CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

PROJECT NAME: ACKERSON MEADOW RESTORATION
CONTRACTOR NAME:
RISK LEVEL: 2
WDID NO.:

DATE:

Prepared for:

American Rivers
California

Note: This Construction SWPPP must be maintained at the site and available for review upon request by the Regional Water Quality Control Board.

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Qualified SWPPP Developer

Approval and Certification of the Stormwater Pollution Prevention Plan

"This Stormwater Pollution Prevention Plan and Attachments were prepared under my direction to meet the requirements of the California Construction General Permit (Order 2022-0057-DWQ, NPDES No. CAS000002). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below."

QSD Signature	Date
QSD Name	QSD Certificate Number include certificate in Appendix M
Title and Affiliation	
Email	Telephone Number

Amendment Log

Project Name/WDID _____

Include references to section of SWPPP that has been amended, add additional pages as needed.

Amendment No.	**Date**	**Brief Description of Amendment, include section and page number**	**Prepared and Approved By**
			Name: QSD#
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Section 1 SWPPP Requirements

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) was prepared for construction activities located at Ackerson Meadow, which is located within Stanislaus National Forest and Yosemite National Park in Tuolumne County, CA (project site). The project location is shown in the Plans.

This SWPPP is designed to assist the proejct's compliance with California's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) Order No. Order No. 2022-0057-DWQ (NPDES No. CAS000002) issued by the State Water Resources Control Board (SWRCB). In accordance with the General Permit, Section XIV, this SWPPP is designed to address the following objectives:

- "Pollutants and their sources, including sources of sediment associated with construction, construction site erosion and other activities associated with construction activity are controlled;
- "Where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
- "Site Best Management Practices (BMPs) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard."

Design details for BMP controls applicable to this project are included in the proejct plan set

1.2 GENERAL PERMIT COVERAGE

The Legally Responsible Party (LRP), (name), has submitted the Permit Registration Documents (PRDs) to the SWRCB Stormwater Multi-Application and Report tracking system (SMARTS). The SWRCB has issued a Waste Discharge Identification (WDID) number as indicated below:

WDID: XXXX

1.3 SWPPP AVAILABILITY AND IMPLEMENTATION

The SWPPP is available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone. (General Permit Section XIV.C)

The SWPPP shall be implemented concurrently with the start of ground disturbing activities.

1.4 SWPPP AMENDMENTS

The General Permit requires the SWPPP to be revised when:

- If there is a General Permit violation.
- When there is a reduction or increase in total disturbed acreage.

- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.

Additionally, the SWPPP shall be revised when:

- When there is a change in the project duration that changes the project's risk level;
- To identify any new contractor and or subcontractor that will implement a measure of the SWPPP; or
- When deemed necessary by the QSD.

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP proposed, if any; and
- The new BMP proposed.

The SWPPP text shall be revised replaced, and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD and logged in the Amendment Log on page 2 of the SWPPP. Additionally a SWPPP Amendment Certification shall be completed by the QSD and maintained in Appendix D, for each amendment.

The following changes listed in Table 1.1 have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions, and do not required a SWPPP amendment. The SWPPP progress map shall be updated to reflect field changes.

Table 1.1 List of Changes to be Field Determined

Changes for field location or determination by QSP[(1)]	Check changes that can be field located or field determined by QSP
Increase quantity of an erosion or sediment control measure	
Relocate/Add stockpiles or stored materials	
Relocate or add toilets	
Relocate vehicle storage and/or fueling locations	
Relocate areas for waste storage	
Relocate water storage and/or water transfer location	
Changes to access points (entrance/exits)	
Change type of erosion or sediment control measure	
Changes to location of erosion or sediment control	
Minor changes to schedule or phases	

Table 1.1 List of Changes to be Field Determined

Changes for field location or determination by QSP[(1)]	Check changes that can be field located or field determined by QSP
Changes in construction materials	
(1) Any field changes not identified for field location or field determination by QSP must be approved by QSD	

1.5 RETENTION OF RECORDS

The contractor must provide a copy of the SWPPP, all required PRDs, inspection reports, compliance certifications and annual reports, non-compliance reports, and training records to the LRP upon project completion. The LRP will retain this information for at least 3 years from the date that the site is finally stabilized. The contractor must retain a copy of the SWPPP and inspection reports at the construction site from the date of project initiation to the date coverage under the General Permit are terminated.

1.6 REQUIRED NON-COMPLIANCE REPORTING

Corrective measures will be implemented immediately following pollutant laden discharges (e.g. sediment, concrete) or following written notice of non-compliance from the Regional Water Quality Control Board (RWQCB). Discharges and corrective actions will be documented on the Effluent Sampling Form in Appendix J.

The report will contain the following items:

- The date, time, location, nature of operation and type of unauthorized discharge.
- The cause or nature of the notice or order.
- The control measures (BMPs) deployed before the discharge, or prior to receiving notice or order.
- The date of deployment and type of control measures (BMPs) deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.
- Reporting requirements for Numeric Action Levels (NALs) exceedances are discussed in Section 7.7.2.6.

1.7 ANNUAL REPORTING

The General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information.

An annual report, for the reporting year of July 1 – June 30, must be completed, by September 1 of each year until a NOT has been filed in the SWRCB's SMARTS database. The QSP is responsible for submitting the annual report information to the LRP by August 1 of each year. The LRP will review the report information for completeness and accuracy and upload the required information to the SWRCB's SMARTS database by September 1 of each year. Use the Annual Report form in Appendix E to prepare the Annual Report submittal to the LRP.

1.8 CHANGES TO PERMIT COVERAGE

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when: a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, shall be documented in the Amendment Log on page 2 of this SWPPP. QSD certification of SWPPP amendments are to be kept in Appendix D. Updated PRDs submitted electronically via SMARTS can be found in Appendix F.

1.9 PROJECT CLOSE OUT

A Notice of Termination (NOT) must be submitted electronically by the LRP via SMARTS to terminate coverage under the General Permit. The NOT must include a final Site Map and representative photographs of the project site that demonstrate final stabilization has been achieved. The NOT shall be submitted within 90 days of completion of construction. The RWQCB will consider a construction site complete when the conditions of the General Permit, Section II.D have been met. These conditions include:

- The site will not pose any additional sediment discharge risk than it did prior to the commencement of construction activity.
- There is no potential for construction related stormwater pollution.
- All elements of the SWPPP have been completed and final stabilization has been reached.
- Construction materials and waste have been properly disposed.
- An Annual Report has been filed for project longer than three (3) months.
- The site is in compliance with all local stormwater management requirements.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Description

The Ackerson Meadow project site comprises approximately 400 and is located within Stanislaus National Forest and Yosemite National Park, California. The project site is located in Tuolumne County, T1SR19E, Sections 23-26. The project site is located approximately 6 miles south of Hetch Hetchy Reservoir. The project location is identified in the plan set.

2.1.2 Existing Conditions

As of the initial date of this SWPPP, the project site is a degraded mountain meadow. Historically the meadow area was primarily wetland. Land use factors over the years have contrbuted to internal erosion that has formed a series of deep gullies through the meadow area. The formation of the gullies has effectively altered the historic hydrology and drained the interior wetlands. With the wetlands drained upland vegetation has become dominant. A portion of the proejct area is still used for grazing cattle.

2.1.3 Existing Drainage

The project site is a relatively flat, undeveloped, mountain meadow area. The elevation of the project site ranges from approximatly 4600-4700 feet above mean sea level (msl). The meadow area is the upper headwaters of Ackerson Creek, which is a is a tributary to the the Middle Fork of the Toulumne River. Historically, draiange was primarily via sub-surface flow. With prolonged erosion, there is now a defined central (ephemerial) channel through the center of the meadow that flows toward the west. Existing site topography, drainage patterns, and stormwater conveyance systems are shown on the plans.

2.1.4 Historic Sources of Contamination

This site has no historical sources of contamination.

2.1.5 Geology and Groundwater

The site is underlain by hydric soils. Groundwater occurs beneath the site at approximately 10 to 12 feet below ground surface, but is highly seasonal. The groundwater gradient is toward the west. The groundwater elevation generally coincides with the depth of the eroded gully. This proejct will fill in the gully and restore historic groundwater level, generally within 12 to 24 inches deep.

