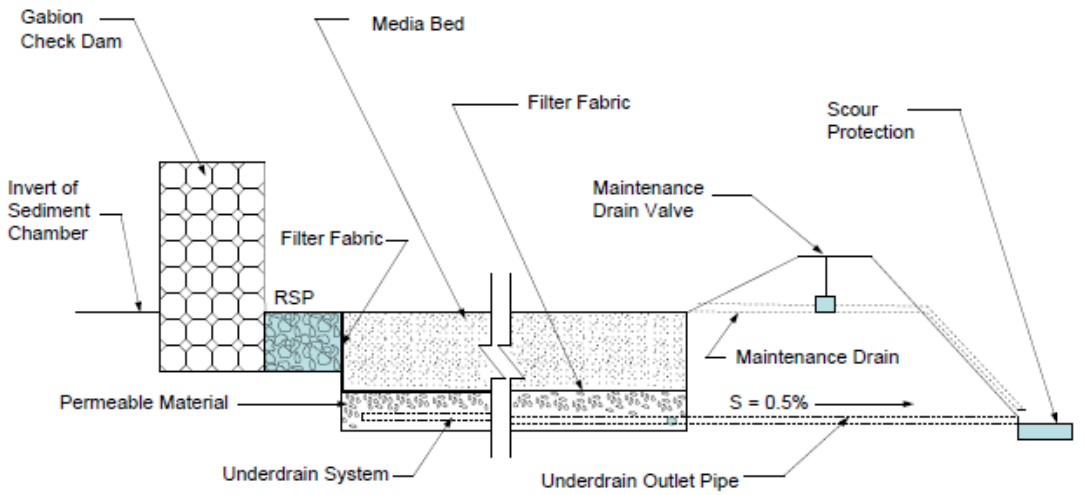


Figure D-7. Schematic of an Austin Sand Filter—Partial Sedimentation (Earthen Type)

