Dist-County-Route: 04-CC-4
Post Mile Limits: R14.3/R20.3
Type of Work: Operational Improvements
Project ID (EA): EA 04-1J030K
Program Identification: _____
Phase: ☒ PID ☐ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): 2 - San Francisco Bay Area
Total Disturbed Soil Area: See Table 1 Post Construction Treatment Area: See Table 1
Alternative Compliance (acres): See Table 1
Estimated Const. Start Date: Jan 2022 Estimated Const. Completion Date: Feb 2039
Risk Level: RL 1 ☐ RL 2 ☒ RL 3 ☐ WPCP ☐ Other: _____
Is the Project within a TMDL watershed? Yes ☐ No ☒
TMDL Compliance Units (acres): _____
Notification of ADL reuse (if yes, provide date): Yes ☒ Date: TBD No ☐

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

Sasha Dansky, Registered Project Engineer/Landscape Architect — 4/27/17 Date

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

Laurie Lau, Project Manager — 5/8/17 *Date*

Bob Braga, Designated Maintenance Representative — 5/3/17 *Date*

For *David Yam, Designated Landscape Architect Representative* — 5/2/2017 *Date*

[Stamp Required at PS&E only] For *Norman Gonsalves, District/Regional Design SW Coordinator or Designee* — 4/27/17 *Date*

STORMWATER DATA INFORMATION

1. Project Description

State Route 4 (SR4) is a major freeway system which connects the residents in East Contra Costa County to the San Francisco Bay Area. Between the SR4/Interstate 680 (I-680) interchange and the Bailey Road interchange, severe directional peak period traffic congestion is currently experienced and that congestion is expected to grow in the future. The westbound (WB) direction experiences congestion during the morning commute hours and eastbound (EB) direction experiences congestion during the afternoon commute hours.

This project proposes to improve the operation along SR4 in both EB and WB directions from 0.3 mile west of the SR4/SR242 Separation to the Bailey Road Undercrossing. Three build alternatives are proposed: Alternative 1 would consist of traditional outside widening to add auxiliary lanes and a general purpose lane; Alternative 2 would use the inside shoulder as a travel lane during peak hours, which is known as a managed High Occupancy Vehicle (HOV) lane or an inside shoulder running HOV lane; and Alternative 3 would convert the inside shoulder to serve HOVs during peak periods and Single Occupancy Vehicles (SOVs) during non-peak period. Alternatives 2 and 3 would provide similar peak period operational benefit with a smaller footprint. All alternatives are comprised of a series of smaller improvement projects, herein referred to as “packages”. Each package is expected to have independent utility and logical termini, which would allow each package to move forward independently as a separate, stand-alone project. .

The following interchange improvements are common to all alternatives above and are expected to have independent utility and logical termini which allow each interchange improvement to proceed as independent project separate from the mainline alternatives depending on funding and/or local priorities:

- **HOV Direct Connect Ramp:** The project would construct an HOV direct connect ramp between NB SR242 and EB SR4. The ramp would be constructed with a left diverge from NB SR242, tunnel under existing EB SR4 and merge with the EB SR4 HOV lane from the existing median of SR4. Improvements include walls and a tunnel under SR4
- **Port Chicago Highway Interchange:** This interchange would be reconfigured from a cloverleaf (Type L-10) interchange to a partial cloverleaf (Type L-9) interchange. The WB on- and off-ramp configuration will remain in the similar configuration as the existing ramps. The EB loop off-ramp to NB Port Chicago Highway will be eliminated.
- **Willow Pass Road Interchange:** This interchange would be reconfigured from a compact diamond (Type L-1) interchange to one of the following three alternatives: a partial cloverleaf (Type L-9), "hook" ramp (Type L-6), or a diverging diamond interchange. Depending upon the interchange type selected for the Willow Pass Road Interchange, the interchange modification may result in changes in Caltrans access control limits, right of way and intersection spacing between ramp intersections and local street intersections.
- **San Marco Boulevard Interchange:** This interchange would be improved to provide a preferential lane for HOVs along the WB on-ramps.

This project lies within the City of Concord, City of Pittsburg and Contra Costa County Municipal Separate Storm Sewer System (MS4) permit area.

The table below summarizes the new, reworked and removed impervious surface as well as disturbed soil area (DSA) for each package of each of the three alternatives and the interchange improvements. The DSAs were calculated based existing side slopes to be disburbed by the new pavement widening area, the new cut/fill slopes, areas that are anticipated for construction access and staging work, ditch excavation, installation of signs, etc. The new impervious surface is the addition of the net new impervious and the replaced impervious surface. The net new pavement area is the post project impervious area minus the pre-project impervious area.

Table 1: Impervious Surface and Disturbed Soil Areas

		Pavement Area (acres)			Disturbed Soil Area (acres)
		Net New	Replaced	New	
Alternative #1	Package 1A	1.4	1.2	2.6	4.9
	Package 1B	1.8	0.8	2.7	5.1
	Package 1C	1.2	1.0	2.2	4.7
	Package 1D	2.9	2.5	5.4	10.3
	Package 1E	1.4	0.8	2.1	3.6
	Package 1F	1.6	2.9	4.5	7.1
	Package 1G	3.5	1.0	4.5	10.3
	Total Alternative #1	**13.8**	**10.1**	**23.9**	**45.9**
Alternative #2	Package 2A	1.3	4.8	6.1	6.1
	Package 2B	-	0.8	0.8	0.9
	Package 2C	-	2.0	2.0	2
	Package 2D	1.3	0.7	2.0	2
	Package 2E	0.4	1.0	1.4	1.4
	Package 2F	-	3.5	3.5	3.5
	Total Alternative #2	**3.0**	**12.9**	**15.9**	**15.9**
Alternative #3	Package 3A	-	3.2	3.2	3.2
	Package 3B	0.8	0.7	1.5	1.5
	Package 3C	-	1.3	1.3	1.3
	Package 3D	-	1.8	1.8	1.8
	Package 3E	1.3	0.7	2.0	2
	Package 3F	0.4	1.0	1.4	1.4
	Package 3G	-	3.5	3.5	3.5
	Total Alternative #3	**2.5**	**12.2**	**14.7**	**14.7**

		Pavement Area (acres)			Disturbed Soil Area (acres)
		Net New	Replaced	New	
Interchange Improvements	4/242 HOV Direct Connect	2.1	1.4	3.6	6
	Port Chicago Hwy Interchange	-	2.8	1.2	10.8
	Willow Pass (Partial Cloverleaf)	4.2	3.4	7.6	34.1
	Willow Pass (Hook Ramps)	3.1	4.3	7.4	25.1
	Willow Pass (Diverging Diamond)	4.7	5.6	10.2	28.7
	San Marco Blvd Interchange	0.7	0.4	1.1	1.9

2. Site Data and Stormwater Quality Design Issues

Water Quality Data

The project site is located in the Suisun Hydrologic Unit (HU), specifically the Concord Hydrologic Area and the Pittsburg Hydrologic Sub-Area (HAS) 207.31.

The direct receiving water bodies for the project packages and interchange alternatives are Walnut Creek, Mt. Diablo Creek and Willow Pass Creek. All three of the direct receiving water bodies flow to Suisun Bay.

The Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments (hereto known as "303(d) List") is a list of water bodies that do not meet water quality standards. The State Water Resources Control Board (SWRCB, San Francisco Bay Region) developed this list and it is also approved by the United States Environmental Protection Agency (US EPA). These regulations require that the responsible jurisdictions establish a ranking system, by priority, for water bodies on the list; also, action plans need to be developed, such as Total Maximum Daily Loads (TMDLs), in order to improve water quality. The 303(d) List is typically revised every two years.

Walnut Creek is on the 303(d) list with Diazinon as the pollutant of concern. Mt. Diablo Creek is on the 303(d) list with Diazinon and Toxicity as the pollutants of concern. Willow Pass Creek and Mt. Diablo Creek are all listed as having beneficial uses of Cold Freshwater Habitat (COLD), Fish Spawning (SPWN), and Fish Migration (MIGR). Suisun Bay is on the 303(d) list with Selenium, Chlordance, DDT (Dichlorodiphenltrichloroethane), Dieldrin, Dioxin compounds, Mercury and PCBs (Polychorinated biphenyls) as pollutants of concern.

Wetland and waters of the U.S. are present in the project limits. Any impacts to the waters of the U.S. and wetland will require a 401 Certification and Section 404 Permit.

Potential aerially deposited lead (ADL) may be present in the ramp and roadway excavation. There is no other known hazardous waste site encountered within or adjacent to the proposed project. A detailed aerially deposited lead analysis will be conducted during the PA&ED Phase. If contaminated

material is revealed in the test, the material will be handled in accordance with the regulatory requirement.

Areas within the project limits are designated as Environmental Sensitive Area (ESA) due to the presence of an existing waterway and/or creek. All ESA will be detailed in the PS&E Phase and will be properly fenced off and protected through the use of best management practice (BMPs).

Climatic Data

According to the Caltrans Construction Best Management Practices (BMPs) Manual, the rainy season of this area is from October 15th to April 15th.

The average temperatures in this area of the county range from 88°F in July and August to 39°F in December and January (NOAA National Centers of Environmental Information).

Geotechnical Data

The project limits are located within the San Francisco Bay/Sacramento-San Joaquin Delta. The soil data for this project is obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey. The general soil type was identified as clay loam. More geotechnical information will be available in the next project phase.

Based on a preliminary review of geologic hazards along the project limits, the closest Alquist-Priolo fault zone is the Concord Fault, which crosses SR4 between I-680 and SR242. The likelihood for the project limits to experience shaking during a seismic event is moderate to high, and would most likely originate from the Concord fault line. A preliminary geotechnical report should be prepared to evaluate the potential geologic, soils, and/or seismic conditions that may pose structural risks to the project. The risks associated with the local geology and seismic conditions are applicable to all of the interchange improvements and packages of the project, regardless of the selected alternative.

Topographic Data

The project is located at the northern part of Contra Costa County. The County is bordered to the west by the San Francisco Bay, to the east by the San Joaquin Valley, and to the south by the Livermore Valley. The County is mostly mountainoust with steep rocky topography. The highest peak is Mount Diablo, at elevation of approximately 3,849 ft.

The United States Geological Survey (USGS) topography map of the area shows elevation of the project area ranging from 100 ft to 400ft.

Land Use

The majority of the project limits are within the urban developed area of City of Concord and Pittsburg, with some areas located in an unincorporated area of Contra Costa County.

Right of Way

The packages in Alternatives 1, 2 and 3, the HOV direct connect ramp, Port Chicago Highway Interchange Improvements, and the ramp improvements at the San would construct entirely within the existing State right-of-way. The interchange improvements at Willow Pass Road Interchange

would have right-of-way requirements. It is anticipated that there is adequate room within the State right-of-way for treatment BMPs.

3. Construction Site BMPs to be used on Project

Project Risk Level

The project risk level is a factor that is determined by analyzing sediment risk and receiving water risk for the project. As there are currently three alternatives for the freeway improvements with different packages and different alternatives for the interchange improvements, the sediment risk will vary per package. However, the highest, and therefore most conservative, potential watershed erosion estimate is 41.8 ton/acre, classified as Medium Sediment Risk. Because the disturbed area discharges to water bodies with designated beneficial uses of SPAWN & COLD & MIGRATORY, the Receiving Water Risk is classified as High.

The combined medium sediment risk and high receiving water risk result in the project being classified as Risk Level 2. See attached Risk Level Determination Documentation.

The three alternatives proposed were selected keeping environmental impact in mind. During the design phase, the project team will coordinate with Caltrans and Contra Costa County agencies to ensure potential storm water impacts are minimized. Where possible, slopes will be designed to 4:1 (H:V) or flatter with a maximum of 2:1 (H:V).

This project is a Risk Level 2 project. This section simply provides a strategy for the project's temporary construction site BMPs, while the detailed design will occur at a later stage. The cost of the construction site BMPs was estimated using the Percent of Total project cost (Option 1) of the PPDG's Appendix F.