2.1.6 Project Description

The objective of this proejct is to restore Ackerson Meadow by filling in the eroded gully areas and restablishing hydrologic conditions which will in turn restablish meadow wetlands. Project grading will occur on approximately 50 acres. Grading will consist of a combination of cuts at predetermined borrow areas and fill placement in the central gullies. The limits of grading are shown in the plans. Grading will include both cut and fill activities, with the total graded material estimated to be 150,000 cubic yards. Approximately 50,000 cubic yards of fill material will be imported during grading activities. Soil will be stockpiled at designated staging areas as shown in the plans. Construction activities will be phased as shown in the plans.

2.1.7 Developed Condition

Post construction surface drainage will be directed to the west over the proposed grade control structure. Post construction drainage patterns and conveyance systems are presented in the plan set.

2.1.8 Construction Quantities

Table 2.1 presents construction site area, % impervious and curve number, for existing and developed conditions. This information is required to complete site information in the PRDs in SMARTS.

Table 2.1 Construction Site Estimates

Construction site area	400	acres
Disturbed Soil Area	52	acres
Percent impervious before construction	0	%
Runoff coefficient before construction	0.1	
Percent impervious after construction	0	%
Runoff coefficient after construction	<0.1	

2.2 PERMITS AND GOVERNING DOCUMENTS

An environmental assessment (EA) and initial study/mitigated negative declaration (MND) was completed for this project in 2021 and 2022. The EA resulted in a finding of no significant impact (FONSI). A copy of the FONSI and the MND are included with the project specifications.

2.3 STORMWATER RUN-ON FROM OFFSITE AREAS

Run-on to the site is generated by runoff and grounwater flow from the adjacent watershed. In general, construction will occur when during the dry season when there is little run-on to the site. Run-on from offsite is an integral part of the proejct and shall be controlled in accordance with the plans and specificaitons.

The stormwater runoff drainage area contributing to offsite run-on is estimated to be approximately 9.6 square miles. However, off-site run-on only impacts the gully fill areas. In general, the primary distrubnce areas (ie the borrow areas) are in upland areas with little to no off-site run on. The General Permit requires that temporary BMPs be implemented to direct offsite run-on away from disturbed areas through the use of runoff controls. During the construciton season, off-site run-on to the gully fill areas is expected to be nearly zero. In the event of a storm, off iste run-on will be pumped around the distrubed areas in accordance with the permit requirements.

2.4 SEDIMENT AND RECEIVING WATER RISK DETERMINATION

A construction site risk assessment has been performed for the project and the resultant risk level is Risk Level 2.

The risk level was determined though the use of the Risk Determination Worksheet (Attachemt D.1)

Risk Level 2 sites are subject to both the narrative effluent limitations and numeric effluent standards. The narrative effluent limitations require stormwater discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-stormwater through the use of controls, structures and best management practices. Discharges from Risk Level 2 site are subject to Numeric Action Levels (NAL) for pH and turbidity shown in Table 2-3. This SWPPP has been prepared to address Risk Level 2 requirements (General Permit Attachment D).

Table 2.3 Numeric Action Levels

Parameter	Unit	Numeric Action Level Daily Average
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250 NTU

2.5 CONSTRUCTION SCHEDULE

The site sediment risk was determined based on construction taking place between August 2023 and October 2024. Modification or extension of the schedule (start and end dates) may affect risk determination and permit requirements. The contractor shall contact the LRP immediately if the schedule changes and the LRP and its QSD will assess potential impacts to the SWPPP. The estimated schedule for planned work can be found in Appendix G.

It is anticipated that the project will consist of two grading phases, each occurring August through October over a two year span.

Table 2.4 Construction Activity Milestones

Milestone	Start Date	End Date
Date PRDs and filing fee submitted to SWRCB.		
Project covered by General Construction Permit. A construction site is covered by the General Permit upon filing PRDs, fess and receipt of WDID number.		
Initial ground-breaking (must occur after completion of SWPPP and receipt of WDID).		
Implement erosion control measures*		
Implement sediment control measures (perimeter control, stabilized entrance, inlet protection).		
Grading/excavation/trenching activities.		
Paving activities.		
Construction of structures and paved surfaces.		
Site clean-up.		
Anticipated construction completion date.		
Anticipated filing of Notice of Termination (NOT).		

* Erosion control measures are a required minimum BMP that must be implemented at all inactive areas of a construction site. An area is considered "inactive" if no construction activity including soil disturbing activities such as clearing, grading, disturbances to ground such as stockpiling and excavation, is occurring. An area is also considered inactive if soil disturbing activities had previously occurred but are not scheduled or planned to be re-disturbed for at least 14 days. Disturbed areas of the construction site that will not be re-disturbed will be stabilized by the day after the last disturbance

2.6 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Appendix H includes a list of construction activities and associated materials that are anticipated to be used onsite. These activities and associated materials will or could potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the BMP for the project. Location of anticipated pollutants and associated BMPs are show on the Site Map in Appendix B.

For sampling requirements for non-visible pollutants associated with construction activity refer to Section 7.7.1. For a full and complete list of onsite pollutants, refer to the Material Safety Data Sheets (MSDS), which are retained onsite at the construction trailer.

2.7 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-Stormwater discharges include activities related to vehicle fueling, spills, and possibly watering of nursery plants.

2.8 REQUIRED SITE MAP INFORMATION

The construction project's Site Map(s) showing the project location, surface water boundaries, geographic features, construction site perimeter and general topography and other requirements identified in Attachment B of the General Permit are located in Appendix B. Table 2.5 identifies Map or Sheet Nos. where required elements are illustrated.

Table 2.5 Required Map Information

Included on Map/Plan Sheet No. (1)	Required Element
G1	The project's surrounding area (vicinity)
G5	Site layout
G5	Construction site boundaries
U1	Drainage areas
U1	Discharge locations
U1	Sampling locations
G5, C SHEETS	Areas of soil disturbance (temporary or permanent)
C SHEETS	Active areas of soil disturbance (cut or fill)
U1	Locations of runoff BMPs
U1	Locations of erosion control BMPs

Table 2.5 Required Map Information

Included on Map/Plan Sheet No. [1]	Required Element
U1	Locations of sediment control BMPs
N/A	Advanced Treatment System (ATS) location (if applicable)
C SHEETS	Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
C SHEETS	Locations of all post construction BMPs
U1	Waste storage areas
U1	Vehicle storage areas
U1	Material storage areas
U1	Entrance and Exits
U1	Fueling locations

Notes: (1) Indicate maps or drawings that information is included on (e.g., Vicinity Map, Site Map, Drainage Plans, Grading Plans, Progress Maps, etc.)

Section 3 Best Management Practices

3.1 SCHEDULE FOR BMP IMPLEMENTATION

The General Permit recognizes four phases of construction (1)Grading and Land Development Phase, (2)Streets and Utilities Phase, (3) Vertical Construction Phase, and (4)Final Landscaping and Site Stabilization Phase. Each phase has activities that can result in different water quality effects from different water quality pollutants. BMPs for the site are to be implemented and maintained throughout the year on an as-needed basis. BMPs should be implemented in a proactive manner, as appropriate, to protect water quality.

This SWPPP addresses two phases of construction, which include grading and site stabilization. Table 3.1 describes the major construction activities that are covered by this SWPPP. The sequence of BMP installation activities for each phase is described. Activities are presented in the order (sequence) they are expected to be completed.

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
Erosion Control	Scheduling	Prior to Construction	Entirety of Project
	RECP	Throughout Project	Entirety of Project
	Vegetation Establishment	Throughout Project	Entirety of Project
	Fiber Rolls	After Grading	Entirety of Project
Sediment Control	Silt Fence	Prior to construction	Entirety of Project
	Check dams	In conjunction with construction	Entirety of Project As needed
	Grade Control Structure	Prior to construction	Entirety of Project
Tracking Control	Stabilized Construction Entrance	Start of Construction	Entirety of Project

Non-stormwater BMPs shall be implemented throughout construction.

3.2 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required by the General Permit to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater

discharges from the Site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control.

3.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles.

This construction project will implement the following practices to provide effective temporary and final erosion control during construction:

- ❑ Preserve existing vegetation where required and when feasible.
- ❑ Minimize the areas that are cleared and graded.
- ❑ The area of soil disturbing operations shall be controlled such that the Contractor is able to implement erosion control BMPs quickly and effectively.
- ❑ Stabilize inactive areas or areas scheduled to be inactive at the cessation of construction activities.
- ❑ Control erosion in concentrated flow paths by applying erosion control blankets, check dams, erosion control seeding or alternate methods.
- ❑ Prior to the completion of construction, apply permanent erosion control to remaining disturbed soil areas.

Sufficient erosion control materials shall be maintained onsite to allow implementation in conformance with this SWPPP.