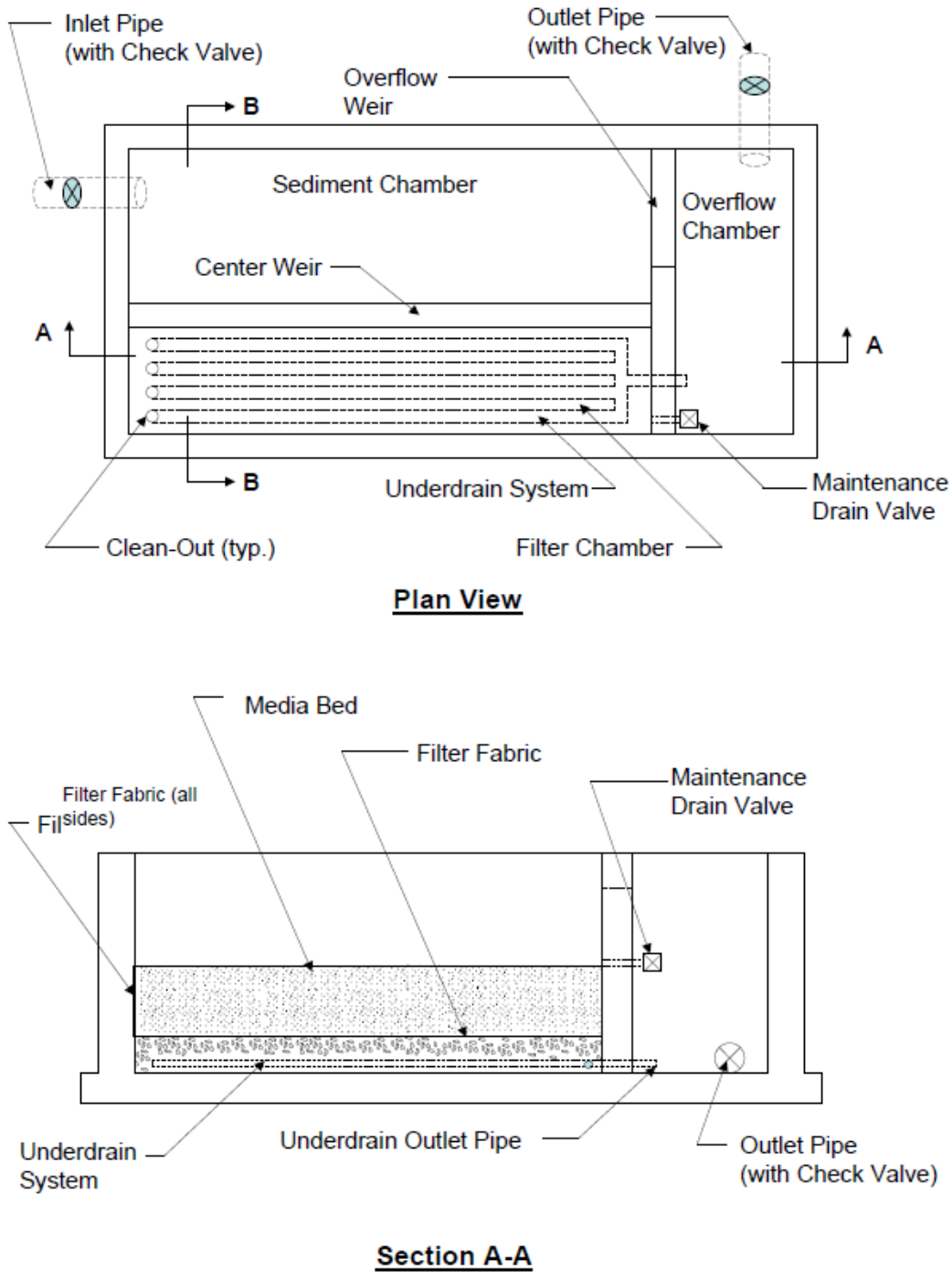


Figure D-8. Schematic of a Delaware Sand Filter

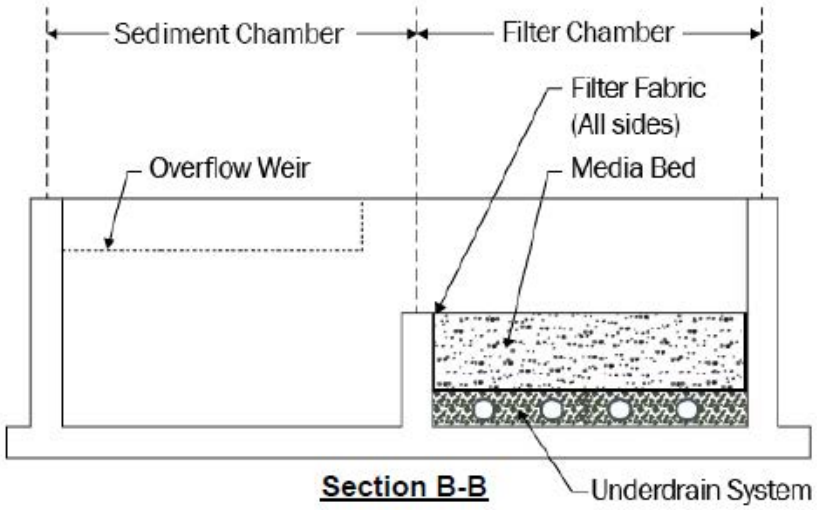


Figure D-8. Schematic of a Delaware Sand Filter (Continued)

Appendix E: BMPs Installed or Proposed in ASBS Areas (Permit Section C4 Item 2)

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E.1. ASBS 08: Proposed Culvert Rehabilitation

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LEGEND
US-101 ALIGN
SURVEY LIMITS
APPROX R/W
EXIST CULVERT
NEW CULVERT
FLOW DIRECTION
PERMANENT EASEMENT, EXISTING (NONE NEW)
POTENTIAL STAGING
TEMPORARY CONSTRUCTION EASEMENT
PARCELS
127-070-004-000
(UNITED STATES OF AMERICA/ REDWOOD NATIONAL PARK)
127-050-008-000
PM 12.12
127-070-004-000
(UNITED STATES OF AMERICA/ REDWOOD NATIONAL PARK)
127-050-008-000
(UNITED STATES OF AMERICA/ REDWOOD NATIONAL PARK)
127-050-004-000
ENVIRONMENTAL STUDY REQUEST
SCALE: 1"=50'
ESR-8
Dist 01 | COUNTY DN | LOCATION CODE 101 | POST MILES TOTAL PROJECT MO/46.5 | SHEET No. | TOTAL SHEETS
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
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
FUNCTIONAL SUPERVISOR GEORGE TOKMAKOV
CALCULATED-DESIGNED BY YAROSLAV ZAKUSILO
CHECKED BY
REVISED BY
DATE REVISED
LAST REVISION 00-00-00
DATE PLOTTED => 21 MAY 2023
TIME PLOTTED => 18:21
BORDER LAST REVISED 7/2/2010
USERNAME => s144925
DGN FILE => 0120000135'sd08.dgn
RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 00000000001