SWPPP

This project results in soil disturbance of more than one acre, therefore, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared by the contractor. The SWPPP will identify construction activities that can discharge pollutants in stormwater and provide descriptions of measures to control these pollutants. SWPPP will include temporary soil stabilization, temporary sediment control, tracking control, wind erosion control, non-stormwater management, and waste management material pollution control for the construction site.

Construction Site BMP Strategy

The construction of this project is expected to last through multiple rainy seasons. Should weather cooperate, the contractor should not schedule earth moving operations during the rainy events. The contractor will be responsible for having appropriate temporary Construction Site BMPs in place during weather events. Disturbed soil areas will be protected by erosion and water pollution control measures listed below and as shown in the plans and specifications.

- Soil Stabilization Measures
- Sediment Control Measures
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management Measures
- Waste Management and Material Pollution Control
- Construction and Maintenance Storm Water Coordination

Monitoring & Sampling

As a Risk Level 2 project, monitoring of the BMPs and sampling at stormwater discharge points is required. Sampling locations will be specified at the PS&E phase.

4. Maintenance BMPs

The proposed alternatives allows for ease for accessing and maintenaning all BMPs, the project team will coordinate with Caltrans Maintenance to include features such as maintenance vehicle pullouts, access gates, and maintenance worker safety features to assist with maintenaning all BMPs in the design phase. Drainage features such as inlet grate, manhole cover, etc. on bikeways or pedestrian path should be designed and installed in a manner that provides an adequate surface for bicyclists and pedestrians.

5. Other Water Quality Requirements and Agreements

If any of the Packages in Alternatives 1, 2 and 3 include 1 acre or more of net new impervious area or any new impervious areas of the project drain to the Mt. Diablo Creek crossing, the Rapid Stability Assessment (RSA) will need to be completed per the Caltrans Hydromodification Requirements Guidance as part of the future phases (PA&ED/ PS&E) of the project. Other packages in Alternatives 1, 2, and 3 will requrie further evaluation and implemention of pollution prevention and treatment BMPs as discussed in the later sections of this report to meet hydromodification requirements.

The project is located within TMDL watersheds and strom water from the project ultimately flows into Suisun Bay, which is on the 2012 303(d) list with Mercury and PCBs as pollutants of concern. In the furute phases, the project shall verify if Caltrans is a stakeholder for Suisun Bay. If Caltrans is stakeholder for Suisun Bay, the project shall be designed to achive permit compliance by addressing post construction stormwater treatment for pollutants of concern.

The project will likely require a 401 certification. If required, the RWQCB may issue a set of requirements known as the Waste Discharge Requirements (WDRs) that define activities, such as inclusion of specific features, effluent limitations, monitoring, temporary clear water diversions, and other implenmtation for protecting or benefiting water quality. These requirements can be implimented for both permanent and temporary discharges from the project.

The project shall comply with Caltrans' statewide NPDES permit as it is developed in future phases.

Currently, there are no negotiated understandings or agreements with the San Francisco Regional Water Quality Control Board (RWQCB) pertaining to this project. The preparation of this SWDR is a specific requirement of the Caltrans NPDES.

6. Permanent BMPs

Based on the availabilty of the fill sections with side slopes, the potential permanent BMPs considered for the project include bioswales and biostrips, which will be further designed in future phases of the project. Permanent BMPs must meet hydromodification requirements and other Caltrans' requirements.

Design Pollution Prevention (DPP) BMP Strategy

This project is required to consider treatment BMPs in accordance with Section 4 of the February 2016 Project Planning and Design Guide.

The SR4 Operational Improvement project improvements require fill. Fill slopes will be 4:1 or flatter, with the exceptions of the following areas:

- Eastbound between the Willow Pass Rd off-ramp and Willow Pass Road UC, 2:1 or flatter slopes are proposed.
- Eastbound between the San Marco Blvd off-ramp, 2:1 or flatter side slopes are proposed
- Westbound between the San Marco Blvd loop on-ramp and the diagonal on-ramp, 2:1 or flatter side slopes are proposed.
- At the Port Chicago Highway Interchange along the westbound off-ramp and along the westbound on-ramp, 2:1 or flatter side slopes are proposed.
- At the Willow Pass Road Interchange along the eastbound off-ramp, westbound off-ramp, and westbound loop on-ramp, 2:1 or flatter side slopes are proposed.

To address concentrated flows, drains and ditches will be designed to collect concentrated flow. An erosion control plan will be required for any unpaved areas that will be disturbed during construction within and outside of Caltrans' right of way.

Hard surfaces, such as rock slope protection (RSP), concrete paving, and lining for ditches, will be applied where necessary to provide soil stabilization, safety, ease of maintenance, etc.

Based on existing site conditions, 20%-50% of the WQV can be infiltrated. However, infiltration can be increased to more than 90% by using soil amendments.

Alternative 1 increases the impervious area of the site by approximately 23.9 acres. Alternatives 2 and 3 increase the impervious area by considerably less, approximately 15.9 acres and 14.7 acres, respectively. The goal of the BMP design is to treat an area equivalent to the increase of impervious area. The preferred pontential treatment BMP for the project is the use of biofiltration swales. Multiple biofiltration swales and biostrips, where side slopes are at least 15 feet long and flatter than 4:1, are proposed on the project site. Final design of biofiltration swales and biostrips will be done at the PS&E phase.

The project may also consider implementation of full trash capture devices to remove litter and other solids from runoff. A variety of in-line and off-line trash capture system technologies may be considered to achieve full trash capture, including riser retrofits, trash racks and gross solid removal devices (GSRDs). Examples of GSRDs include linear radial and inclined screen systems.

Treatment BMP Strategy

Infiltration Devices – Checklist T-1, Part 2

Infiltration devices allow runoff to infiltrate into the ground by temporarily storing the Water Quality Volume (WQV) while it infiltrates through the invert. The basin requires adequate acreage for gentle side slopes of the basin, spillways with scour protection, and a maintenance access road into the

basin. They are not incorporated into the project because soils classified as HSG D are present on the project site. In addition, silt/clay content is above 40% of the site, making infiltration of the site poor.

Biofiltration Swales/Strips, Checklist T-1, Part 3

Biofiltration swales are vegetated land areas and channels that remove pollutants from the runoff as the runoff percolates in the soil. They are the preferred method of Treatment BMP for this project because of sufficient land area available, favorable climatic conditions for continuous vegetation, and low maintenance cost.

Multiple biofiltration swales and biostrips, where side slopes at least 15 feet long and flatter than 4:1, are proposed on this site, with their final design being done at the PS&E phase.

Detention Devices, Checklist T-1, Part 4

Detention devices are basins that temporarily detain drainage. Runoff collects in the basins and the solids settle to the bottom of the basins, then the water flows out of the basins under quiescent conditions. The basin requires adequate acreage for gentle side slopes of the basin, spillways, and a maintenance access road into the basin. They are not incorporated into the project due to limited right of way.

Traction Sand Traps, Checklist T-1, Part 5

Traction sand traps are used to collect traction sand or other abrasives by detaining the runoff, allowing the abrasive to settle out before the runoff enters the storm drain system. They are not incorporated into the project due to the project not being located in an area where traction sand or other abrasives are applied more than twice a year.

Dry Weather Diversion, Checklist T-1, Part 6

Dry weather diversions direct non-stormwater flow generated by Caltrans activities or from Caltrans facilities to a local municipal sanitary sewer system during the dry season or dry weather. Dry weather flows generated by Caltrans are not anticipated to be persistent, so dry weather diversions are not incorporated into the project.

Gross Solids Removal Devices (GSRDs), Checklist T-1, Part 7

Gross solids removal devices remove litter and other solids from runoff through various screening technologies. Trash capture devices may be considered on the project because of high levels of trash found within the project limits on SR4 due to vehicles hauling trash to the landfill east of the project in Pittsburg.

Media Filters, Checklist T-1, Part 8

Media filters remove sediment by directing runoff through two chambers where sediments and particles first settle out then are filtered out. They are not incorporated into the project due to limited right of way.

Multi-Chambered Treatment Trains (MCTTs), Checklist T-1, Parts 9 and 10

Multi-Chambered Treatment Trains use three different treatment mechanisms in three sequential chambers. These include a catch basin with a sump, a sedimentation chamber with tube settlers and sorbent pads, and a filtering chamber lined with media. MCTTs are developed for treatment of stormwater at critical source areas, such as vehicle service facilities, parking areas, paved storage areas and fueling stations. MCTTs are not suitable for this project because there are no critical source areas within the project limits.

Wet Basins, Checklist T-1, Parts 9 and 10

Wet Basins are detention systems comprised of a permanent pool of water, a temporary storage volume above the permanent pool, and a shoreline zone planted with aquatic vegetation. Wet basins are not incorporated into the project due to lack of a permanent source of water and no visual aesthetic benefits to the permanent pool placement.

Pervious Pavement, Checklist T-1, Parts 9 and 10

Pervious Pavement is an infiltration treatment function. Pervious pavement is better suited for non-highway applications such as landscaped areas, sidewalks, bike paths, miscellaneous pavement to accept run-on from adjacent impervious area, parking lots, park-and-ride areas, maintenance access roads, rest areas, and maintenance stations. Thus, pervious pavement is not considered for the project.

Table E-1. Overall Project Treatment Summary Table[1]		
	Post Construction Treatment Area (ac)	14.7 to 23.9 (A)
Total Treated Area	Treated Impervious Area (CT RW) (ac)	14.7 to 23.9 (B)
	Treated Impervious Area (Outside CT RW) (ac)	0 (C)
	Treated Pervious Area (CT RW) (CUs) (ac)[2]	0 (D)
	Treated Pervious Area (Outside CT RW) (CUs) (ac)[2]	0 (E)
	Post Construction Treatment Balance (ac)[3]	0 [F = (B+C) – A]
TMDL Areas Only	Stabilized Area (ac)	G
	Alternative Compliance (ac)[4]	F
	TMDL Compliance Units (ac)[5]	H = D + E + F + G

1 This table is provided as an example. The table may be edited, altered, or removed as applicable or as directed by the District/Regional Design Stormwater Coordinator.

2 This acreage can only be applied to CUs, if applicable.

3 If the total treated area is not equal to (or greater than) the project required Post Construction Treatment Area, then Alternative Compliance must be identified for this amount.

4 Available Alternative Compliance

- Negative Value - amount of treatment needed through Alternative Compliance.
- Positive Value – amount of treatment available for Alternative Compliance (within the same watershed) or CUs as determined by the district.

5 Areas identified as Post Construction Treatment Balance (F) can only be applied as CUs when it has not been used as Alternative Compliance. This area cannot be double counted. In addition, Stabilized Areas (G) within a TMDL can only be applied when the area is not included in the Total Treated Area (D and E).