This SWPPP has been designed to meet the requirements of the General Permit:

Implement effective wind erosion control (D.1)[1].

❑ Yes ☒N/A

Provide effective soil cover for inactive area and all finished slopes, open space, utility back fill and complete lots (D.2)[1].

☒Yes ❑ N/A

Limit the use of plastic material when more sustainable environmentally friendly alternatives exist (D.3)[1].

☒Yes ❑ N/A

Specific erosion controls measures to be implemented and maintained at the project site are denoted with an "X" and described below. BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix I. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP and over guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Erosion Controls
Scheduling (EC-1) 1. All BMPs shall be in place year-round. Construction activities shall be planned and performed to minimize the area and duration of exposure of soil to erosion by wind, rain, runoff and vehicle tracking. 2. The area that can be cleared or graded and left exposed at one time will be limited to the amount of acreage that the Contractor can adequately protect prior to a predicted rainstorm. A predicted storm event is defined as a forecasted 50% chance of rain. 3. Timing of construction will be considered when scheduling work to minimize soil disturbing activities and major grading operations during the rainy season. 4. Grading of the site will be phased to minimize the total area of exposed soil and the duration of exposure.
Preserve Existing Vegetation (EC-2) ☒Existing vegetation will be retained **(EC-2)** in undisturbed areas to the extent possible. If possible, vegetative buffer strips will be left adjacent to watercourses and along the site perimeter.
Slope Roughening (EC-15) ☒Slopes will be roughened perpendicular to the direction of runoff by track walking, sheepsfoot rolling, imprinting, or other appropriate technique.
Temporary Soil Stabilization ☒Blankets (i.e., rolled erosion control products) (EC-7), wood mulching (EC-8), will be used on disturbed soil areas as a temporary surface cover until soils can be prepared for re-vegetation and permanent vegetation is established. At a minimum, disturbed areas that will remain bare and un-worked for over two weeks.
Geotextiles, Plastic Covers, and Erosion Control Blankets, (EC-7) ☒Erosion control blankets will be placed on critical areas where maximum protection is desirable and on steep slopes that are inaccessible by hydraulic equipment or where other temporary soil stabilization methods such as hydraulic mulch, BFM, soil binders, straw mulch, etc. are not feasible. ☒Any plastic covers used for erosion control shall be properly installed, be used only for small areas due to increased runoff, and only be used for short term application, such as rapid deployment to cover an exposed soil area or stockpile prior to a storm event.
Soil Preparation/Roughening (EC-15) ❑ Prepare soils for BMP Installation. (EC-15)
Non-Vegetative Stabilization (EC-16) □ Wood mulch stabilization for arid areas. (EC-16)
Wind Erosion Control (WE-1) □ Apply water as needed. (WE-1)

Grading activities are anticipated to occur between July and October. Construction activities shall be scheduled and performed to minimize the area and duration of exposure of soil to erosion by wind, rain, runoff and vehicle tracking. The area that can be cleared or graded and left exposed at one time is limited to the amount of acreage that the Contractor can adequately protect prior to a predicted rainstorm. A

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

predicted storm event is defined as a forecasted 50% chance of rain. Timing of construction shall be considered when scheduling work to minimize soil-disturbing activities and major grading operations during the rainy season.

Disturbed areas on the site primarily include borrow areas and the central gullies where fill material will be placed. Land grading will be performed to minimize erosion and protect vegetation. Disturbed areas of the construction site that will not be re-disturbed will be stabilized by the day after the last disturbance.

Final cut and fill slopes shall be no steeper than 2:1 (horizontal to vertical). For long slopes, benching may be required to reduce the slope length. Fill slopes shall be constructed in accordance with project specifications.

Graded cut and fill slopes will be roughened with applied wood chips with the texture of the roughened surface trending perpendicular to the direction of runoff. The slope will be left in the roughened condition to slow flow velocities, enhance water infiltration, and enhance vegetative growth. Where the slope is too steep to allow construction traffic to travel parallel to the slope, cleated dozers traveling up and down the slope can produce a satisfactory texture on newly compacted soil.

Heavily traveled earthen roads will be stabilized (TC-2) and/or sprayed daily by a water truck for dust suppression. Care will be taken to spray additional areas of exposed soil as necessary during windy periods. Only the minimum amount of water will be used; no runoff will result from this practice

Locations for specific erosion control measures for the project are included on the site map(s) or Contractor Drawing No. U1 and contained in Appendix B of this SWPPP.

3.2.2 Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

This SWPPP has been designed to meet the requirements of the General Permit:

Establish and maintain effective perimeter controls and stabilize all construction entrances and exits (E.1)[1].

☒Yes ❑ N/A

Onsite where sediment basins are used, design sediment basins according to the method provide in the latest update of Fact Sheet SE-2 of the CASQA Construction BMP Hand Book (E.2)[1].

❑ Yes ☒N/A (no sediment basins)

Implement appropriate erosion control BMPs in conjunction with sediment control BMPs for areas under active construction (E.3)[1].

☒Yes ❑ N/A

Apply linear sediment controls along the toe of the slope, face of the slop and at grade breaks (E.4)[1].

☒Yes ❑ N/A

Ensure construction activity to and from the site is limited to entrances and exits that employ effective controls to prevent offsite tracking. (E.5)[1].

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

☒Yes ❑ N/A

Ensure that all storm drain inlets and perimeter controls, runoff control BMPs and pollutant controls at entrances and exits are maintained and protected from activities that reduces their effectiveness. (E.6)[1].

❑ Yes ☒N/A (no storm drains)

Inspect all access roads daily (E.7)[1].

☒Yes ❑ N/A

Specific sediment controls measures to be implemented and maintained at the project site are denoted with an "X" and described below. BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix I. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP and over guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Sediment Controls
Stabilize Perimeter ☒ Before commencing grading or clearing of the site, clearing limits, easements, setbacks, and vegetation to be preserved will be delineated by marking in the field **(EC-2)** and/or stabilized with non-vegetative controls such as geotextiles **(EC-7)**, riprap or gabions (wire mesh boxes filled with rock), and mulches such as wood **(EC-8).**
Silt Fence (SE-1) ☒Temporary silt fences will be constructed and maintained at the toe of exposed and erodible slopes, down slope of exposed soil areas, along the perimeter of the site, or around temporary soil stockpiles to allow sediment to settle from runoff before water leaves the site. ☒Silt fence shall be properly installed and maintained regularly by the Contractor including but not limited to trenching and keying in the bottom of the silt fence fabric, replacing warn fabric, and providing adequate sediment capacity (i.e., clean when sediment reaches 1/3 of the barrier height). Silt fence is not effective in concentrated flow areas.
Check Dams (SE-4) ☒Check dams will be used in unlined drainage channels to slow runoff velocity and encourage settlement of sediment.
Fiber Rolls (SE-5) ☒Fiber rolls will be used to reduce flow velocity (as slope interrupters or temporary check dams) and provide some removal of sediment, predominantly along the face or toe of erodible slopes and for perimeter sediment control. Fiber rolls are not appropriate as the only BMP at a site and should be used in conjunction with other erosion and sediment control measures to reduce pollutant discharges and shall be maintained by the Contractor for effective sediment control.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Tracking Controls

☒A stabilized construction entrance will be used to reduce offsite tracking (TC-1).

☒Construction roads will be stabilized to prevent tracking of sediments. (TC-2)

Prior to any ground-disturbing activities, including grading, demolition, or vegetation removal, silt fences and/or fiber roll will be placed around the site perimeter. Vegetative buffers will be maintained wherever possible. Construction entrances and exits will be stabilized with gravel and gravel bags will be placed at all storm drain inlets that could receive runoff from the construction site.

During construction, stormwater runoff shall be directed away from disturbed areas. Properly installed silt fences (SE-1) (with the toe embedded into the soil) shall be used to limit the discharge of sediment and pollutants from the site, as described below.

Perimeter sediment controls, including controls along the physical site perimeter and at active storm drain inlets, and sediment traps, shall be implemented prior to the start of construction and maintained throughout the duration of construction activities.

Locations for specific sediment control measures for the project are included in the plans and contained in Appendix B of this SWPPP.

The construction site will be managed to minimize the amount of dirt, mud, or dust that is generated and can thus be tracked or blown off the site. The Contractor shall provide a stabilized construction entrance (TC-1) to reduce offsite tracking. Washing of sediment from the right-or-way shall be prohibited.

Locations for specific tracking control BMPs for the project are included in the plans and contained in Appendix B of this SWPPP.