E.2. ASBS 24: Proposed Big Sycamore Creek Bridge Replacement

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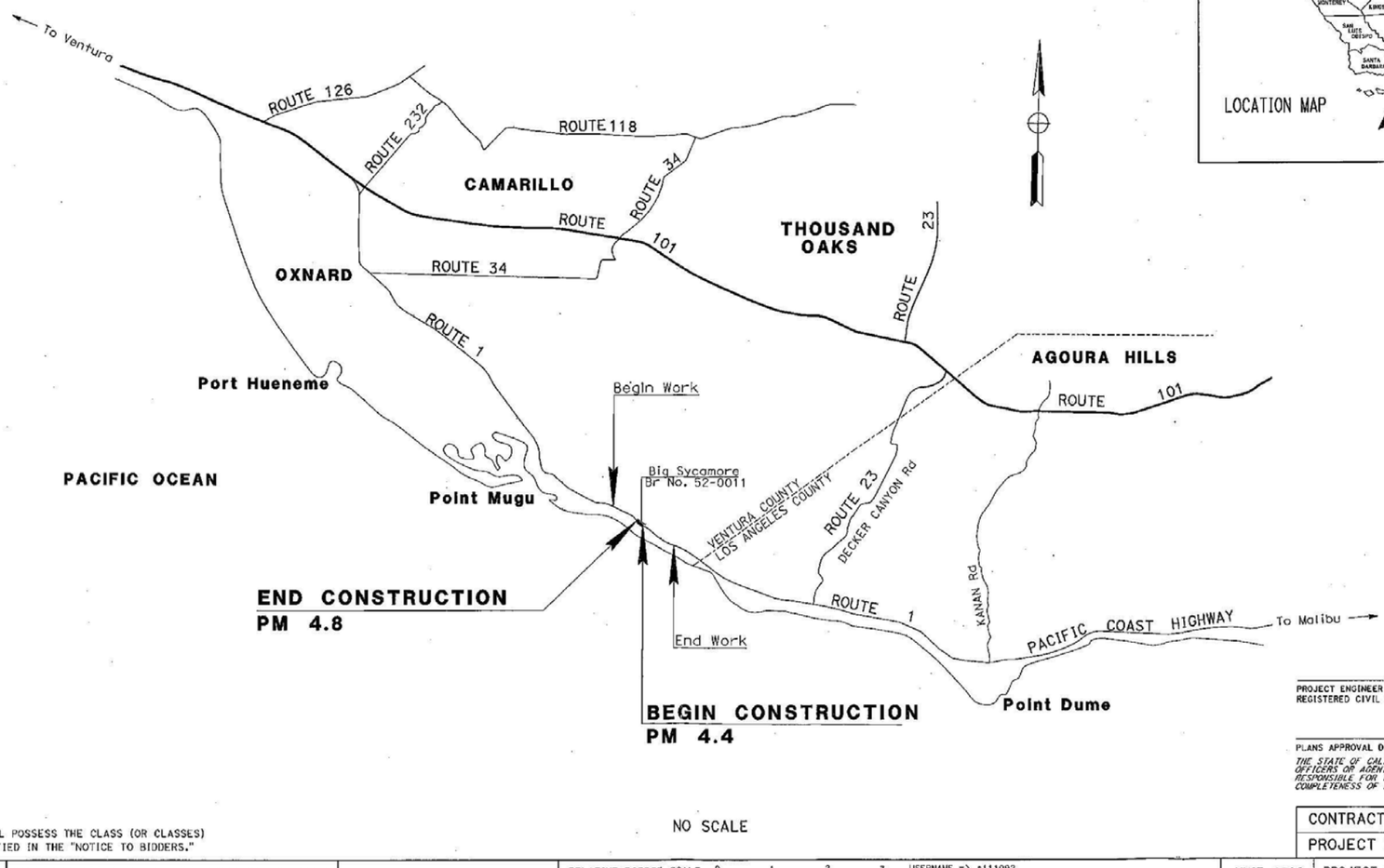
INDEX OF PLANS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN VENTURA COUNTY
NORTH OF MALIBU
FROM 0.1 MILE SOUTH OF BIG CYCAMORE CREEK BRIDGE
TO 0.3 MILE NORTH OF BIG SYCAMORE CREEK BRIDGE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	Ven	1	4.4/4.8		

PROJECT MANAGER: JOSEPH KIBE
DESIGN MANAGER: GORDON LEUNG

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

NO SCALE

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

CONTRACT No.	07-360104
PROJECT ID	0719000268

LAST REVISION 00-00-00 DATE PLOTTED => 25-JUN-2019 TIME PLOTTED => 09:24

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NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
2. THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING DRAINAGE SYSTEMS BEFORE COMMENCEMENT OF WORK.