Required Attachments

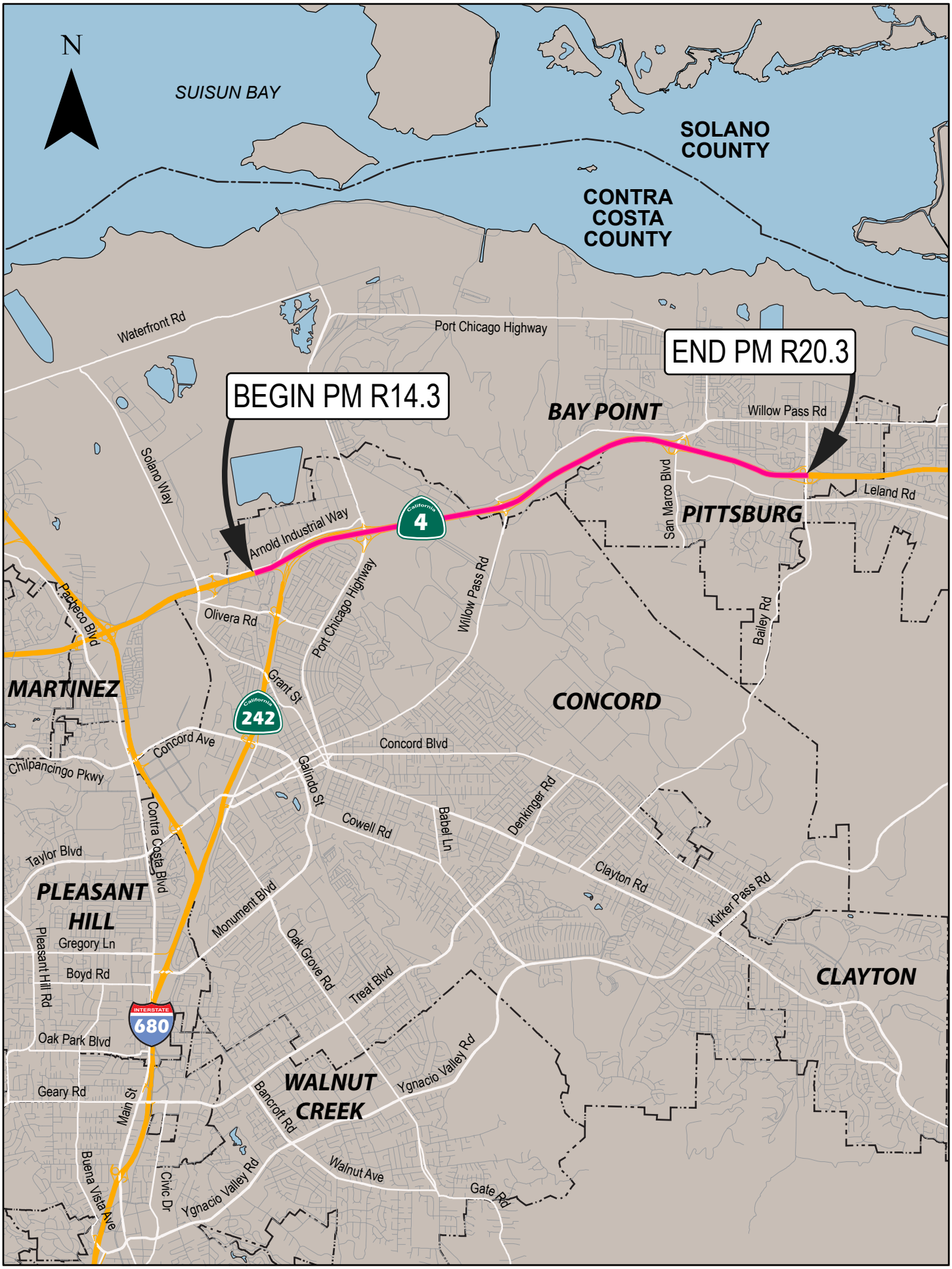
- Attachment A - Vicinity Map
- Attachment B - Evaluation Documentation Form (EDF)
- Attachment C - Risk Level Determination Documentation

Supplemental Attachments

- Attachment D - Storm Water BMP Cost Summary
- Attachment E - Checklist SW-1, Site Data Sources
- Attachment F - Checklist SW-2, Stormwater Quality Issues Summary
- Attachment G - Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts
- Attachment H - Checklist DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- Attachment I - Checklist T-1, Part 1 (Treatment BMPs)
- Attachment J - Checklist T-1, Part 2–8 (Treatment BMPs)

Attachment A

Vicinity Map


N
SUISUN BAY
SOLANO COUNTY
CONTRA COSTA COUNTY
BEGIN PM R14.3
END PM R20.3
Waterfront Rd
Port Chicago Highway
BAY POINT
Willow Pass Rd
Solano Way
Arnold Industrial Way
4
San Marco Blvd
PITTSBURG
Leland Rd
Bailey Rd
Willow Pass Rd
Port Chicago Highway
Olivera Rd
Pacheco Blvd
MARTINEZ
Grant St
242
CONCORD
Concord Ave
Concord Blvd
Chilpancingo Pkwy
Galindo St
Cowell Rd
Babel Ln
Denkinger Rd
Clayton Rd
Kirker Pass Rd
Taylor Blvd
Contra Costa Blvd
PLEASANT HILL
Monument Blvd
Oak Grove Rd
Treat Blvd
CLAYTON
Gregory Ln
Pleasant Hill Rd
Boyd Rd
680
Oak Park Blvd
Ygnacio Valley Rd
Geary Rd
Main St
Bancroft Rd
WALNUT CREEK
Buena Vista Ave
Civic Dr
Ygnacio Valley Rd
Walnut Ave
Gate Rd

Attachment B

Evaluation Documentation Form (EDF)

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1A

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1B

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1C

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1D

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1E

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1F

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 1 - Package 1G

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2A

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2B

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2C

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2D

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2E

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 2 - Package 2F

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3A

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3B

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3C

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

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DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3D

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3E

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3F

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

DATE: April 2017

Project ID (EA): EA-04-1J030K

Alternative 3 - Package 3G

No.	Criteria	Yes ✓	No ✓	Supplemental Information for Evaluation
1.	Begin Project evaluation regarding requirement for implementation of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Treatment BMPs. Continue to 2.
2.	Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL Compliance Units)?		✓	If **Yes**, go to 8. If **No**, continue to 3.
3.	Is there a direct or indirect discharge to surface waters?	✓		If **Yes**, continue to 4. If **No**, go to 9.
4.	As defined in the WQAR or ED, does the project: a. discharge to areas of Special Biological Significance (ASBS), or		✓	If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5. _____*(Dist./Reg. Coordinator initials)* If **No** to all, continue to 5.
	b. discharge to a TMDL watershed where Caltrans is named stakeholder, or	✓(*)		
	c. have other pollution control requirements for surface waters within the project limits?		✓	
5.	Are any existing Treatment BMPs partially or completely removed? (ATA condition #1, Section 4.4.1)		✓	If **Yes**, go to 8 **AND** continue to 6. If **No**, continue to 6.
6.	Is this a Routine Maintenance Project?		✓	If **Yes**, go to 9. If **No**, continue to 7.
7.	Does the project result in an increase of one acre or more of new impervious surface (NIS)?	✓		If **Yes**, go to 8. If **No**, go to 9.
8.	Project is required to implement Treatment BMPs.	Complete Checklist T-1, Part 1.		
9.	Project is not required to implement Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	Document for Project Files by completing this form and attaching it to the SWDR.		

(*) The project shall verify if Caltrans is named a stakeholder for Sunsui Bay in future phases

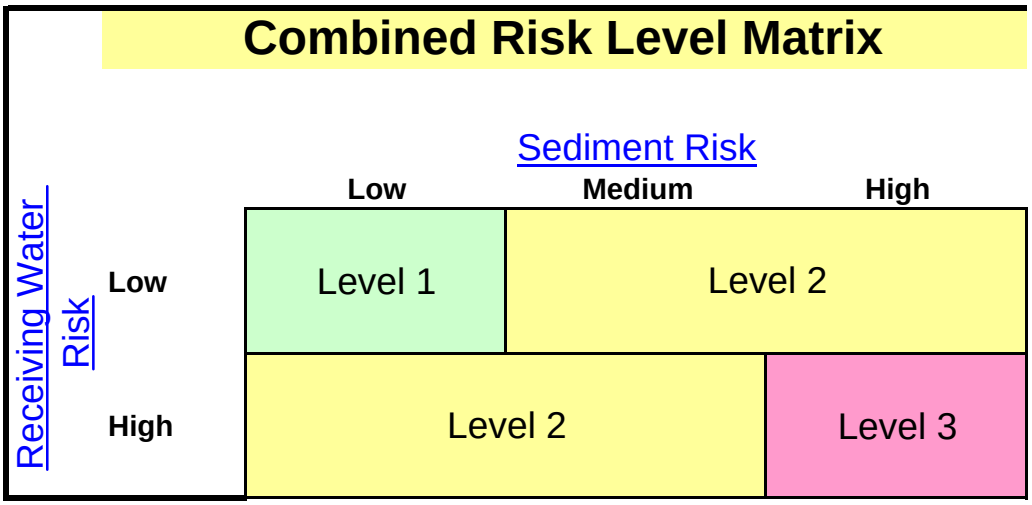
Attachment C

Risk Level Determination Documentation

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		30
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.24
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		3.89
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**		28.008
16	**Site Sediment Risk Factor**		**Medium**
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?:	**yes**	**High**
http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml		
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan)		
http://www.waterboards.ca.gov/waterboards_map.shtml		
Region 1 Basin Plan		
Region 2 Basin Plan		
Region 3 Basin Plan		
Region 4 Basin Plan		
Region 5 Basin Plan		
Region 6 Basin Plan		
Region 7 Basin Plan		
Region 8 Basin Plan		
Region 9 Basin Plan		

Combined Risk Level Matrix



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

CALIFORNIA DEPARTMENT OF
TRANSPORTATION

Caltrans > DEA > Stormwater > **Water Quality Planning Tool**

- Monthly Precipitation
- MS4 Areas
- Post Miles
- RWQCB Boundaries
- USGS Topo Maps
- Watershed Boundary Dataset
- Zip Codes

Soil Loss Factors

- Erosivity Index
- Soils (K Factors)
- R Factor (calculations)
- LS Factor

Compliance Storm Events

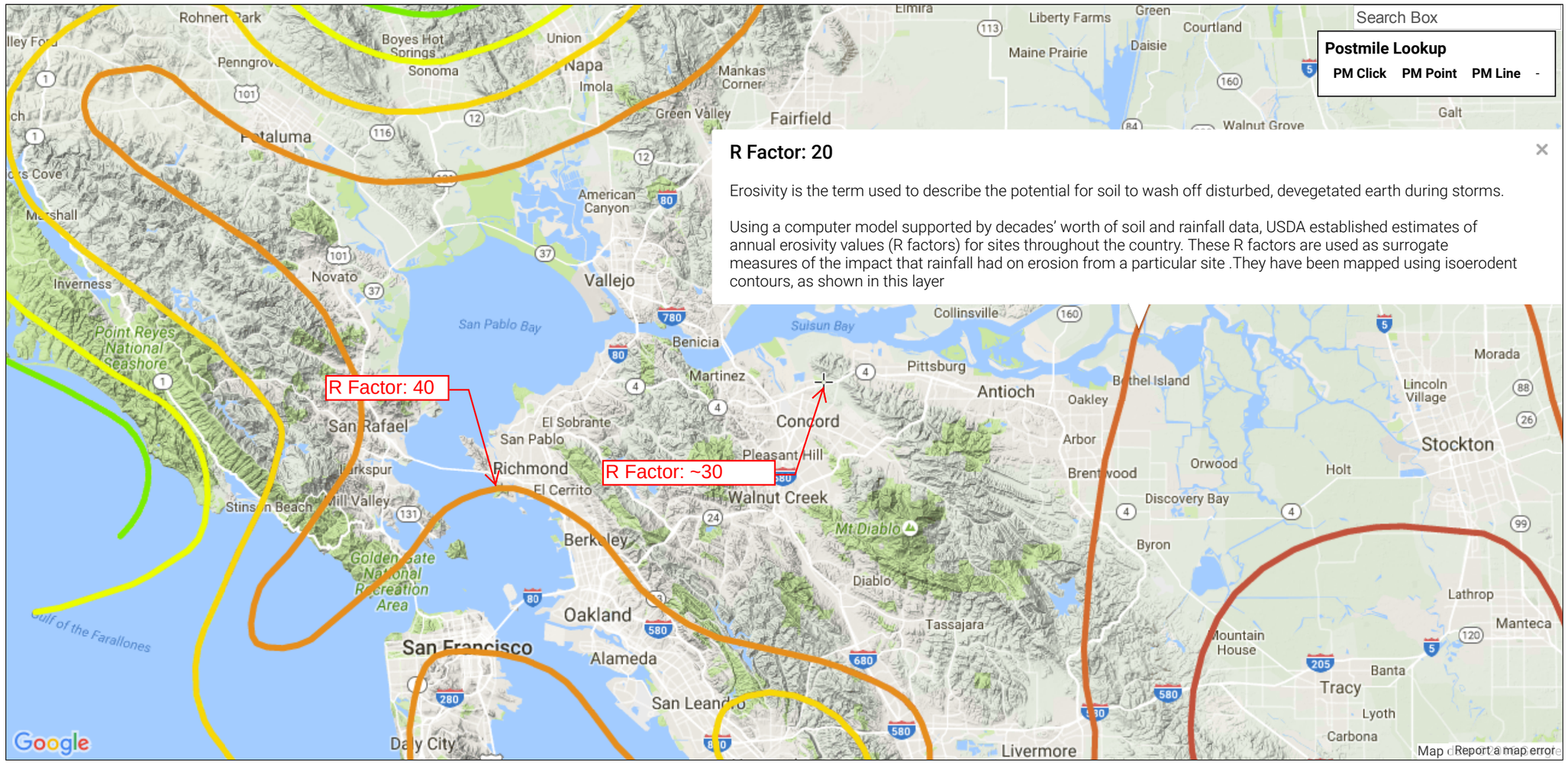
- 5-yr 24-hr North
- 10-yr 24-hr North
- 5-yr 24-hr South
- 10-yr 24-hr South