3.2.3 Drainage Controls

Drainage controls have been selected and designed to effectively manage all run-on and run-off within the site and all run-off that discharges off the site.

This SWPPP has been designed to meet the requirements of the General Permit:

Run-on from offsite shall be directed away from all disturbed area or shall be collectively in compliance with the effluent limitation in the General Permit (F.1)[1].

☒Yes ☐N/A

To prevent the development of rills and gullies in graded slopes, runoff will be directed to stabilized conveyance channels and drains. No concentrated flow of water will be allowed to flow down a graded slope face.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Every effort will be made to maintain runoff water in its natural course and direction of flow. Access road surfaces shall be stabilized (TC-2) and compacted to obtain a dense, smooth and uniform surface for construction vehicles. Access roads shall be sloped in a manner that will prevent ponding and damage from water flow. Roads that will remain unpaved for more than 21 days will be provided with adequate drainage features to reduce erosion. These measures will include placement of meadow mats in notes areas.

3.3 NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1 Non-Stormwater Controls

Non-stormwater management BMPs involve good housekeeping practices to prevent non-stormwater discharges from entering the storm drain and source control of potential pollutants to prevent them from coming into contact with runoff. Categories of non-stormwater management include paving operations management, pesticide and fertilizer management, vehicle and equipment cleaning, fueling, and maintenance, and painting controls. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.7 of this SWPPP.

This SWPPP has been designed to meet the requirements of the General Permit:

Implement good site management measures for Vehicle Storage and Maintenance (B.3)[1]

☒Yes ❑ N/A

Implement good site management measures for Landscape Materials (B.4)[1]

☒Yes ❑ N/A

Implement measures to control all non-stormwater discharges (C.1)[1]

❑ Yes ☒N/A (no non-stormwater discharges)

Shall wash vehicles in such a manner as to prevent non-stormwater discharges to surface waters or MS4 drainage systems (C.2)[1]

☐Yes ☒ N/A (no on-site washing)

Shall clean streets in such a manner as to prevent unauthorized non-stormwater discharges from reaching surface water or MS4 drainage systems (C.3)[1]

❑ Yes ☒N/A (no streets)

Specific non-stormwater measures to be implemented and maintained at the project site are denoted with an "X" and described below. Fact Sheets for temporary non-stormwater BMPs are provided in Appendix I.

Water Conservation (NS-1)

☒Conserve water when watering vegetation and prevent erosion.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Vehicle and Equipment Cleaning (NS-8) ☒All vehicle, equipment, and machinery washing will be done offsite at commercial wash facilities or at a facility that is properly permitted and discharges wash water to a recycle/reuse system or to the sanitary sewer. On-site vehicle and equipment cleaning is prohibited.
Vehicle and Equipment Fueling (NS-9) ☒Vehicle fueling is allowed on site. All vehicle maintenance will be conducted offsite

Vehicle and Equipment Cleaning, Fueling and Maintenance

Vehicles and heavy machinery are a potential source of pollutants such as petroleum products, antifreeze, and exhaust and waste oil containing heavy metals. Pollutants may enter stormwater runoff by means of direct contact with machine parts and by contact with spills on surfaces and the ground. On-site vehicle and equipment maintenance is prohibited unless specific provisions to contain and dispose of fluid drips and spills are implemented.

3.3.2 Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing and using construction materials to prevent the release of those materials into stormwater discharges. The amount and type of construction materials to be utilized at the Site will depend upon the type of construction and the length of the construction period. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization.

Waste management consist of implementing procedural and structural BMPs for handling, storing and ensuring proper disposal of wastes to prevent the release of those wastes into stormwater discharges.

Materials and waste management pollution control BMPs shall be implemented to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged offsite. The primary mechanisms for stormwater contact that shall be addressed include:

- Direct contact with precipitation.
- Contact with stormwater run-on and runoff.
- Wind dispersion of loose materials.
- Direct discharge to the storm drain system through spills or dumping.
- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

This SWPPP has been designed to meet the requirements of the General Permit:

Implement good site management measures for Construction Material that could potentially be a threat to water quality if discharge (B.1)[1].

☒Yes ❑ N/A

Implement good site management measures for Waste Management (B.2)[1].

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

☒Yes ❑ N/A

Specific material management and waste management control measures to be implemented and maintained at the project site are denoted with an "X" and described below. BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix I. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP and over guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the BMP Fact Sheets. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Materials Delivery and Storage (WM-1)

☒Designate areas of the construction site for material delivery and storage. Material storage areas will be placed near construction site entrances, away from drain inlets, culverts and surface water bodies.

☒Designated storage areas will be kept clean and well organized.

☒Any materials being stored which could release pollutants by wind or runoff transport shall be protected by overhead cover, secondary containment, tarpaulins, or other appropriate method.

☒Regular inspections of storage areas will be conducted to monitor inventory and check for leaking containers.

☒Any chemicals, drums or bagged materials not stored in a covered location, will be stored on pallets, and when possible in secondary containment.

☒Secondary containment will be provided for liquids.

☒Secondary containment areas will be covered to prevent accumulation of rainwater.

Materials Use (WM-2)

☒Materials will be used in accordance with manufacturer directions and in a manner to prevent release of pollutants.

☒An accurate, up-to-date inventory of materials delivered and stored on-site will be kept.

☒Required: Application of any erodible landscape material will be discontinued 2 days prior to a forecasted rain event or during periods of precipitation.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Stockpile Management (WM-3)

☒Stockpiles will be covered or protected by soil stabilization measures when not in use and at the end of each day throughout the term of construction (WM-3). Stockpiles shall be protected with temporary perimeter sediment barriers.

☒Stockpiles must be protected to prevent discharge of sediment or other pollutants beyond the immediate area of the stockpile and offsite either by transport via wind or water.

☒All stockpiles must be stabilized at the end of each day. In addition, all stockpiles must be bermed (i.e. perimeter controls) at the end of each day.

☒Stockpiles in the right-of-way must be stabilized with an erosion control product and bermed (i.e. perimeter control) at the end of each day.

☒All stockpiles must be stabilized with an erosion control product and bermed (i.e. perimeter control) prior to rain.

☒For stockpiles where only a portion (or "face") is actively being used, the remaining inactive portion (or faces) must be designated on the site map and stabilized with an erosion control product and bermed at all times. Active faces must be bermed and stabilized at the end of each day and prior to rain as described above in notes 3 and 4.

☒Stockpile perimeter controls must be inspected on a daily basis by the Contractor for sediment accumulation. Sediment accumulation must be removed when sediment reaches 1/3 of BMP height and prior to a rain event. For perimeter controls within the right-of-way, sediment accumulation must be removed daily and prior to rain event.

Spill Prevention and Control (WM-4)

☒If a spill were to occur at the site, it will never be cleaned-up by hosing off the area. Dry material spills will never be hosed down or buried.

☒Any fuel products, lubricating fluids, grease or other products and/or waste released from the Contractor's vehicles, equipment, or operations shall be collected and disposed of immediately in accordance with State, Federal and local laws.

☒If the spill has occurred during a rain event, the area will be covered as quickly as possible. The spill will be cleaned up as soon as possible after cessation of rain.

☒Spill cleanup materials will be stored near potential spill areas (e.g., painting, vehicle maintenance areas).

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Solid Waste Management (WM-5)

☒There will be designated temporary waste storage areas on the site.

☒The site will be kept clean of litter and waste.

☒Non-hazardous construction wastes (e.g., vegetation, trash, and construction debris) will be collected from throughout the site regularly and deposited at the designated waste storage areas. Additional containers and more frequent pickup will be provided during the demolition phase of construction.

☒When practical, non-hazardous site wastes will be stored within covered, water-tight dumpsters and/or containers that prevent exposure to rain and prevent loss of wastes when it is windy.

☒All waste materials will be removed from the storage areas by the Contractor or a licensed subcontractor on a weekly basis and disposed or recycled in accordance with all Federal, State, and local regulations.

☒Dumpsters will not be hosed out on the construction site. Any required dumpster cleaning will be done offsite by the trash hauling contractor.

☒Any solid waste that accumulates at erosion and sediment control devices will be removed immediately.

☒Dumpsters shall be closed at the end of every business day and during rain event.

Sanitary/Septic Control Measures (WM-9)

☒Portable sanitary facilities will be transported to and from the site by a licensed contractor, placed in a convenient location and maintained in good working order by a licensed service.