ABBREVIATIONS:

DPPIA DESIGN POLLUTION PREVENTION INFILTRATION AREA

LEGEND:

PROPOSED DPPIA

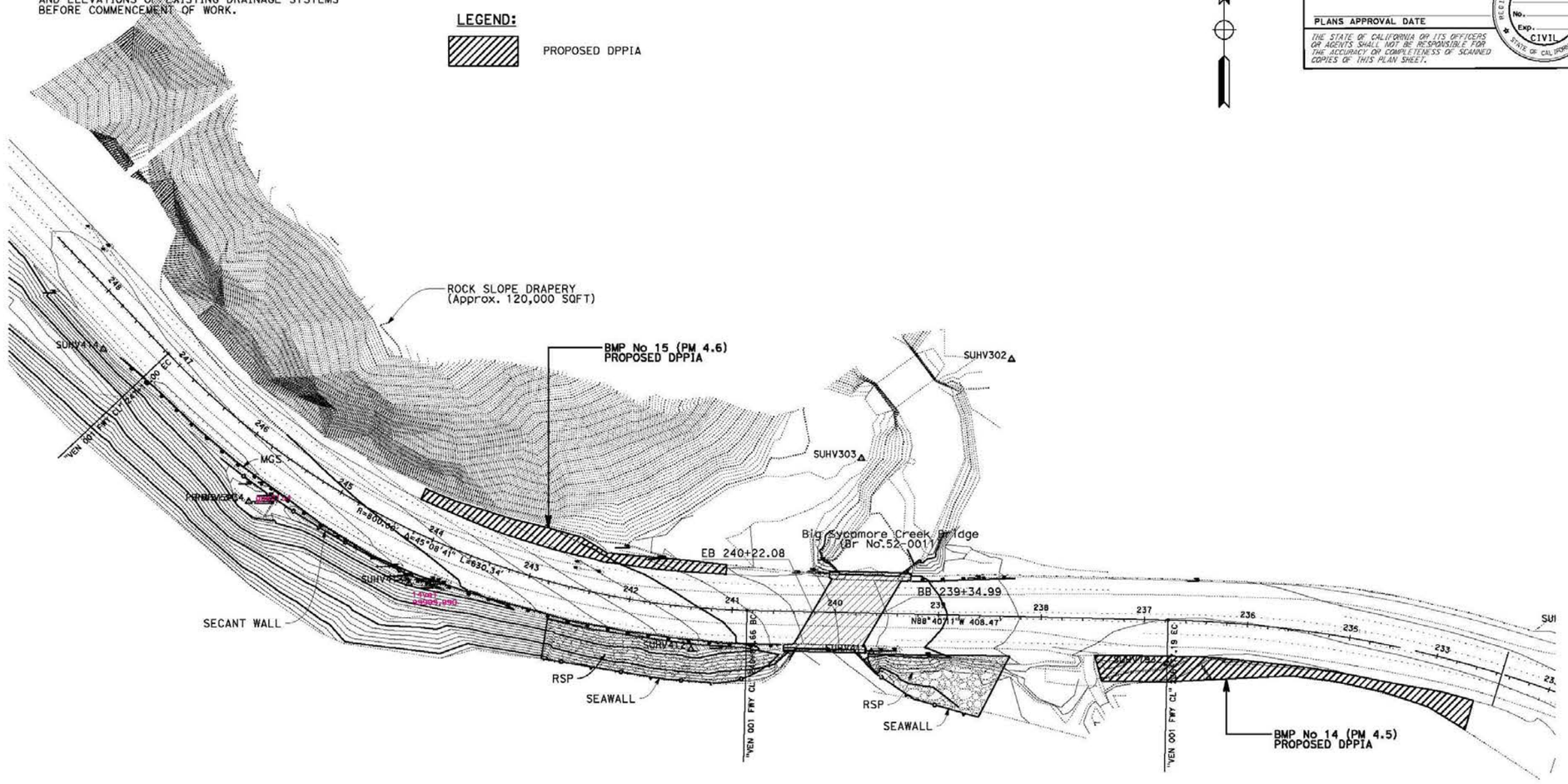
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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



REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISED: 00-00-00 DATE PLOTTED => 8-JAN-2021 TIME PLOTTED => 23:12

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E.3. ASBS 33: Constructed Bioswale BMPs

Notice of Termination Photos

Figure E-1. Before 5/22/19

Figure E-2. Before 5/22/19

Figure E-3. Before 5/22/19

Figure E-4. Before 5/22/19

Figure E-5. Before 2/19/21

Figure E-6. Before 2/19/21

Figure E-7. After 12/09/21

Figure E-8. After 12/09/21

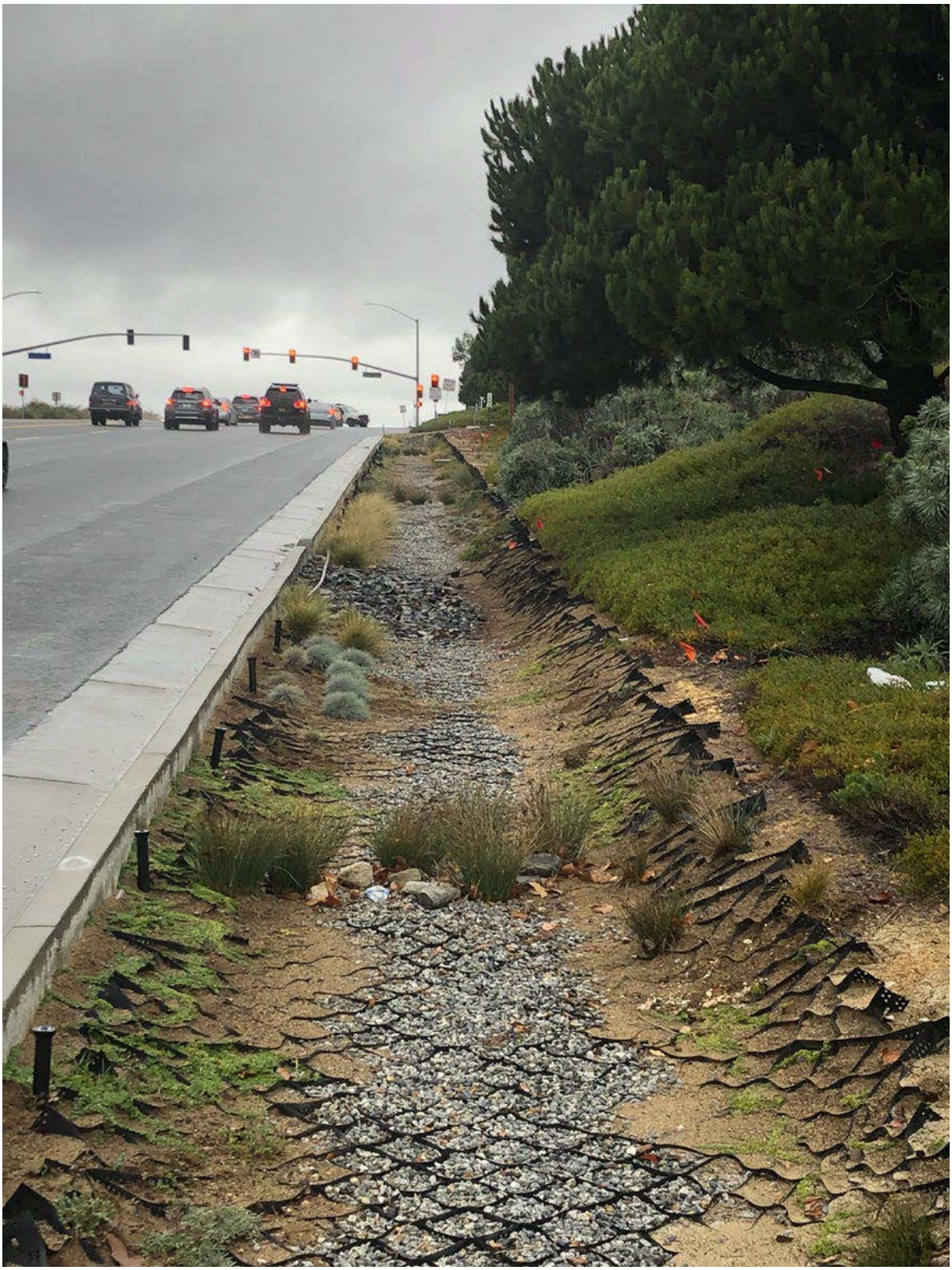

Figure E-9. After 12/09/21

Figure E-10. After 12/09/21

Figure E-11. After 12/09/21

Appendix F: *Applicability of the Ocean Plan to Inland Discharges*

Winston H. Hickox
Secretary for Environmental Protection

State Water Resources Control Board
Office of Chief Counsel
901 P Street • Sacramento, California 95814 • (916) 657-2154
Mailing Address: P.O. Box 100 • Sacramento, California 95812-0100
• FAX (916) 653-0428 • Internet Address: http://www.swrcb.ca.gov

Gray Davis
Governor

TO: Walt Pettit
Executive Director

FROM: Craig M. Wilson for William R. Attwater
Chief Counsel
OFFICE OF CHIEF COUNSEL

DATE: SEP 30 1999

SUBJECT: APPLICABILITY OF THE OCEAN PLAN TO INLAND DISCHARGES

Issue: In a memo dated September 20, 1999 the Executive Officer of the Santa Ana Regional Water Quality Control Board recommended denial without prejudice of 401 water quality certification for the Irvine Company's proposed Crystal Cove development project. However, the memo indicated that Regional Board staff would be prepared to support certification – with conditions – if it was determined that the Ocean Plan's prohibition against discharges to Areas of Special Biological Significance (ASBS) was not applicable to discharges from the project.

You have asked whether the Ocean Plan applies to discharges from the project.

Response: The Ocean Plan's prohibition is not applicable to discharges from the project.

Discharges from the project will consist of runoff to two creeks which are tributary to the Pacific Ocean. There will be no direct discharges to the Ocean. The applicability and scope of the Ocean Plan is set forth in the Introduction to the Ocean Plan. The Introduction provides that the Ocean Plan is applicable, in its entirety, to point source discharges to the ocean and is applicable, for the most part, to nonpoint sources of waste discharge to the ocean. It is explicitly stated that the Ocean Plan is not applicable to discharges to inland waters.