Distance and Area

Measure Clear
Feet: 0
Acres: 0

Postmile Lookup

Information
Hover over a layer name for a description.
Additional information, tables, coordinates, and links are below the map.
Help



Watershed Information

CALWATER WATERSHED

Hydrologic Unit	SUISUN	Hydrologic Area	Concord	Hydrologic Sub-Area #	207.31
Hydrologic Sub-Area Name	Pittsburg	Planning Watershed	2207310104	HSA Area (acres)	71423
Latitude, Longitude	38.0128, -122.0122				

WATERSHED BOUNDARY DATASET

Watershed	Mount Diablo Creek-Frontal Suisun Bay Estuaries	Subwatershed	Mount Diablo Creek-Frontal Suisun Bay Estuaries	Hydrologic Unit Code	180500010302
Average Annual Precipitation (inches)	17.71				

TMDLs & 303(d) Listed Water Bodies (2012 List)

Key: Water body on 303(d) list Water body with a TMDL

Name	Pollutant	Size	Status
Kirker Creek	Pyrethroids	4 Miles	Being addressed with USEPA approved TMDL
Kirker Creek	Toxicity	4 Miles	TMDL required
Kirker Creek	Trash	4 Miles	TMDL required
Mt. Diablo Creek	Diazinon	12.63 Miles	Being addressed with USEPA approved TMDL
Mt. Diablo Creek	Toxicity	12.63 Miles	TMDL required
Pine Creek (Contra Costa Co)	Diazinon	12.56 Miles	Being addressed with USEPA approved TMDL
Suisun Bay	Chlordane	25335 Acres	TMDL required
Suisun Bay	DDT (Dichlorodiphenyltrichloroethane)	25335 Acres	TMDL required
Suisun Bay	Dieldrin	25335 Acres	TMDL required
Suisun Bay	Dioxin compounds (including 2,3,7,8-TCDD)	25335 Acres	TMDL required
Suisun Bay	Furan Compounds	25335 Acres	TMDL required
Suisun Bay	Invasive Species	25335 Acres	TMDL required
Suisun Bay	Mercury	25335 Acres	Being addressed with USEPA approved TMDL
Suisun Bay	PCBs (Polychlorinated biphenyls)	25335 Acres	TMDL required
Suisun Bay	PCBs (Polychlorinated biphenyls) (dioxin-like)	25335 Acres	TMDL required
Suisun Bay	Selenium	25335 Acres	TMDL required
Walnut Creek	Diazinon	9.03 Miles	Being addressed with USEPA approved TMDL

Water Quality Objectives

The following waterbodies are in or near HSA 207.31. Click on the waterbody to get information on water quality objectives and beneficial uses

Waterbody Name	Beneficial Uses	Sediment-Sensitive Waterbody
Carquinez Strait	COMM, EST, IND, MIGR, NAV, RARE, REC1, REC2, SPWN, WILD	False
Delta -Mendota Canal	AGR, MUN, REC1, REC2, WARM, WILD	False
Green Valley Creek	COLD, FRSH, REC1, REC2, SPWN, WARM, WILD	False
Herman Lake	COLD, IND, MUN, REC1, REC2, SPWN, WARM, WILD	False
Lafayette Lake	COLD, MUN, REC2, SPWN, WARM, WILD	False
Lake Curry	MUN, REC1, REC2, SPWN, WARM, WILD	False
Lake Frey	COLD, MUN, REC2, SPWN, WARM, WILD	False
Lake Madigan	AGR, COLD, MUN, REC2, SPWN, WARM, WILD	False
Mallard Reservoir	AGR, IND, MUN, PROC, REC1, REC2, SPWN, WARM, WILD	False
Montezuma Slough	NAV, RARE, REC1, REC2, SPWN, WARM, WILD	False
Mt. Diablo Creek	COLD, MIGR, REC1, REC2, SPWN, WARM, WILD	True
Other Lakes and Reservoirs (6)	AGR, COLD, MUN, POW, PROC, REC1, REC2, SPWN, WARM, WILD	False
Pacheco Pond	COMM, REC1, WARM	False
Pine Cr	COLD, REC1, REC2, SPWN, WARM, WILD	False
Suisun Bay	COMM, EST, IND, MIGR, NAV, RARE, REC1, REC2, SPWN, WILD	False
Suisun Bay	COMM, EST, IND, MIGR, NAV, RARE, REC1, REC2, SPWN, WILD	False
Walnut Cr	COLD, MIGR, REC1, REC2, SPWN, WARM, WILD	True
Walnut Cr	COLD, MIGR, REC1, REC2, SPWN, WARM, WILD	True
Walnut Cr	COLD, MIGR, REC1, REC2, SPWN, WARM, WILD	True

Caltrans Facilities

MAINTENANCE STATIONS

Name	Address

FREEWAYS AND HIGHWAYS

Route	Length (miles)
4	7.2
242	4.2
680	1.9

PARK & RIDE LOTS

Name	District	County	Route	Post Mile
CONCORD	4	CC	242	R0.81

REST AREAS

Name	District	County	Route	Post Mile

Additional Information

Help for the Water Quality Planning Tool

TMDL information from the SWRCB

Construction General Permit information from the SWRCB

Groundwater Depth information from the California Department of Water Resouces

R Factor erosivity calculations

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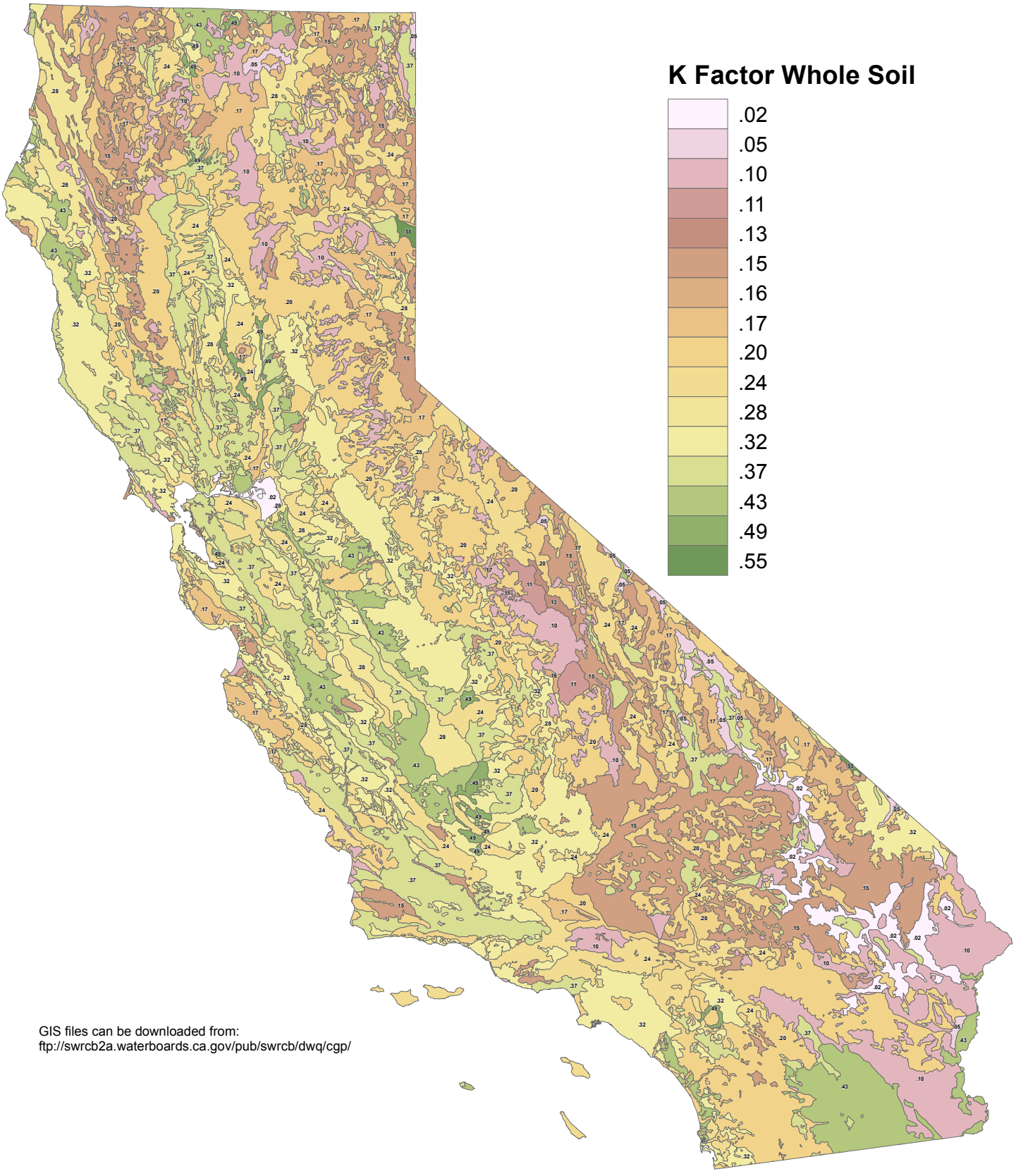
RUSLE K Values



GIS files can be downloaded from:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/

Water Boards

Data Source: *Natural Resources Conservation Service, U.S. Dept. of Agriculture and State Water Resources Control Board*

RUSLE K Factor Watershed Map Methodology

Objective:
To provide guidance for determining the Revised Universal Soil Loss Equation (RUSLE) K Factor with regards to the Construction General Permit. The K factor represents the combination of detachability of the soil, runoff potential of the soil, and the transportability of the sediment eroded from the soil. Using the methodology, a discharger will be able to identify the appropriate, areally-weighted K Factor value for a construction project.

Background:
The soil-erodibility factor (K) represents: (1) the susceptibility of soil or surface material to erosion, (2) the transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff, although these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high runoff rates and large runoff volumes. For more information on the Construction General Permit and references for the RUSLE, please visit:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

Data and Method:
Soil data was acquired from the Natural Resources Conservation Service (NRCS) and was used in conjunction with an NRCS Microsoft Access template and the NRCS Soil Data Viewer. The Microsoft Access template was used in conjunction with the data received from the Soil Data Mart to produce the background data needed to create the K Factor values (for whole soil) in ArcMap.