☒Untreated wastewater will never be discharged to surface waters or on-site storm drains and will never be buried.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Hazardous Waste Management (WM-6)

☒Hazardous wastes and containers will be placed in a designated hazardous waste storage area that is covered and has an impermeable bottom surface surrounded by secondary containment to minimize the mixing of wastes with stormwater and to prevent the direct release of liquid waste to stormwater. The temporary storage and removal of hazardous wastes from the site will be in accordance with all applicable state and federal laws.

☒Wastes will be segregated and recycled where feasible (e.g., paints, solvents, used oil, batteries, anti-freeze). Wastes will not be mixed since this can cause chemical reactions, will make recycling impossible and complicate disposal.

☒Covered waste bins will be designated for the disposal of all empty product (e.g., paints, solvents, glues, petroleum products, concrete, exterior finishes, pesticides, fertilizers, etc.) containers. The original product label will not be removed as it contains important safety and disposal information.

☒Toxic wastes and chemicals will not be disposed of in dumpsters designated for construction debris.

☒If any asbestos is discovered in the demolished materials, asbestos removal and disposal will be performed by a licensed contractor or licensed subcontractor trained in asbestos removal. All removal and disposal will be done in accordance with state and federal regulations. Any asbestos wastes stored on-site prior to removal will be stored within dumpsters (roll-offs) covered with tarps or other appropriate method to prevent contact with rain and minimize exposure to wind.

☒Universal waste shall be handled and disposed of in accordance with applicable local, State and Federal regulation.

☒Employees and subcontractors will be trained on proper storage practices

Many materials used in construction can contribute pollutants to stormwater runoff. Examples of such materials include vehicle fuels, oils, and antifreeze. Any materials being stored which could release constituents by wind or runoff transport shall be protected by overhead cover, secondary containment, tarpaulins, or other methods approved by the Engineer. All construction materials will be delivered to and stored in designated areas at the construction site (WM-1). The main loading, unloading, and access areas should be located away from storm drain inlets and channels. The Contractor will construct enclosures or flow barriers (berms) around these areas to prevent stormwater flows from entering storm drains or receiving waters, and to control the discharge of sediments and other pollutants.

Material Use

All hazardous material will be stored in covered, sealed containers, within a bermed area. The bermed storage area will be covered to prevent contact with stormwater.

Stockpiles

Stockpiles will be covered or protected by soil stabilization measures when not in use and at the end of each day throughout the term of the contract (WM-3). Stockpiles shall be protected with temporary perimeter sediment barriers.

Spill Prevention and Control

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

The following measures will be undertaken at the site to prevent or reduce the discharge of pollutants to stormwater from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees:

The spill equipment will be located in the following areas: staging area.

Store materials such as fuel in designated areas.

In the event of a spill, follow reporting procedures presented in Section 3.3.3.

Waste Management

There will be designated temporary waste storage areas on the site. Non-hazardous construction wastes (e.g., vegetation, trash, and construction debris) will be collected from throughout the site once a day and deposited in central piles at the designated waste storage areas. Wastes will be stored within covered bear-proof dumpsters. All waste materials will be removed from the storage areas by the Contractor or a licensed subcontractor on a weekly basis and transported to an offsite landfill or to the appropriate recycling facility. The disposal of excess material offsite will comply with all Federal, State, and local regulations.

Compliance with State/Local Sanitary Waste Regulations

The following measures will be implemented to ensure compliance with local, State and Federal waste disposal, sanitary sewer or septic system regulations:

- Portable sanitary facilities will be transported to and from the site by a licensed contractor, placed in a convenient location and maintained in good working order by a licensed service.
- Untreated wastewater will never be discharged to surface waters or on-site storm drains and will never be buried.

Contaminated Soil Management

A number of practices occurring during construction may lead to contamination of soils. For example, leaks and spills of petroleum products from leaking vehicles and routine vehicle and equipment maintenance can cause soil contamination or areas of historic contamination may be encountered. No contaminated soils shall be buried or otherwise disposed on site.

3.3.3 Spill Reponses and Reporting Procedures

Proper disposal of all spill cleanup material will be done within 24 hours of the incident.

Non-Stormwater Discharges

Notification of the spill is to be made to _____. Sampling of non-stormwater shall be in accordance with the CSMP Section 7.7.3. Documentation of the non-stormwater release and response activities will be recorded on "Quarterly Visual Observation of Non-Stormwater Discharges" Form in Appendix J.

Sewage and Petroleum Discharges

All sewage or petroleum spills that enter a storm drain and are not fully contained, or spills 5 gallons or greater of potentially hazardous materials, and/or any spill of hazardous material of Federal Reportable Quantity (as established under 40 CFR Parts 110, 117, or 302), shall be documented in Table 3.1 and the Project Superintendent shall notify the National Response Center by telephone at (800) 424-8802, if appropriate. The Project Superintendent will submit a written description of the release to EPA Region 9,

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

including the date, circumstances of the incident, and steps taken to prevent another release within 14 days, if a Federal Reportable Release occurred. A copy of this report is to be submitted to the Owner.

SWPPP Reportable Quantity Releases

This table will be completed for any release of petroleum products or sewage that are not fully contained; any release 5 gallons or greater of potentially hazardous material, and/or any Reportable Quantity spill of hazardous materials (as established under 40 CFR Part 110[1], 40 CFR Part 117[2], or 40 CFR 302[3]) that occurs on site.

1. 40 CFR Part 110 addresses the discharge of oil in such quantities as may be harmful pursuant to Section 311(b)(4) of the Clean Water Act.
2. 40 CFR Part 117 addresses the determination of such quantities of hazardous substances that may be harmful pursuant to Section 311(b)(3) of the Clean Water Act.
3. 40 CFR Part 302 addresses the designation, reportable quantities, and notification requirements for the release of substances designated under Section 311(b)(2)(A) of the Clean Water Act.

Table 3.2 Spill Quantities

Date of Spill	Material Spilled	Approximate Quantity	Agencies Notified	Date Notified

3.4 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

Proper operation and maintenance will be implemented by the Owner for permanent structural BMPs so that they continue to function as designed. This is especially important for treatment controls, since their routine maintenance involves activities such as sediment removal, vegetation management, and replacement of filters or inserts.

A plan for post construction BMP funding and maintenance has been developed to address at minimum five years following construction. The post construction BMPs that are described shall be funded and maintained by the LRP. If required, post construction funding and maintenance will be submitted with the NOT.

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Post Construction Site Design BMP

Vegetative Restoration ☒The owner will continue to monitor the site for vegetative restoraito purposes

[1] See section in General Permit Appendix C for Risk Level 1 or Appendix D for Risk Level 2

Section 4 BMP Inspection, Maintenance, and Rain Event Action Plans

4.1 BMP INSPECTION AND MAINTENANCE

The General Permit requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying rain events. The construction general permit defines a qualifying rain events as an event that produces 0.5 inchs or more precipiation with a 48 hour or greater dry period between events. A BMP inspection checklist must be filled out for inspections and maintained on-site with the SWPPP. Refer to Construction Site Monitoring Plan for rain event inspection information. The inspection checklist includes the necessary information covered in Section 7.6. Inspection and monitoring records shall be kept in Appendix J.

BMPs shall be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions shall be begin within 72 hours of identified deficiencies and associated amendments to the SWPPP shall be prepared by the QSD.

Specific details for maintenance, inspection, and repair of BMPs selected for this Site can be found in the BMP Factsheets in Appendix I.

4.2 RAIN EVENT ACTION PLANS

The Rain Event Action Plans (REAP) is written document designed to be used as a planning tool by the QSP to protect disturbed portions of the Site and to ensure that adequate materials and staff are available to implement erosion and sediment control measures. It is the responsibility of the QSP to be aware of precipitation forecast and to obtain and print copies of forecasted precipitation from NOAA's National Weather Service Forecast Office (www.srh.noaa.gov).

A REAP template for each applicable project phase can be found in Appendix K. The QSP shall customize these templates for each rain event and project phase. The QSP shall maintain a paper copy of completed REAPs in compliance with the record retention requirements Section 1.5 of this SWPPP. Completed REAPs shall be maintained in Appendix K.

The QSP will develop event-specific REAP 48 hours prior to precipitation event forecast to have a 50% or greater chance of producing precipitation in the project area. The REAP will be maintained onsite and be implemented 24 hours in advance of the predicted precipitation event.