Chapter 5 of the Ocean Plan contains discharge prohibitions, including a prohibition against discharges to areas designated as being of special biological significance. Consistent with the clear language of the Introduction, this prohibition applies only to direct ocean discharges to an ASBS or to nearby ocean waters such that the ASBS will be affected. Since the Irvine Company's project will not result in direct discharges to the ocean, the Ocean Plan's provisions do not apply.

Appendix G: ASBS Demonstration of Compliance (Permit Section C4 Item 10)

G.1. Introduction

For demonstration of ASBS compliance, Section C4 Item 10 of Attachment C of the 2022 Caltrans NPDES Statewide Stormwater Permit states the following:

> The Department's strategy shall include one or more of the following to demonstrate that the Department is not causing or contributing to the alteration of natural ocean water quality for each location/parameter pair in Table C-1 and location/parameter pairs of future alterations of natural ocean water quality in Areas of Special Biological Significance to which the Department discharges: modeling, receiving water monitoring, discharge monitoring, or a demonstration of no discharge.

Caltrans has selected the modeling option to demonstrate compliance. To demonstrate compliance, Caltrans intends to use modeling to show that BMPs installed to control stormwater runoff discharges during a design storm will achieve, on average, one of the following target levels:

a. Instantaneous Maximum Water Quality Objectives in Chapter II, Table 3, of the Ocean Plan; or
b. A 90 percent reduction in pollutant loading during storm events, for total discharges.

This appendix provides a brief description of the modeling approach.

G.2. Model Selection

The model selected to demonstrate compliance is the widely used EPA Storm Water Management Model. The Storm Water Management Model was selected because it allows:

- Continuous simulation using the long-term rainfall record at a site
- Simulation of low-impact development BMPs like Design Pollution Prevention Infiltration Areas, bioretention, and infiltration systems
- Choice of infiltration options that includes Horton, Modified Horton infiltration, Green-Ampt, Modified Green-Ampt, and Curve Number

G.3. Modeling Approach

To ensure representative results, Caltrans will perform site surveys to confirm Caltrans drainage areas and determine soil type and properties, including saturated hydraulic conductivity, at each location prior to model set up.