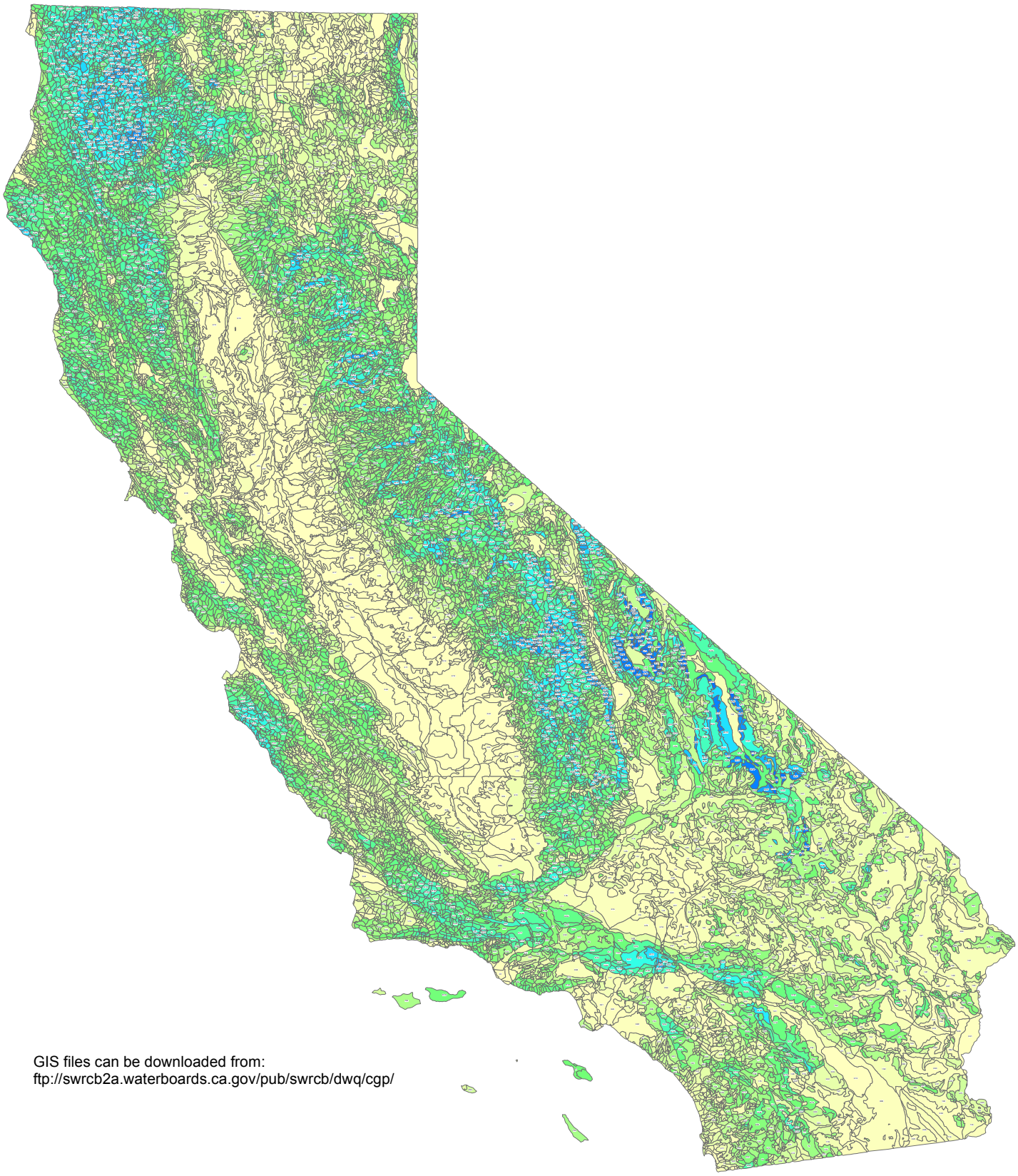
- The California subset of the U.S. General Soils Map dataset can be downloaded from: http://soildatamart.nrcs.usda.gov/Default.aspx
- The Microsoft Access template needed to produce K Factor values can be downloaded from: http://soildatamart.nrcs.usda.gov/Templates.aspx
- The GIS extension “Soil Data Viewer” used in creating this data can be downloaded from: http://soils.usda.gov/sdv/download.html

For a complete list of NRCS soil survey data and methods please visit:
- http://soildatamart.nrcs.usda.gov/SSURGOMetadata.aspx

Contact:
Please contact the Storm Water help desk with any questions or comments:
- Phone: 916-341-5537
- Email: stormwater@waterboards.ca.gov

Geographic Information System (GIS) Data can be accessed at:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/

RUSLE LS Values



GIS files can be downloaded from:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/

Water Boards

0 25 50 100 Miles

Data Source:*State Water Resources Control Board*

Attachment D

Storm Water BMP Cost Summary

Storm Water BMP Cost Summary Package 1A - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$125,000	SUBTOTAL	$125,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.92	$480,000	SUBTOTAL	$480,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$28,065,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$28,065,000.00	1.25%	SUBTOTAL	$350,812.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,032,213

Storm Water BMP Cost Summary Package 1B - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.98	$495,000	SUBTOTAL	$495,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$18,691,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$18,691,000.00	1.25%	SUBTOTAL	$233,637.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $882,438

Storm Water BMP Cost Summary Package 1C - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.65	$412,500	SUBTOTAL	$412,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$18,500,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$18,500,000.00	1.25%	SUBTOTAL	$231,250.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $797,550

Storm Water BMP Cost Summary Package 1D - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$175,000	SUBTOTAL	$175,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
3.08	$770,000	SUBTOTAL	$770,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$47,961,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$47,961,000.00	1.25%	SUBTOTAL	$599,512.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,620,913

Storm Water BMP Cost Summary Package 1E - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$150,000	SUBTOTAL	$150,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.56	$390,000	SUBTOTAL	$390,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$32,241,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$32,241,000.00	1.25%	SUBTOTAL	$403,012.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,019,413

Storm Water BMP Cost Summary Package 1F - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.86	$465,000	SUBTOTAL	$465,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$23,620,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$23,620,000.00	1.25%	SUBTOTAL	$295,250.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $914,050

Storm Water BMP Cost Summary Package 1G - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$200,000	SUBTOTAL	$200,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
4.79	$1,197,500	SUBTOTAL	$1,197,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$50,997,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$50,997,000.00	1.25%	SUBTOTAL	$637,462.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $2,088,763

Storm Water BMP Cost Summary Package 2A - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$200,000	SUBTOTAL	$200,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
4.4	$1,100,000	SUBTOTAL	$1,100,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$56,271,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$56,271,000.00	1.25%	SUBTOTAL	$703,387.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $2,079,788

Storm Water BMP Cost Summary Package 2B - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
0.7	$175,000	SUBTOTAL	$175,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$16,150,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$16,150,000.00	1.25%	SUBTOTAL	$201,875.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $530,675

Storm Water BMP Cost Summary Package 2C - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$150,000	SUBTOTAL	$150,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.67	$417,500	SUBTOTAL	$417,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$36,970,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$36,970,000.00	1.25%	SUBTOTAL	$462,125.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $1,083,425

Storm Water BMP Cost Summary Package 2D - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$150,000	SUBTOTAL	$150,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.45	$362,500	SUBTOTAL	$362,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$34,086,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$34,086,000.00	1.25%	SUBTOTAL	$426,075.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,014,975

Storm Water BMP Cost Summary Package 2E - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.09	$272,500	SUBTOTAL	$272,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$22,166,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$22,166,000.00	1.25%	SUBTOTAL	$277,075.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $725,975

Storm Water BMP Cost Summary Package 2F - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$125,000	SUBTOTAL	$125,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
2.91	$727,500	SUBTOTAL	$727,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$29,440,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$29,440,000.00	1.25%	SUBTOTAL	$368,000.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $1,274,300

Storm Water BMP Cost Summary Package 3A - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$125,000	SUBTOTAL	$125,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
2.05	$512,500	SUBTOTAL	$512,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$27,556,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$27,556,000.00	1.25%	SUBTOTAL	$344,450.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,058,350

Storm Water BMP Cost Summary Package 3B - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.16	$290,000	SUBTOTAL	$290,000

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$11,000,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$11,000,000.00	1.50%	SUBTOTAL	$165,000.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $608,800

Storm Water BMP Cost Summary Package 3C - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.03	$257,500	SUBTOTAL	$257,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$13,710,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$13,710,000.00	1.25%	SUBTOTAL	$171,375.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $582,675

Storm Water BMP Cost Summary Package 3D - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.51	$377,500	SUBTOTAL	$377,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$14,140,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$14,140,000.00	1.25%	SUBTOTAL	$176,750.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $630,650

Storm Water BMP Cost Summary Package 3E - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$150,000	SUBTOTAL	$150,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.45	$362,500	SUBTOTAL	$362,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$34,036,000	$13,800.00	SUBTOTAL	$13,800.00
RQM Value (if SWPPP is required):	$7,800		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$34,036,000.00	1.25%	SUBTOTAL	$425,450.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$62,600	SUBTOTAL	$62,600

TOTAL COST FOR STORM WATER BMPs $1,014,350

Storm Water BMP Cost Summary Package 3F - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$100,000	SUBTOTAL	$100,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
1.09	$272,500	SUBTOTAL	$272,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$17,145,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$17,145,000.00	1.25%	SUBTOTAL	$214,312.50

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $640,613

Storm Water BMP Cost Summary Package 3G - PID Phase Only
THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	State Route 4 Operational Improvements Project
District:	4
County:	Contra Costa
Route:	SR4
Postmile Limits:	14.3/20.3
Project ID (or EA):	1J030

1.0 Design Pollution Prevention BMPs

BMP Quantity	Unit Cost		
1	$125,000	SUBTOTAL	$125,000

2. Treatment BMPs

Lane Miles of Pavement	$250,000 per Mile		
2.91	$727,500	SUBTOTAL	$727,500

3. Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
$27,720,000	$11,400.00	SUBTOTAL	$11,400.00
RQM Value (if SWPPP is required):	$5,400		

4. Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
$27,720,000.00	1.25%	SUBTOTAL	$346,500.00

5. Stormwater Monitoring

Project Risk Level	SWM Cost-PPDG Apndx F*		
2	$42,400	SUBTOTAL	$42,400

TOTAL COST FOR STORM WATER BMPs $1,252,800

Attachment E

Checklist SW-1, Site Data Sources

Checklist SW-1, Site Data Sources

Prepared by: MTCo Date: November 2015 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2-SF Bay Area

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect available project reports and any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 6.4.3.2. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
• Contra Costa County GIS Data	May 2007
• Google Maps	Accessed : September 2016
•	
Hydraulic	
• N/A)	
•	
•	
Soils	
• USGS Soil Data Explorer	Accessed: September 2016
•	
•	
Climatic	
• NOAA Precipitation Frequency Data	Accessed: September 2016
•	
•	
Water Quality	
• N/A	
•	
•	
Other Data Categories	
• N/A	
•	
•	

Attachment F

Checklist SW-2, Stormwater Quality Issues Summary

Checklist SW-2, Stormwater Quality Issues Summary

Prepared by: MTCo Date: November 2015 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Consult other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Design Stormwater Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

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

Attachment G

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

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

Prepared by: MTCo Date: November 2015 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

The PE should confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

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

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

Attachment H

Checklist DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)

Design Pollution Prevention BMPs

Checklist DPP-1, Part 1

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Consideration of Design Pollution Prevention BMPs

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

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

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

Slope/Surface Protection Systems

Will the project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA

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

Concentrated Flow Conveyance Systems

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

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

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

It is the goal of the Stormwater Program to maximize the protection of desirable existing vegetation, soils, and stream buffer areas to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation, soils, and stream buffer areas***, complete the Checklist DPP-1, Part 5.

Design Pollution Prevention BMPs

Checklist DPP-1, Part 2

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Downstream Effects Related to Potentially Increased Flow

1.	Review total paved area and reduce to the maximum extent practicable.	☒ Complete
2.	Review channel lining materials and design for stream bank erosion control.	☒ Complete
	(a) See Chapters 860 and 870 of the HDM.	☒ Complete
	(b) Consider channel erosion control measures within the construction limits as well as downstream. Consider scour velocity. If erosion control measures are required downstream of construction limits obtain the appropriate permits and right of way documents to include work within the construction limits.	☒ Complete
3.	Include, where appropriate, energy dissipation devices at culvert outlets.	☐ Complete
4.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	☐ Complete
5.	Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges.	
6.	Calculate the water quality volume infiltrated within the project limits. These calculations will be used in the Checklist T-1, Part 1.	☐ Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 3

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Slope / Surface Protection Systems

1.	What are the proposed areas of cut and fill? (attach plan or map)	☒Complete
2.	Were benches or terraces provided on high cut and fill slopes to shorten slope length?	☐Yes ☒N/A
3.	Were concentrated flows collected in stabilized drains or channels?	☒Yes ☐No
4.	Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)?	☒Yes ☐No
	If Yes, District Landscape Architect is responsible for an erosion control strategy and may prepare an erosion control plan.	
5.	Are new or disturbed slopes > 2:1 (h:v)?	☐Yes ☒No
	If Yes, DES Geotechnical Design unit must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Stormwater Coordinator for slopes steeper than 2:1 (h:v).	