At minimum the REAP will include the following site and phase-specific information:

- Site Address;
- Calculated Risk Level 2;
- Site Stormwater Manager Information including the name, company and 24-hour emergency telephone number;
- Erosion and Sediment Control Provider information including the name, company and 24-hour emergency telephone number;
- Stormwater Sampling Agent information including the name, company, and 24-hour emergency telephone number;
- Activities associated with each construction phase;
- Trades active on the construction site during each construction phase;

- Trade contractor information; and
- Recommended actions for each project phase.

Section 5 Training

Appendix M identifies the QSP(s) for the project. To promote stormwater management awareness specific for this project, periodic training of job-site personnel shall be included as part of routine project meetings (e.g. daily/weekly tailgate safety meetings), or task specific trainings as needed.

The QSP shall be responsible for providing this information at the meetings, and subsequently completing the training logs shown in Appendix L, which identifies the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting. Tasks may be delegated to trained employees by the QSP provided adequate supervision and oversight is provided. Training shall correspond to the specific task delegated including: SWPPP implementation; BMP inspection and maintenance; and record keeping.

Documentation of training activities (formal and informal) is retained in SWPPP Appendix L.

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

Approved Signatory:

Approved Signatory(ies) who are responsible for SWPPP implementation and have authority to sign permit-related documents are identified in Appendix M. Written authorizations from the LRP for these individuals are provided in Appendix M.

Data Submitters:

Data Submitters who are responsible for SMARTS updates are listed in Appendix M.

Qualified SWPPP Practitioner:

The QSP shall ensure that all BMPs required by the General Permit and this SWPPP are implemented. In general the QSP is responsible for non-stormwater and stormwater visual observations, sampling and analysis. The QSP contact information and responsibilities for this project are listed below. Note: A QSD can serve the role of the QSP also. The QSP(s) are indentified in Appendix M.

Responsibilities

- Responsible for overall SWPPP implementation, ensuring that materials and manpower are made available for the successful maintenance of all erosion and sediment control and other BMPs specified in the SWPPP.
- Responsible for maintaining an up-to-date copy of this SWPPP onsite at all times, from commencement of construction to final site stabilization.
- Responsible for making a copy of the SWPPP available for inspection by outside authorized regulatory authorities upon request.
- Responsible for ensuring that field engineering activities are planned and conducted in accordance with the SWPPP.
- Responsible for directing ongoing regular BMP maintenance activities (e.g. silt fence repair, fiber roll replacement, sediment removal, timely waste disposal, etc).
- Responsible for implementing and overseeing necessary corrective actions to the erosion/sediment control devices and other BMPs identified during regular site inspections.
- Responsible for maintaining all site records pertaining to inspection and maintenance of erosion and sediment controls and other BMPs as well as records detailing the dates on which major construction activities began and were completed.
- Responsible for conducting Environmental Awareness Training for site personnel (including subcontractor personnel). This involves increasing awareness of the need to comply with the SWPPP which includes: minimizing sediment in stormwater discharges offsite as well as keeping a clean site and minimizing the potential for construction materials and wastes from entering stormwater discharges.
- Responsible for conducting regular documented inspections of erosion and sediment control devices and other BMPs contained in this SWPPP (as discussed in Section 4.0). The findings of these inspections are discussed with the Project Field Engineer who in turn makes available the necessary resources to repair/replace any defective control devices identified in the inspection.

- Responsible for acting as the site spill coordinator to document spills, direct clean-up activities, minimize impact to stormwater, and ensure that the proper reporting, if necessary, is completed.
- Responsible for ensuring that all subcontractors involved with construction activities, which may potentially affect stormwater quality at the site, are made aware of, and their contracts reflect that they must comply with the applicable provisions of this SWPPP.

6.2 CONTRACTOR LIST

Appendix N includes a list of all contractors, subcontractors and individuals that will be directed by the QSP for actives covered under this SWPPP. At a minimum the following information shall be included:

- Name
- Title
- Company
- Address
- Phone Number
- Number (24/7)

Section 7 Construction Site Monitoring Program

7.1 Purpose

This Construction Site Monitoring Program was developed to address the following objectives:

1. To demonstrate that the project site is in compliance with the Discharge Prohibitions (and applicable Numeric Action Levels (NALs)) of the Construction General Permit;
2. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
3. To determine whether immediate corrective actions, additional Best Management Practices (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges; and
4. To determine whether BMPs included in the SWPPP (and REAP) are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

7.2 Applicability of Permit Requirements

This project has been determined to be a Risk Level 2 project. The General Permit identifies the following types of monitoring as being applicable for a Risk Level 2 project.

Risk Level 2

- Visual inspections of BMPs;
- Visual monitoring of the site related to qualifying storm events;
- Visual monitoring of the site for non-stormwater discharges;
- Sampling and analysis of construction site runoff for pH and turbidity;
- Sampling and analysis of construction site runoff for non-visible pollutants when applicable; and
- Sampling and analysis of non-stormwater discharges when applicable.

7.3 Weather and Rain Event Tracking

Visual monitoring, inspections, and sampling requirements of the General Permit are triggered by a qualifying rain event. The General Permit defines a qualifying rain event as any event that produces ½ inch of precipitation. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

7.3.1 Weather Tracking

The QSP should consult daily the National Oceanographic and Atmospheric Administration (NOAA) for the weather forecasts. These forecasts can be obtained at http://www.srh.noaa.gov/. Weather reports should be printed and maintained with the SWPPP in Appendix K "Weather Reports and REAP". If rain is forecasted the QSP shall perform a Pre-Rain Event "BMP Inspection Report", are included in Appendix J.

7.3.2 Rain Gauges

The QSP shall install a temporary rain gauge(s) on the project site. Locate the gauge in an open area away from obstructions such as trees or overhangs. Mount the gauge on a post at a height of 3 to 5 feet with the

gauge extending several inches beyond the post. Make sure that the top of the gauge is level. Make sure the post is not in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge(s) shall be read daily during normal site scheduled hours. If there is precipitation QSP shall perform a During-Rain Event "BMP Inspection Report", include in Appendix J. The rain gauge should be read at approximately the same time every day and the date and time of each reading recorded. Log rain gauge readings in Appendix K "Weather Reports and REAP"

Once the rain gauge reading has been recorded, accumulated rain shall be emptied and the gauge reset. If total rainfall is greater than 0.5 inches the QSP shall prepare a Post-Rain Event "BMP Inspection Report" within 48 hours of the conclusion of the storm, included in Appendix J.

7.4 Monitoring Location and Personnel

Monitoring locations are shown on the Plans.

Whenever changes in the construction site might affect the appropriateness of sampling locations, the sampling locations shall be revised accordingly. All such revisions shall be implemented as soon as feasible and the SWPPP amended. Temporary changes that result in a one-time additional sampling location do not require a SWPPP amendment.

The QSP or his/her designee will contact the lab 24 hours prior to a predicted rain event or for an unpredicted event, as soon as a rain event begins to ensure that adequate sample collection personnel, supplies for monitoring pH and turbidity are available and will be mobilized to collect samples on the project site in accordance with the sampling schedule.

Samples will be collected and analyzed by:

Contractor	☐ Yes	☐ No
Consultant	☐ Yes	☐ No
Laboratory	☐ Yes	☐ No

Samples on the project site will be collected by the following:

Company Name:

Street Address:

City, State, Zip:

Telephone Number:

Point of Contact:

Name of Sampler(s):

7.5 Safety and Monitoring Exemptions

This project is not required to collect samples or conduct visual observations (inspections) under the following conditions:

- During dangerous weather conditions such as flooding and electrical storms.
- In the event of a fire
- Access to the site is restricted

If monitoring (visual monitoring or sample collection) of the site is unsafe because of the dangerous conditions noted above then the QSP shall document the conditions for why an exception to performing the monitoring was necessary. The exemption documentation shall be filed in Appendix J.

7.6 Visual Monitoring

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the site are required to observe stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7.1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Section 7.6.5.

Table 7.1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
Routine Inspections	
BMP Inspections	Weekly[1]
Non-Stormwater Discharge Observations	Quarterly during daylight hours
Rain Event Triggered Inspections	
Site Inspections Prior to a Qualifying Event	Within 48 hours prior to qualifying event[2]
BMP Inspections During an Extended Storm Event	Every 24-hour period of a rain event[2,3]
Site Inspections Following a Qualifying Event	Within 48 hours following a qualifying event[2]

[1] Most BMPs must be inspected weekly; those identified below must be inspected more frequently.
[2] Inspections are only required during scheduled site operating hours.
[3] These inspections are required daily regardless of the amount of precipitation.