The Storm Water Management Model hydrology models will be set up for each discharge location specified in Table C-1 of the 2022 Caltrans NPDES Statewide Stormwater Permit. These models will simulate runoff from the Caltrans right-of-way and initially assume default parameter values except for those determined during the field surveys. Local precipitation data will be obtained for the most recent 10-year period, which includes the period during which ASBS monitoring was conducted at these sites.

The Storm Water Management Model hydrology models will be compared against flow data at similar locations where flows are not commingled with runoff from non-Caltrans areas. Hydrology models for locations where flows commingle and Caltrans-only flow data are unavailable will not

be calibrated, but modeled runoff volumes and peak flows will be compared with those from similar Caltrans drainage areas.

After calibration of the hydrology models, BMP models will be incorporated to simulate volume reduction by the proposed BMPs at each location. The primary BMP proposed by Caltrans is the Design Pollution Prevention Infiltration Area. Design Pollution Prevention Infiltration Areas consist of vegetated and non-vegetated pervious areas that promote infiltration, which is the process of pollutant removal. Figures G-1 and G-2 show examples of rock-lined and vegetated Design Pollution Prevention Infiltration Areas, respectively.

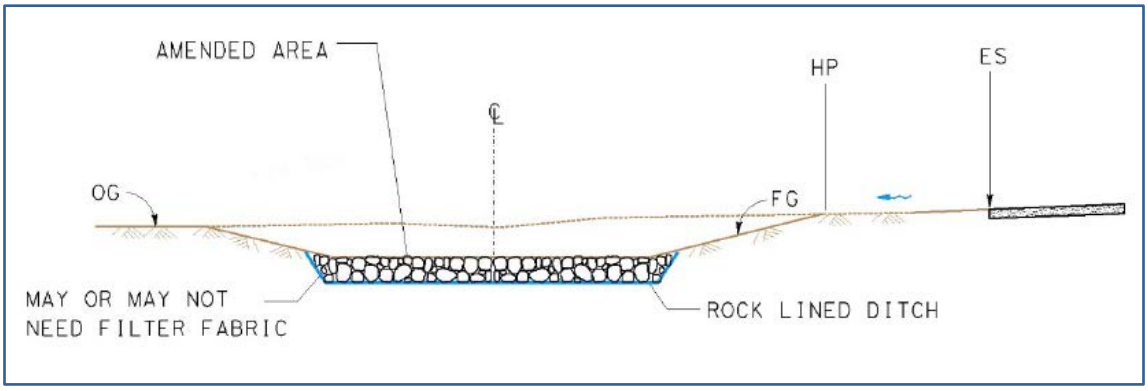

Figure G-1. Typical Section of a Rock Lined Design Pollution Prevention Infiltration Area

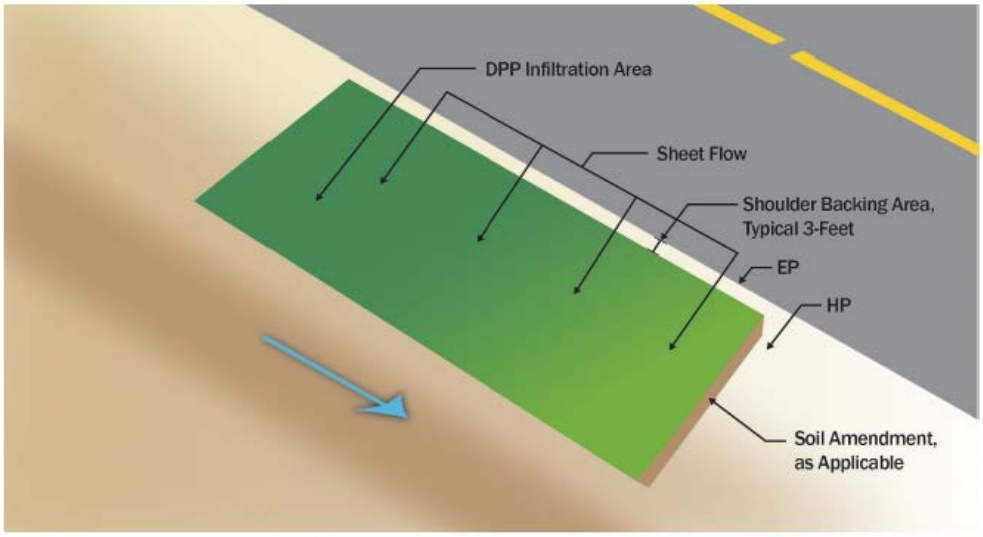

Figure G-2. Typical Section of an Embankment Design Pollution Prevention Infiltration Area