VEGETATED SURFACES

1.	Identify existing vegetation.	☒Complete
2.	Evaluate site to determine soil types, appropriate vegetation and planting strategies.	☒Complete
3.	How long will it take for permanent vegetation to establish?	☒Complete
4.	Plan transition BMPs from construction to permanent establishment.	☒Complete
5.	Have vegetated areas and supporting permanent irrigation systems been designed to comply with the Model Water Efficient Landscape Ordinance (MWELO)?	☒Yes ☐No
6.	Minimize overland and concentrated flow depths and velocities.	☒Complete

HARD SURFACES

1.	Are hard surfaces minimized?	☒Yes ☐No
	Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems.	☒Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 4

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, 835, and Chapter 860 of the HDM. ☒Complete
2. Review existing and proposed conditions to remove any dike not required for slope stability, erosion control, and water conveyance. ☒Complete
3. Evaluate risks due to erosion, overtopping, flow backups or washout. ☒Complete
4. Consider outlet protection where localized scour is anticipated. ☒Complete
5. Examine the site for run-on from off-site sources. ☒Complete
6. Consider permissible shear and velocity when selecting lining material (See Table 865.2 in the HDM). ☒Complete

Overside Drains

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

Flared Culvert End Sections

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

Outlet Protection/Velocity Dissipation Devices

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

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☒Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 5

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Preservation of Existing Vegetation, Soils, and Stream Buffer Areas

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation, soils, and stream buffer areas. ☒Complete

2. Has all vegetation, soils, and stream buffer areas to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☐Yes ☒N/A

3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☒Complete

4. Have impacts to preserved vegetation, soils, and stream buffer areas been considered while work is occurring in disturbed areas? ☒Yes ☐No

5. Are all areas to be preserved delineated on the plans? ☐Yes ☒N/A

Attachment I

Checklist T-1, Part 1
(Treatment BMPs)

Treatment BMPs
Checklist T-1, Part 1

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 - SF Bay Area

Consideration of Treatment BMPs

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

Complete this checklist for each phase of the project. This will help to determine if any changes to the BMP strategy are necessary, based on site specific information gathered during later phases. Use the responses to the questions as the basis of developing the narrative in Section 6 of the Stormwater Data Report to document that Treatment BMPs have been appropriately considered and/or incorporated.

Before evaluating an area for treatment capabilities or to incorporate a Treatment BMP, calculate the numeric sizing requirement for each contributing drainage area (WQV from the 85th percentile 24 hour storm event or WQF rate). Soil and geometric information for the project area will be necessary to use this Checklist.

Identify the overall project Post Construction Treatment Area

Refer to Section 4.4 Treatment Areas for more information on defining these areas.

Post Construction Treatment Area = NNI + RIS + ATA (1) + ATA (2)

NNI = Net New Impervious Area

RIS = Replaced Impervious Surface

ATA (1) = Additional Treatment Area required for existing Treatment BMPs that were removed as part of the project

ATA (2) = Additional Treatment Area required when NNI is 50 percent or greater than total project impervious

What is the Post Construction Treatment Area for the project? 14.7 to 23.9 Acres (A in Table E-1)

The Post Construction Treatment Area is the impervious area required to be treated by the project. The PE is to incorporate BMPs until the summation of the treated impervious area of all the BMPs is equivalent to the Post Construction Treatment Area for the Project.

Once this area has been treated, the project is in compliance with the post construction treatment requirement.

Total Maximum Daily Load (TMDL) Retrofit Projects

If the project is installing Treatment BMPs to only address TMDL requirements, then there is no required Post Construction Treatment Area. The Treatment BMPs for a TMDL retrofit project should be designed to treat the impervious and pervious contributing drainage areas, as they are both eligible for compliance unit (CU) credits.

Overall Project Evaluation

Answer all questions, unless otherwise directed.

A. Overall Project Consideration

1. Is the project in a watershed with prescriptive Treatment BMP requirements in an adopted TMDL implementation plan or are there any other requirements for project area (e.g., District, Regional Board, Lawsuit)? ☐ Yes ☒ No

   If Yes, consult the District/Regional Design Stormwater Coordinator or NPDES Coordinator to determine if there are written agreements related to specific Treatment BMPs. In this case, determine if the rest of this checklist needs to be followed to address other post construction requirements. If not, document BMP(s) in the Individual Treatment BMP Summary Table, provide information on the basis of the BMP requirement and any regulatory coordination in the SWDR narrative, and complete the SWDR Summary Spreadsheets. Otherwise, continue.

   If No, continue.

2. Does the receiving water have a TMDL for litter/trash, or is there a region specific requirement related to trash? ☐ Yes ☒ No

   If Yes, first evaluate BMPs that can treat other pollutants and are considered to be full capture devices (GSRDs or other) for litter/trash. If other BMPs cannot be sited, consult with the District/Regional Design Stormwater Coordinator or NPDES Coordinator to determine if standalone full capture devices (GSRDs or other) are required to be incorporated. If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of "Individual BMP Evaluation".

   If No, continue.

3. Is the project located in an area that uses traction sand more than twice a year? ☐ Yes ☒ No

   If Yes, first consider BMPs that can treat other pollutants and can capture traction sand. If other BMPs cannot be sited, consult the District/Regional Design Stormwater Coordinator to determine if standalone traction sand trap devices should be incorporated.

   If standalone devices are required and no other Treatment BMPs are being considered, go to question 6 of "Individual BMP Evaluation". Otherwise, continue with this checklist to identify Treatment BMPs that provide traction sand and other pollutant removal, or to design Treatment BMPs in series.

   If No, continue.

B. Dual Purpose Facilities

Does the project have (or propose to include) any dual purpose facilities that could meet treatment requirements (e.g., Dry Weather Flow Diversion, flood control basins, etc.)? ☐ Yes ☒ No

If Yes and 100 percent of the Post Construction Treatment Area will be treated by the dual purpose facility, go to question 6 of "Individual BMP Evaluation". Document the basis of treatment in the SWDR narrative and complete the SWDR Summary Spreadsheets.

If Yes, but 100 percent of the Post Construction Treatment Area has not been addressed, continue.

If No, continue.

C. Evaluate overall project area for infiltration opportunities using existing and proposed roadside surfaces (DPP Infiltration Areas). Assure the DPP Infiltration Area is stabilized to handle highway drainage design flows, for both sheet and concentrated flows (See HDM Section 800).

Document DPP Infiltration Areas on the "Individual Treatment BMP Summary Table" located at the end of this checklist.

1. Based on site conditions, do the DPP Infiltration Areas infiltrate 100 percent of the WQV generated by the Post Construction Treatment Area for the project? ☐ Yes ☒ No

   Yes, go to question 6 of "Individual BMP Evaluation".

   If No, account for area infiltrated and continue.

2. Can infiltration for these areas be increased by using soil amendments or other means? ☐ Yes ☒ No

   If Yes, and 100 percent of the WQV generated by the Post Construction Treatment Area is infiltrated, go to question 6 of "Individual BMP Evaluation".

   If Yes, but 100 percent of the WQV generated by the Post Construction Treatment Area is not infiltrated, continue with this checklist to identify Treatment BMPs that will treat the remaining Post Construction Treatment Area.

   If No, continue.

Individual BMP Evaluation

Answer the following questions for each Treatment BMP location being considered. The following process must be followed until the Post Construction Treatment Area or desired treatment area (Alternative Compliance or TMDL CUs) has been achieved; for TMDL CUs, consider both impervious and pervious contributing drainage areas. Use the Individual Treatment BMP Summary Table at the end of the checklist to summarize the selected BMP(s) based on the findings of the following questions for each BMP contributing drainage area.

1. Infiltration Devices (Infiltration Basin, Trench, or other device)

   a. Can 100 percent of the BMP contributing drainage area WQV (or remaining WQV, if in series with a DPP Infiltration Area or other BMP) be infiltrated? ☐ Yes ☒ No

      If Yes, go to question 6.

      If No, continue.

2. Biofiltration Devices (Biofiltration Strips and Swales)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☒ Yes ☐ No

      If Yes, when designing the biofiltration device, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage areas. Consider using existing or amended soils:

      i. If infiltration is >50 percent, continue to b.

      ii. If infiltration is ≤50 percent, go to question 3.

      If No, continue to b. ☒ Yes ☐ No

   b. Can biofiltration devices be designed to:

      i. Treat 100 percent of the WQF/WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

      ii. Meet the siting and design criteria of the Caltrans biofiltration device design guidance.

      If Yes, continue to c.

      If No, go to question 3.

   c. Biofiltration devices are considered to be an effective method of treatment, go to question 6.

3. Earthen type BMPs (Detention Devices, Media Filters, or other devices)

   a. Is this a TMDL retrofit project or is the project within a TMDL watershed or 303(d) impaired receiving water body area? ☒ Yes ☐ No

   If Yes, when designing the earthen type BMP, determine the percent WQV infiltrated from both the impervious and pervious BMP contributing drainage area. Consider using existing or amended soils:

   i. If infiltration is >50 percent, continue to b.

   ii. If infiltration is ≤50 percent, go to question 4.

   If No, continue to b.

   b. Can earthen type BMPs(standalone or in series with other approved Treatment BMPs) be designed to: ☒ Yes ☐ No

   iii. Treat 100 percent of the WQV (or remainder, if in series with a DPP Infiltration Area or other BMP) from the BMP contributing drainage area, and

   iv. Meet the criteria of the Caltrans design guidance for the treatment device being considered.

   If Yes, continue to c.

   If No, go to question 4.

   c. Earthen type BMPs are considered to be an effective method of treatment, go to question 6.

4. Targeted Design Constituent (TDC)

   This approach will compare the effectiveness of individual BMPs and allow the project engineer to use judgment when evaluating BMP feasibility (site constraints, safety, maintenance requirements, life-cycle costs, etc.).

   a. Does the project discharge to a 303(d) impaired receiving water or a receiving water in a TMDL watershed where Caltrans is a named stakeholder? ☐ Yes ☒ No

      If Yes, is the identified pollutant(s) considered to be a TDC (check all that apply below)? Continue to b. ☐ Yes ☐ No

      ☐ sediments
      ☐ phosphorus
      ☐ nitrogen
      ☐ copper (dissolved or total)
      ☐ lead (dissolved or total)
      ☐ zinc (dissolved or total)
      ☐ general metals (dissolved or total)[1]

      If No or if no TDC is identified, use Matrix A to select BMPs and go to question 5.

   b. Treating Only Sediment. Is sediment a TDC? ☐ Yes ☐ No

      If Yes, use Matrix A to select BMPs and go to question 5.

      If No, continue to c.

   c. Treating Only Metals. Are copper, lead, zinc, or general metals listed TDCs? ☐ Yes ☐ No

      If Yes, use Matrix B to select BMPs, and go to question 5.

      If No, continue to d.

   d. Treating Only Nutrients. Are nitrogen and/or phosphorus listed TDCs? ☐ Yes ☐ No

      If Yes, use Matrix C to select BMPs, and go to question 5.

      If No, continue e.

   e. Treating both Metals and Nutrients. Is copper, lead, zinc, or general metals AND nitrogen or phosphorous a TDC? ☐ Yes ☐ No

      If yes, use Matrix D to select BMPs, and go to question 5.

      If No, continue.

[1] General metals is a designation used by Regional Water Boards when specific metals have not yet been identified as causing the impairment.

BMP Selection Matrix A: General Purpose Pollutant Removal			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) All BMPs shown are considered to be effective, but some more than others. The project engineer should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) All BMPs shown are considered to be effective, but some more than others. The project engineer should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC

Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
All BMPs shown are considered to be effective, but some more than others. The project engineer should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			
*Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.			