7.6.1 Routine Observations and Inspections

Routine site inspections and visual monitoring are necessary to ensure that the project is in compliance with the requirements of the Construction General Permit.

7.6.1.1 Routine BMP Inspections

Inspections of BMPs are conducted to identify and record:

- BMPs that are properly installed and maintained;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed;
- BMPs that could fail to operate as intended; or
- BMP's previously identified as requiring maintenances have been repaired or replaced.

7.6.1.2 Non-Stormwater Discharge Observations

Each drainage area will be inspected quarterly for the presence of or indications of prior unauthorized and authorized non-stormwater discharges. Inspections will record:

- Presence or evidence of any non-stormwater discharge (authorized or unauthorized);
- Pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc); and
- Source of discharge.

7.6.2 Rain-Event Triggered Observations and Inspections

Visual observations of the site and inspections of BMPs are required prior to a qualifying rain event; following a qualifying rain event, and every 24-hour period during a qualifying rain event. Pre-rain inspections will be conducted after consulting NOAA and determining that a precipitation event with a 50% or greater probability of precipitation has been predicted.

7.6.2.1 Visual Observations Prior to a Forecasted Qualifying Rain Event

Within 48-hours prior to a qualifying event a stormwater visual monitoring site inspection and observations shall be conducted at the following locations:

- Potential pollutant sources are properly stored (i.e. sorted in covered areas, elevated off ground surfaces, etc);
- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- BMPs to identify if they have been properly implemented or require maintenance;
- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

7.6.2.2 BMP Inspections During an Extended Storm Event

During an extended rain event BMP inspections will be conducted every 24 hours during normal business hours to identify and record:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- Evidence of any spills, leaks, or uncontrolled pollutant sources that may have migrated offsite;
- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed; or
- BMPs that could fail to operate as intended.

If the construction site is not accessible during the rain event, the visual inspections shall be performed at all relevant outfalls, discharge points, and downstream locations. The inspections should record any projected maintenance activities.

7.6.2.3 Visual Observations Following a Qualifying Rain Event

Within 48 hours following a qualifying rain event (0.5 inches of rain) a stormwater visual monitoring site inspection is required to observe:

- Evidence of any spills, leaks, or uncontrolled pollutant sources that may have migrated offsite;
- BMPs to identify if they have been properly designed, implemented, and effective;
- Need for additional BMPs or BMP maintenance;

- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard; and
- Discharge of stored or contained rain water.

7.6.3 Visual Monitoring Procedures

Visual monitoring shall be conducted by the QSP or staff trained by and under the supervision of the QSP. The name(s) and contact number(s) of the site visual monitoring personnel provided in Appendix L.

Stormwater observations shall be documented on the "BMP Inspection Report" (Appendix J). BMP inspections shall be documented on the site specific BMP inspection checklist. Any photographs used to document observations will be referenced on stormwater site inspection report and maintained with the Monitoring Records in Attachment 2.

The QSP shall within two days of the inspection submit copies of the completed inspection report to the Engineer's Representative.

The completed reports will be kept in Appendix J.

7.6.4 Visual Monitoring Follow-Up and Reporting

Correction of deficiencies identified by the observations or inspections, including required repairs or maintenance of BMPs, shall be initiated and completed as soon as possible.

If identified deficiencies require design changes, including additional BMPs, the implementation of changes will be initiated within 72 hours of identification and be completed as soon as possible. When design changes to BMPs are required, the SWPPP shall be amended to reflect the changes.

Deficiencies identified in site inspection reports and correction of deficiencies will be tracked on the "BMP Inspection Report" and shall be submitted to the QSP and shall be kept in Appendix J.

The QSP shall within two days of the inspection submit copies of the completed "BMP Inspection Reports" with the corrective actions to the Engineer's Representative.

Results of visual monitoring must be summarized and reported in the Annual Report.

7.6.5 Visual Monitoring Locations

The inspections and observations identified in Sections 7.6.1 and 7.6.2 will be conducted at the locations identified in this section.

BMP locations are shown on the plans

7.7 Water Quality Sampling and Analysis

Water quality sampling and analysis serves to demonstrate the project is in compliance with discharge prohibitions. This project is classified as Risk Level 2 and shall perform water quality sampling and analysis for non-visible pollutants, pH and turbidity during storm events, and for non-stormwater discharges.

7.7.1 Non-Visible Pollutants in Stormwater Runoff Discharges

This CSMP for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the project site.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

The project has the potential to receive stormwater run-on from the following locations with the potential to contribute non-visible pollutants to stormwater discharges from the project. Locations of such run-on to the project site are shown on the plans

7.7.1.1 Non-Visible Pollutants Sampling Schedule

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2 Non-Visible Pollutants Sampling Locations, Collection and Analysis

If a stormwater visual monitoring site inspection conducted prior to or during a storm event identifies the potential for the discharge of non-visible pollutants to surface waters or a storm drain system that was not previously identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations shall be identified by the QSP on the pre-rain event inspection form prior to a forecasted qualifying rain event.

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use; accessibility for sampling, and personnel safety. Planned non-visible pollutant sampling locations are shown on the plans and include the locations identified in Table 7.2 through 7.6.

Samples of discharge shall be collected at the designated non-visible pollutant sampling locations shown on the plans. Samples shall be collected in the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table 9, "Table 7.9 List of Non-Visible Laboratory Analytical Constituents" provided in Section 7.7.1.4. Only the QSP, or personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.10.

Samples shall be analyzed using the analytical methods identified in the Table 7.8, and samples will be analyzed by laboratory identified in Section 7.9.

One sampling location(s) on the project site has been identified for the collection of samples of runoff from planned material and waste storage areas and areas where non-visible pollutant producing construction activities are planned.

Table 7.2 Non-Visible Pollutant Sample Locations – Contractors' Yard

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
1	Staging Area (TBD)	Varies

Sample areas for the staging of soil amendments (biochar if used) will be determined in the field based on stockpile location as required.

Table 7.3 Non-Visible Pollutant Sample Locations – Soil Amendment Areas

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
1	Downgradient of Stockpiles as Applicable	Varies

Two sampling location(s) has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location(s) was selected such that the sample will not have come in contact with the operations, activities, or areas identified in Section 7.7.1 or with disturbed soils areas.

Table 7.5 Non-Visible Pollutant Sample Locations – Background (Unaffected Sample)

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
1	Upstream of Ackerson Meadow	See Plans
2	Upstream of Ackerson South	See Plans

Two sampling locations have been identified for the collection of samples of run-on to the project site. Run-on from these locations has the potential to combine with discharges from the site being sampled for non-visible pollutants. These samples are intended to identify potential sources of non-visible pollutants that originate off the project site.

Table 7.6 Non-Visible Pollutant Sample Locations – Site Run-On

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
1	Upstream of Ackerson Meadow	See Plans
2	Upstream of Ackerson South	See Plans

7.7.1.3 Analytical Constituents

Table 7.7 lists pollutant sources associated with different construction phases, associated field test and water quality indicator constituent(s) for that pollutant.

Table 7.7 Pollutant Sources, Field Test and Indicator Constituents

Pollutant Source	Field Test[1]	Water Quality Indicator Constituent
Sediment	(visible)	
Vehicle Fuels	(visible)	Oil and Grease or TPH
Litter	(visible)	
Chlorinated Water	Colorimetric	

7.7.1.4 Non-Visible Pollutants Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Runoff/downgradient results shall be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

The General Permit prohibits the stormwater discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Engineer's Representative and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4.

Results of non-visible pollutant monitoring shall be reported in the Annual Report.