Table G-1 lists the low-impact development BMPs that can be modeled by the Storm Water Management Model:

Table G-1. Low-impact Development BMP Options in the Storm Water Management Model

LID Type	Surface	Pavement	Soil	Storage	Drain	Drainage Mat
Bio-Retention Cell	x		x	o	o	
Rain Garden	x		x			
Green Roof	x		x			x
Permeable Pavement	x	x	o	x	o	
Infiltration Trench	x			x	o	
Rain Barrel				x	x	
Roof Disconnection	x				x	
Vegetative Swale	x					

x – required; o - optional

The proposed Design Pollution Prevention Infiltration Areas at each location will be represented by the Infiltration Trench low-impact development option in the Storm Water Management Model as shown in Figure G-3. In the Storm Water management Model representation, outflows from the underdrain will not be modeled because Design Pollution Prevention Infiltration Areas do not have underdrains.

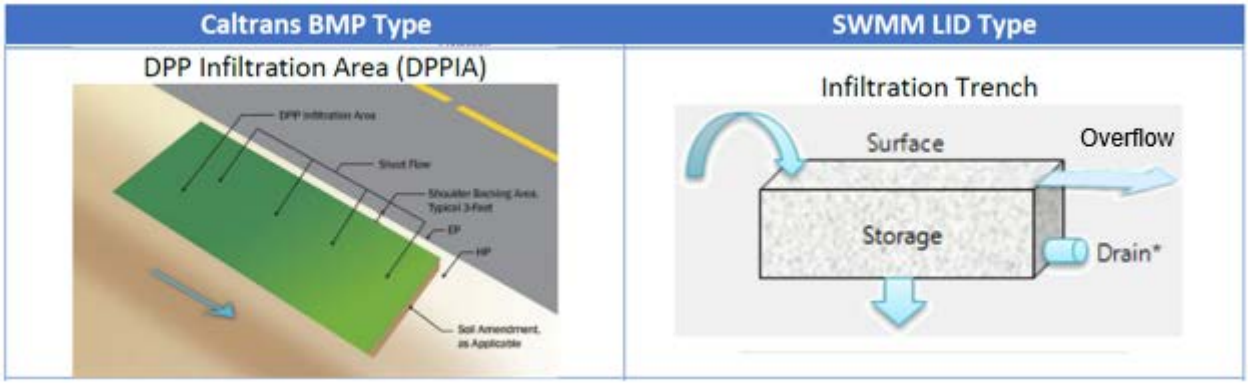

Figure G-3. The Storm Water Management Model Representation of Design Pollution Prevention Infiltration Areas

G.4. Example Demonstration

For a site with Design Pollution Prevention Infiltration Area treatment, assume that a Storm Water Management Model hydrology model has been created and the model produces runoff and Design Pollution Prevention Infiltration Area overflow results for each storm event over a 10-year simulation. The model results of interest are the volume of runoff and the overflow volume for each event. Table G-2 gives a set of hypothetical results of just 10 events to illustrate the results of interest.

Table G-2. Hypothetical Storm Water Management Model Results of Interest

Event Number	Runoff Volume (ft^3)	DPPIA Overflow Volume (ft^3)
1	3,620	290
2	1,015	20
3	690	0
4	4,527	498
5	8,964	1,613
6	2,628	105
7	3,161	221
8	4,321	469
9	3,006	120
10	1,756	39

To demonstrate compliance for the hypothetical results in Table G-2, the percent volume reduction is calculated for each event and the overall average is determined. This is shown in Table G-3.

Table G-3. Hypothetical Demonstration of Compliance

Event	Runoff Volume (ft^3)	DPPIA Overflow Volume (ft^3)	Percent Volume Reduction
1	3,620	290	92
2	1,015	20	98
3	690	0	100
4	4,527	498	89
5	8,964	1,613	82
6	2,628	105	96
7	3,161	221	93
8	4,321	469	89
9	3,006	120	96
10	1,756	39	98
		Average	93

As can be seen in Table G-3, the proposed Design Pollution Prevention Infiltration Area treatment achieves an average 93 percent volume reduction for storm events. This equates to an average 93 percent load reduction for storm events since concentration reductions for this BMP are assumed to be zero. Therefore, this hypothetical example demonstrates that the proposed Design Pollution Prevention Infiltration Area treatment achieves the target 90 percent reduction in pollutant loading during storm events.

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