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs			
Consider BMPs (or combinations of) to treat the contributing drainage area WQV with BMPs listed in this table. First evaluate Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility. BMPs are chosen based on the infiltration category determined for BMP contributing drainage area. BMPs in other infiltration categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter*	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches	Austin filter (earthen) Detention (unlined) Infiltration basins Infiltration trenches Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
All BMPs shown are considered to be effective, but some more than others. The project engineer should use professional judgment when selecting BMPs based on overall feasibility. All BMPs are shown to demonstrate equivalent effectiveness.			
*In cases where earthen BMPs also infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.			

5. Does the project discharge to a 303(d) receiving water that is listed for mercury or low dissolved oxygen? ☒ Yes ☐ No

   If Yes, contact the District/Regional NPDES Coordinator to determine if standing water in a Delaware Media Filter or Wet Basin would be a risk to downstream water quality. Continue to question 6.

   If No, continue to question 6.

6. Identify the Treatment BMPs being considered and complete the Individual Treatment BMP Summary Table and Overall Project Treatment Summary Table on the following pages. Refer to Appendix B of the PPDG and review the checklists identified below for every Treatment BMP under consideration. ☒ Complete

   Document the basis of design in the SWDR narrative and complete the SWDR Summary Spreadsheets.

   ____ DPP Infiltration Areas: Checklist T-1, Part 11

   ____ Infiltration Devices: Checklist T-1, Part 2

   ____ Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 3

   ____ Detention Devices: Checklist T-1, Part 4

   ____ Traction Sand Traps: Checklist T-1, Part 5

   ____ Dry Weather Diversion: Checklist T-1, Part 6

   ____ GSRDs: Checklist T-1, Part 7

   ____ Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8

   Note:

   Multi-Chamber Treatment Train (MCTT) is not listed here because Caltrans has found that other approved BMPs are equally effective and more sustainable due to lower life cycle costs.

   Wet Basins are not listed here due to feasibility issues due to site feasibility and issues with long term operation and maintenance.

   MCTT and Wet Basins may be considered or implemented upon the recommendation of the District/Regional Design Stormwater Coordinator.

7. Prepare cost estimate, including right-of-way, and identify any pertinent site specific determination of feasibility for selected Treatment BMPs and include in the SWDR for approval. ☒ Complete

Individual Treatment BMP Summary Table

☐ Complete

List the selected BMPs based on the findings of this checklist and the treated areas associated with each BMP in Table E-2. For projects with multiple BMPs, add rows (if needed), or attach a separate sheet displaying the following information.

Each BMP must be tracked in the SWDR Summary Spreadsheets, including additional information related to each BMP.

Table E-2: Individual Treatment BMP Summary Table

BMP Identifier Number	BMP Type	Treated Impervious Area (CT RW) (ac)	Treated Impervious Area (Outside CT RW) (ac)	Treated Pervious Area (CT RW) (CUs) (ac)	Treated Pervious Area (Outside CT RW) (CUs) (ac)	WQV Infiltrated (%)
Total Treated Area (acre):		(B in Table E-1)	(C in Table E-1)	(D in Table E-1)	(E in Table E-1)	

Attachment J

Checklist T-1, Part 2–8 (Treatment BMPs)

Treatment BMPs

Checklist T-1, Part 2

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 - SF Bay Area

Infiltration Devices

Feasibility

1.	Does local Basin Plan or other local ordinance provide influent limits on quality of water that can be infiltrated, and would infiltration pose a threat to groundwater quality?	☒Yes	☐No
2.	Does infiltration at the site compromise the integrity of any slopes in the area?	☐Yes	☒No
3.	Is site located over a previously identified contaminated groundwater plume?	☐Yes	☒No
	If "Yes" to any question above, Infiltration Devices are not feasible; stop here and consider other approved Treatment BMPs.		
4.	At the invert, does the soil type classify as NRCS Hydrologic Soil Group (HSG) D, or does the soil have an infiltration rate < 0.5 inches/hr?	☒Yes	☐No
	If "Yes", the location can only be considered if vector control has been addressed (e.g., underground) or consider site for DPP Infiltration Area (see B.2).		
5.	(a) Does site have groundwater within 5 ft of basin invert?	☐Yes	☐No
	(b) Does site investigation indicate that the infiltration rate is significantly greater than 2.5 inches/hr?	☐Yes	☐No
	If "Yes" to either part of Question 5, adequate groundwater information must be available or contact RWQCB for concurrence before approving the site for infiltration.		
6.	Does adequate area exist within the RW to place Infiltration Device(s)? If "Yes", continue to Design Elements sections. If "No", continue to Question 8.	☐Yes	☐No
7.	If adequate area does not exist within RW, can suitable, additional RW be acquired to site Infiltration Devices and how much RW would be needed to treat WQV, or a portion thereof? _____ acres If Yes, continue to Design Elements section. If No, continue to Question 8.	☐Yes	☐No
8.	If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☒Complete	

Design Elements – Infiltration Basin

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1.	Has an investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☒No
2.	Has an upstream bypass or overflow spillway with scour protection been provided? *	☐Yes	☒No
3.	Is the Infiltration Basin size sufficient to capture the WQV, or portion thereof, with a maximum 96 hour drawdown time? Longer drawdown times may be allowable if vector controls have been implemented (e.g., underground chamber with flap gates) and coordinated with the District/Regional Design Stormwater Coordinator.*	☐Yes	☐No
4.	Can access be provided to the invert of the Infiltration Basin? *	☐Yes	☐No
5.	Can the Infiltration Basin accommodate the freeboard above the overflow event elevation (reference Appendix B.1.5.1)? *	☐Yes	☐No
6.	Can the Infiltration Basin be designed with interior side slopes no steeper than 4:1 (h:v) (may be 3:1 [h:v] with approval by District Maintenance)? *	☐Yes	☐No
7.	Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? If No, include rock or similar protective system. Note: Infiltration Basins may be lined, in which case no vegetation would be required for lined areas.*	☐Yes	☐No
8.	Can diversion be designed, constructed, and maintained to bypass flows exceeding the WQV? **	☐Yes	☐No
9.	Can a gravity-fed maintenance drain be placed? **	☐Yes	☐No

Design Elements – Infiltration Trench

1.	Has an investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☒No
2.	Is the surrounding soil within Hydrologic Soil Groups (HSG) Types A, B, and C while preserving an acceptable infiltration rate? *	☐Yes	☒No
3.	Is the Infiltration Trench size sufficient to capture the WQV, or portion thereof, with a maximum 96 hour drawdown time? Longer drawdown times may be allowable, coordinate with the District/Regional Design Stormwater Coordinator.*	☐Yes	☐No
4.	Is the depth of the Infiltration Trench ≤ 13 ft? *	☐Yes	☐No
5.	Can an observation well be placed in the trench? **	☐Yes	☐No
6.	Can access be provided to the Infiltration Trench? *	☐Yes	☐No
7.	Can pretreatment be provided to capture sediment in the runoff (such as using vegetation or a flow splitter with a sump)? *	☐Yes	☐No
8.	Can flow diversion be designed, constructed, and maintained to bypass flows exceeding the Water Quality event? **	☐Yes	☐No
9.	Does a perimeter curb or similar device need to be provided (to limit wheel loads upon the trench)? **	☐Yes	☐No

Treatment BMPs

Checklist T-1, Part 3

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 - SF Bay Area

Biofiltration Swales / Biofiltration Strips

Feasibility

1. Do the climate and site conditions allow vegetation to be established? ☒Yes ☐No
   If "No", evaluate other BMPs.
2. Can biofiltration swale be designed with a slope between 0.25 and 6 percent (with 1 to 2 percent preferred)? ☒Yes ☐No
   If "No", Biofiltration Swales are not feasible.
3. Can biofiltration strips be designed with a maximum slope of 2H:1V (with 4H:1V or flatter preferred)? ☒Yes ☐No
   If "No", Biofiltration Strips are not feasible.
4. Are Biofiltration device(s) proposed at sites where known contaminated soils exist? ☐Yes ☐No
   If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.
5. Does adequate area exist within the RW to place Biofiltration device(s)? ☒Yes ☐No
   If "Yes", continue to Design Elements section. If "No", continue to Question 5.
6. If adequate area does not exist within RW, can suitable, additional RW be acquired to site Biofiltration devices and how much RW would be needed to treat WQF? ☐Yes ☐No
   _____ acres
   If "Yes", continue to Design Elements section. If "No", continue to Question 6.
7. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * ☐Yes ☐No
2. Can the biofiltration swale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g., freeboard, minimum slope) ☐Yes ☐No
3. Can the biofiltration swale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.4.3)* ☐Yes ☐No
4. Is the maximum length of a biofiltration strip ≤ 100 ft? Strips > 100 ft. may still be considered as long as potential erosion issues have been addressed. ** ☐Yes ☐No
5. Has the minimum width (perpendicular to flow) of the invert of the biofiltration swale received the concurrence of District Maintenance? * ☐Yes ☐No
6. Can biofiltration swales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? ** ☐Yes ☐No
7. Has the infiltration rate of the bio-filtration device been calculated and maximized through amendments where appropriate. ** ☐Yes ☐No
8. Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train or pretreatment? ** ☐Yes ☐No

   If "Yes", document the amount of runoff treated (WQV/WQF).
9. Has the lining material been selected based on the permissible shear and velocity (refer to HDM Chapter 860 and Table 865.2)?* ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 4

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : 14.3/20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 - SF Bay Area

Detention Devices

Feasibility

1. Is there sufficient head to prevent objectionable backwater conditions in the upstream drainage systems? ☐Yes ☒No

2. Is basin invert ≥ 5 ft above seasonally high groundwater or can it be designed with an impermeable liner? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.) ☐Yes ☐No

   If No to any question above, then Detention Devices are not feasible.

3. If the Detention Device is being used to capture traction sand, is the total volume of the device at least equal to the WQV designed to be treated plus the anticipated volume of traction sand, while maintaining a minimum 12 inch freeboard (1 ft)? ☐Yes ☐No

   If No, then Detention Devices are not feasible.

4. Does adequate area exist within the RW to place Detention Device(s)? ☐Yes ☒No

   If Yes, continue to the Design Elements section. If No, continue to Question 5.

5. If adequate area does not exist within RW, can suitable, additional RW be acquired to site Detention Device(s) and how much RW would be needed to treat WQV? _____ acres ☐Yes ☒No

   If Yes, continue to the Design Elements section. If No, continue to Question 6.

6. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☒Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1.	Has the location of the Detention Device been evaluated for any effects to the adjacent roadway and subgrade? *	☐Yes	☐No
2.	Can a minimum freeboard of 12 inches be provided above the overflow event elevation? *	☐Yes	☐No
3.	Is an upstream bypass or overflow outlet provided? *	☐Yes	☐No
4.	Is the drawdown time of the Detention Device a maximum of 96 hours? *	☐Yes	☐No
5.	Is the basin outlet designed to minimize clogging (minimum outlet orifice diameter of 0.5 inches)? *	☐Yes	☐No
6.	Are the inlet and outlet structures designed to prevent scour and re-suspension of settled materials, and to enhance quiescent conditions? *	☐Yes	☐No
7.	Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? Otherwise include rock or similar protective system. Note: Detention Basins may be lined, in which case no vegetation would be required for lined areas.*	☐Yes	☐No
8.	Has sufficient access for maintenance been provided? *	☐Yes	☐No
9.	Is the side slope 4:1 (h:v) or flatter for interior slopes? ** (Note: Side slopes up to 3:1 (h:v) allowed with approval by District Maintenance.)	☐Yes	☐No
10.	If significant sediment is expected from nearby slopes, can the Detention Device be designed with additional volume equal to the expected annual loading? **	☐Yes	☐No
11.	Is flow path as long as possible (> 2:1 length to width ratio at WQV elevation is recommended)? **	☐Yes	☐No

Treatment BMPs

Checklist T-1, Part 5

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Traction Sand Traps

Feasibility

1.	Can a Detention Device be sized to capture the estimated traction sand and the WQV, or portion thereof, from the tributary area? If Yes, then a separate Traction Sand Trap may not be necessary. Coordinate with the District/Regional Design Stormwater Coordinator and also complete Checklist T-1, Part 5.	☐Yes	☒No
2.	Is the Traction Sand Trap proposed for a site where sand or other traction enhancing substances are applied to the roadway at least twice per year?	☐Yes	☒No
3.	Is adequate space provided for maintenance staff and equipment access for annual cleanout? If the answer to any one of Questions 2 or 3 is No, then a Traction Sand Trap is not feasible.	☐Yes	☐No
4.	Does adequate area exist within the RW to place Traction Sand Traps? If Yes, continue to Design Elements section. If No, continue to Question 5.	☐Yes	☐No
5.	If adequate area does not exist within RW, can suitable, additional RW be acquired to site Traction Sand Traps and how much RW would be needed? _____ acres If Yes, continue to the Design Elements section. If No, continue to Question 7.	☐Yes	☐No
6.	If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☒Complete	

Design Elements

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

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

1. Was the local Caltrans Maintenance Station contacted to provide the amount of traction sand used annually at the location? *
   List application rate reported. _____ yd^3 ☐Yes ☐No

2. Does the Traction Sand Trap have enough volume to store settled sand over the winter (see Section 3.2 of *Caltrans TST Design Guidance*)? * ☐Yes ☐No

3. If the Traction Sand Trap has either an open bottom or weep holes, is the invert a minimum of 3 ft above seasonally high groundwater? * * ☐Yes ☐No

4. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? * (Inlet or vault type) ☐Yes ☐No

5. Can peak flow be diverted around the device? ** (Inlet or vault type) ☐Yes ☐No

6. Is 6 inches separation provided between the top of the captured traction sand and the outlet from the device, in order to minimize re-suspension of the solids? **
   (Inlet or vault type) ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 6

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Dry Weather Flow Diversion

Feasibility

1.	Is a Dry-Weather Flow Diversion acceptable to a Publicly Owned Treatment Works (POTW)?	☐Yes	☒No
2.	Would a connection require ordinary (i.e., not extraordinary) plumbing, features or construction methods to implement?	☐Yes	☐No
	If "No" to either question above, Dry Weather Flow Diversion is not feasible.		
3.	Does adequate area exist within the RW to place Dry Weather Flow Diversion devices? If "Yes", continue to Design Elements sections. If "No", continue to Question 4.	☐Yes	☐No
4.	If adequate area does not exist within RW, can suitable, additional RW be acquired to site Dry Weather Flow Diversion devices and how much RW would be needed? _____ (acres) If "Yes", continue to the Design Elements section. If "No", continue to Question 5.	☐Yes	☐No
5.	If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☒Complete	

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1.	Does the existing sanitary sewer pipeline have adequate capacity to accept project dry weather flows, or can an upgrade be implemented to handle the anticipated dry weather flows within the project's budget and objectives? *	☐Yes	☐No
2.	Can the connection be designed to allow for maintenance vehicle access? *	☐Yes	☐No
3.	Can gate, weir, or valve be designed to stop diversion during storm events? *	☐Yes	☐No
4.	Can the inlet be designed to reduce chances of clogging the diversion pipe or channel? *	☐Yes	☐No
5.	Can a back flow prevention device be designed to prevent sanitary sewage from entering storm drain? *	☐Yes	☐No

Treatment BMPs

Checklist T-1, Part 7

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Gross Solids Removal Devices (GSRDs)

Feasibility

1.	Is the receiving water body downstream of the tributary area to the proposed GSRD on a 303(d) list or has a TMDL for litter been established?	☐ Yes	☒ No
2.	Are the devices sized for flows generated by the peak drainage facility design event (1-year, 1-hour) or can peak flow be diverted?	☐ Yes	☐ No
3.	Are the devices sized to contain gross solids (litter and vegetation) for a period of one year?	☐ Yes	☐ No
4.	Is there sufficient access for maintenance and large equipment (vacuum truck)?	☐ Yes	☐ No

If "No" to any question above, then Gross Solids Removal Devices are not feasible. Note that Biofiltration Systems, Infiltration Devices, Detention Devices, Dry Weather Flow Diversion, MCTT, Media Filters, and Wet Basins may be considered for litter capture, but consult with District/Regional NPDES Coordinator if proposed to meet a TMDL for litter.

5.	Does adequate area exist within the RW to place Gross Solids Removal Devices? If "Yes", continue to Design Elements section. If "No", continue to Question 6.	☐ Yes	☐ No
6.	If adequate area does not exist within RW, can suitable, additional RW be acquired to site Gross Solids Removal Devices and how much RW would be needed? _____ acres If "Yes", continue to Design Elements section. If "No", continue to Question 7.	☐ Yes	☐ No
7.	If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☒ Complete	

Design Elements – Linear Radial Device

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1. Does sufficient hydraulic head exist to place the Linear Radial GSRD? * ☐Yes ☐No
2. Is a fiberglass reinforced plastic frame and grate being considered for high vandalism areas? Consult District Maintenance. ** ☐Yes ☐No
3. Was the litter accumulation rate of 10 ft^3/ac/yr (or a different rate recommended by District Maintenance) used to size the device? * ☐Yes ☐No
4. Was the overflow release device sized for the design storm event?* ☐Yes ☐No
5. Were the standard detail sheets used for the layout of the devices? ** ☐Yes ☐No
   If No, consult with HQ OSWMD and District/Regional NPDES Coordinator.
6. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? * ☐Yes ☐No

Design Elements – Inclined Screen

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1. Does sufficient hydraulic head exist to place the Inclined Screen GSRD? * ☐Yes ☐No
2. Was the litter accumulation rate of 10 ft^3/ac/yr (or a different rate recommended by District Maintenance) used to size the device? * ☐Yes ☐No
3. Is a fiberglass reinforced plastic frame and grate being considered for high vandalism areas? Consult District Maintenance. ** ☐Yes ☐No
4. Was the overflow release device sized for the design storm event?* ☐Yes ☐No
5. Were the standard details sheets used for the layout of the devices? ** ☐Yes ☐No
   If No, consult with HQ OSWMD and District/Regional NPDES Coordinator.
6. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? * ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 8

Prepared by: MTCo Date: September 2016 District-Co-Route: 04-CC-4

PM : R14.3/R20.2 Project ID (or EA): EA 04-1J030K RWQCB: 2 SF Bay Area

Media Filters

Caltrans has approved two types of Media Filter: Austin Sand Filters and Delaware Filters. Austin Sand filters are typically designed for larger contributing drainage areas, while Delaware Filters are typically designed for smaller contributing drainage areas. The Austin Sand Filter is constructed with an open top and may have a concrete or earthen invert, while the Delaware is always constructed as a vault.

Feasibility – Austin Sand Filter

1.	Is the volume of the Austin Sand Filter equal to the WQV, or portion thereof, using a 24 hour drawdown? [1]	☐ Yes	☐ No
2.	Is there sufficient hydraulic head to operate the device (minimum 2 ft between the inflow and outflow chambers)?	☐ Yes	☐ No
3.	If device has an earthen bottom, is the invert ≥ 5 ft above seasonally high groundwater?	☐ Yes	☐ No
4.	If a vault is used for either chamber, is the level of the concrete base of the vault above seasonally high groundwater or is a special design provided? If No to any question above, then an Austin Sand Filter is not feasible.	☐ Yes	☐ No
5.	Does adequate area exist within the RW to place an Austin Sand Filter(s)? If Yes, continue to Design Elements sections. If No, continue to Question 6.	☐ Yes	☒ No
6.	If adequate area does not exist within RW, can suitable, additional RW be acquired to site the device and how much RW would be needed to treat WQV, or portion thereof? _____ acres If Yes, continue to the Design Elements section. If No, continue to Question 7.	☐ Yes	☒ No
7.	If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. If an Austin Sand Filter meets these feasibility requirements, continue to the Design Elements – Austin Sand Filter below.	☒ Complete	

[1] *Longer drawdown times being considered. Refer to the Austin Media Filter Design Guidance.*

Feasibility- Delaware Filter

1. Is the volume of the Delaware Filter equal to the WQV, or portion thereof, using a 48 hour drawdown? [1] ☐Yes ☐No

2. Is there sufficient hydraulic head to operate the device (minimum 2 ft between the inflow and outflow chambers)? ☐Yes ☐No

3. Would a permanent pool of water be allowed by the local vector control agency? Confirm that check valves and vector proof lid as shown on standard detail sheets will be allowed, is used. ☐Yes ☐No

4. Does the project discharge to a 303(d) water body that is listed for mercury or low dissolved oxygen? ☐Yes ☐No

   If Yes, contact the District/Regional NPDES Coordinator to determine if standing water would be a risk to downstream water quality. If standing water is a potential issue, consider use of another Treatment BMP.

   If No to any question, then a Delaware Filter is not feasible

5. Does adequate area exist within the RW to place a Delaware Filter(s)? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 5.

6. If adequate area does not exist within RW, can suitable, additional RW be acquired to site the device and how much RW would be needed to treat WQV, or portion thereof? _____ acres ☐Yes ☐No
   If Yes, continue to the Design Elements section. If No, continue to Question 6.

7. If adequate area cannot be obtained, document in Section 6 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

8. Does the project discharge to a water body that has been placed on the 303-d list or has had a TMDL adopted for bacteria, mercury, sulfides, or low dissolved oxygen? ☐Yes ☐No

   If yes, contact the Regional/District NPDES Coordinator to determine if standing water in this Treatment BMP would be a risk to downstream water quality. If standing water is a potential issue, consider use of another Treatment BMP.

   If a Delaware Filter is still under consideration, continue to the Design Elements – Delaware Filter section.

[1]*Longer drawdown times being considered. Refer to the Delaware Media Filter Design Guidance.*

Design Elements – Austin Sand Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1.	Is the drawdown time of the 2nd chamber 24 hours? (Longer drawdown times being considered, refer to the *Austin Media Filter Design Guidance*)*	☐Yes	☐No
2.	Is access for maintenance vehicles provided to the Austin Sand Filter? *	☐Yes	☐No
3.	Is a bypass/overflow provided for storms > WQV? *	☐Yes	☐No
4.	Is the flow path length to width ratio for the sedimentation chamber of the "full" Austin Sand Filter ≥ 2:1? **	☐Yes	☐No
5.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation)? **	☐Yes	☐No
6.	Can the Austin Sand Filter be placed using an earthen configuration? ** If No, go to Question 10.	☐Yes	☐No
7.	Is the Austin Sand Filter invert separated from the seasonally high groundwater table by ≥ 5 ft)? * If No, design with an impermeable liner.	☐Yes	☐No
8.	Are side slopes of the earthen chamber 3:1 (h:v) or flatter? *	☐Yes	☐No
9.	Can vegetation be established at the invert and on the side slopes for erosion control and to minimize re-suspension? If No, include rock or similar protective system. Note: Austin Sand Filters may be lined, in which case no vegetation would be required for lined areas.*	☐Yes	☐No
10.	Is maximum depth of sedimentation chamber ≤ 13 ft below ground surface? *	☐Yes	☐No
11.	Can the Austin Sand Filter be placed in an offline configuration? ** If No, go to Question 11.	☐Yes	☐No
12.	Is the flow line elevation of the over flow pipe set at the same elevation as the top of gabion wall elevation? ** Typically, the flow line should match the top of gabion wall elevation. However, the pipe may require adjustment to fit site condition requirements such as grading and pipe cover conflicts and utility conflicts. Additional overflow designs may be considered (see the *Partial Sedimentation Austin Vault Sand Filter Design Guidance*).	☐Yes	☐No

Design Elements – Delaware Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 6 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

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

1.	Is the drawdown time of the 2nd chamber between 40 and 48 hours, typically 40-hrs? (Longer drawdown times being considered, refer to the *Delaware Media Filter Design Guidance)* *	☐Yes	☐No
2.	Is access for maintenance vehicles provided to the Delaware Filter? *	☐Yes	☐No
3.	Is a bypass/overflow provided for storms > WQV? **	☐Yes	☐No
4.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation)? **	☐Yes	☐No
5.	Is maximum depth of sedimentation chamber ≤ 13 ft below ground surface? *	☐Yes	☐No