Table 7.9 List of Non-Visible Laboratory Analytical Constituents

Constituent/ Parameter Name	Constituent Abbreviation	Bottle Type	Volume Required[1] (mL)	Preservation	Method Type	EPA Method Number	Holding Time	Units	Target Reporting Limit
Conventional									
Specific Conductance	EC	Poly-Propylene	50	N/A	N/A	120.1	ASAP	umhos/cm	1
pH[3]	pH		50	N/A	Electrometric	150.1	ASAP	pH unit	+/- 0.1
Hydrocarbons									
Total Recoverable Petroleum Hydrocarbons	TRPH	Glass	1000	4 degrees Celsius	Gas chromatography	8015b	14 days	µg/L	50
Oil and Grease (HEM/SGT)	O&G		1000	H_2SO_4 to pH<2	Gravimetric	1664	28 days	mg/L	5
Nutrients									
Nitrate-Nitrogen	NO_3-N	Poly-Propylene	100	4 degrees Celsius	Ion chromatography	300.0	48 hours	mg/L	0.1
Ammonia-Nitrogen	NH_3-N		100	None	Titrimetric	350.2	28 days	mg/L	0.1
Total Phosphorus	Total P		100	HNO_3 or H_2SO_4 to pH<2	Colorimetric	365.2	28 days	mg/L	0.03
Detergents	MBAS		500	4 degrees Celsius	Colorimetric	425.1	48 hours	mg/L	0.1
Bacteriological									
Coliform (Fecal)	FC	Poly-Propylene	50	$Na_2S_2O_3$	Multiple-tube fermentation	9211E	6 hours	MPN/100 ml	1
Coliform (Total)	TC		50	$Na_2S_2O_3$	Multiple-tube fermentation	9221B	6 hours	MPN/100 ml	1
Metals									
Total Recoverable	TR	Poly-Propylene	250	HNO_3 or H_2SO_4 to pH<2	GFAA; ICP-MS	200.8	Filter for dissolved fraction and preserve within 48 hours; analyze within 6 months.	µg/L	0.2-5[5]
Dissolved [4]	Diss		250	HNO_3 or H_2SO_4 to pH <2[2]	GFAA; ICP-MS	200.8		µg/L	0.2-5[5]
Organics									
Volatile Organics	VOCs	Glass	2 x 40 vials	4 degrees Celsius	GC-MS	8020	14 days	µg/L	0.5-50
Semi-Volatile Organics	SVOCs		1000	4 degrees Celsius	GC-MS	8270	Extract in 7 days, analyze within 40 days	µg/L	0.05-0.25
Pesticides	Pest		1000	4 degrees Celsius	Gas chromatography	8141, 8081		µg/L	0.5-1

Notes:
(1) For analytical methods, reporting limits, and other specifications, see Table 4-1.
(2) Dissolved metals preserved after filtration.
(3) Report pH to nearest 0.1 std. pH unit. Also report temperature at time of measurement.
(4) Filter dissolved samples prior to analysis.
(5) Target reporting limit varies by metal.

7.7.2 pH and Turbidity in Stormwater Runoff Discharges

Sampling and analysis of runoff for pH and turbidity is required for this project. This CSMP describes the strategy for monitoring turbidity and pH levels of stormwater runoff discharges from the project site and run-on that may contribute to an exceedance of a Numeric Action Level (NAL).

Samples for pH and turbidity will be collected from all drainage areas with disturbed soil areas.

7.7.2.1 pH and Turbidity Sampling Schedule

Stormwater runoff samples shall be collected for turbidity from all qualifying rain events that result in a discharge from the project site. At minimum, turbidity samples will be collected from each site discharge location draining a disturbed area. A minimum of three samples will be collected per day of discharge during a qualifying event. Samples should be representative of the total discharge from the project each day of discharge during the qualifying rain event. Representative samples will be spaced in time throughout the daily discharge event, to the extent possible.

Stormwater runoff samples shall be collected for pH from all qualifying rain events that result in a discharge from the project site. At minimum, pH samples will be collected from each site discharge location during project phases and drainage areas with a high risk of pH discharge. A minimum of three samples will be collected per day of discharge during a qualifying rain event. Samples should be representative of the total discharge from the location each day of discharge during the qualifying rain event. Typically representative samples will be spaced in time throughout the daily discharge event.

Stored or collected water from a qualifying storm event when discharged shall be tested for turbidity and pH (when applicable). Stored or collected water from a qualifying event may be sampled at the point it is released from the storage or containment area or at the site discharge location.

Run-on samples shall be collected whenever the QSP identifies that run-on has the potential to contribute to an exceedance of a NAL.

7.7.2.2 pH and Turbidity Sampling Locations and Collection

Sampling locations are based on the site runoff discharge locations and locations where run-on enters the site; accessibility for sampling; and personnel safety. Planned pH and turbidity sampling locations are shown on the plans and include the locations identified in Table 7.10.

Samples of discharge shall be collected at the designated runoff and run-on sampling locations shown on the plans. Run-on samples shall be collected within close proximity of the point of run-on to the project.

Only personnel trained in water quality sampling and field measurements working under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.9.

One sampling location on the project site and the contractor's yard have been identified for the collection of runoff samples. Table 7.10 also provides an estimate of the site's area that drains to each location.

Table 7.10 Turbidity and pH Runoff Sample Locations

Sample Location Name or Number	Sample Location Latitude and Longitude[(1)] (Decimal Degrees)	Estimate of Site Drainage Factor [(2)] (%)
1 – Downstream of Grade Control Structure	See Plans	100

(1)SMARTS requires location in decimal degree to 5 decimal places

(2) Area or flow based percentage

7.7.2.3 Field Parameters and Measurements

Samples shall be analyzed for the constituents indicated in the table below "Sample Collection, and Analysis for Monitoring Turbidity and pH."

Table 7.11 Sample Collection and Analysis for Monitoring Turbidity and pH

Parameter	Test Method	Minimum Sample Volume[(1)]	Sample Collection Container Type	Detection Limit (minimum)
Turbidity	Field meter/probe with calibrated portable instrument	50 mL	Polypropylene or Glass (Do not collect in meter sample cells)	1 NTU
pH	Field meter/probe with calibrated portable instrument or calibrated pH test kit	100 mL	Polypropylene	0.2 pH units

Notes: [1] Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions.

L – Liter
mL – Milliliter
NTU – Nephelometric Turbidity Unit

Samples collected for field analysis, collection, analysis and equipment calibration shall be in accordance with the field instrument manufacturer's specifications.

Immediately following collection, samples for field analysis shall be tested in accordance with the field instrument manufacturer's instructions and results recorded on the *Effluent Sampling Field Log Sheet*.

The field instrument(s) listed in Table 7.12 will be used to analyze the following constituents:

Table 7.12 Field Instruments

Field Instrument (Manufacturer and Model)	Constituent
	pH

Table 7.12 Field Instruments

Field Instrument (Manufacturer and Model)	Constituent
	Turbidity

The manufacturers' instructions are included in CSMP Attachment 2 "Field Meter Instructions". Field sampling staff shall review the instructions prior to each sampling event and follow the instructions in completing measurement of the samples.

- The instrument(s) shall be maintained in accordance with manufacturer's instructions.
- The instrument(s) shall be calibrated before each sampling and analysis event.
- Maintenance and calibration records shall be maintained with the SWPPP.

The QSP may authorize alternate equipment provided that the equipment meets the Construction General Permit's requirements and the manufacturers' instructions for calibration and use are added to CSMP Attachment 2 "Field Meter Instructions".

7.7.2.4 Data Evaluation and Reporting

Numeric Action Levels

This project is subject to NALs for pH and turbidity (Table 7.13). Compliance with the NAL for pH and turbidity is based on a daily average. Upon receiving the field log sheets, the QSP shall immediately calculate the arithmetic average of the pH and turbidity samples to determine if the NALs, shown in the table below, have been exceeded.

Table 7.13 Numeric Action Levels

Parameter	Unit	Daily Average
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250 NTU

Within two days of the sample collection, the QSP shall submit copies of the completed *Effluent Sampling Field Log Sheets* to LRP.

In the event that the pH or turbidity NAL is exceeded, the QSP shall immediately notify LRP and investigate the cause of the exceedance and identify corrective actions.

Exceedances of NALs shall be electronically reported to the SWRCB by LRP through the SMARTs system within 10 days of the conclusion of the storm event. If requested by the RWQCB, a NAL Exceedance report will be submitted. The NAL Exceedance Report must contain the following information:

- Analytical method(s), method reporting unit(s), and MDL(s) of each parameter;
- Date, place, time of sampling, visual observation, and/or measurements, including precipitation; and
- Description of the current BMPs associated with the sample that exceeded the NAL and the proposed corrective actions taken.

7.7.3 Non-Stormwater Discharges

This CSMP for non-stormwater discharges describes the sampling and analysis strategy and schedule for monitoring pollutants in authorized and unauthorized non-stormwater discharges from the project site in accordance with the requirements of the Construction General Permit.

Sampling of non-stormwater discharges will be conducted when an authorized or unauthorized non-stormwater discharge is observed discharging from the project site. In the event that non-stormwater discharges run-on to the project site from offsite locations, and this run-on has the potential to contribute to a violation of a NAL, the run-on will also be sampled.

Activities that employ water, such as concrete curing, dust control, rinsing or washing tools or equipment are possible sources of unauthorized non-stormwater discharges. Other sources include water line or sewer line breaks.

The following authorized non-stormwater discharges identified in Section 2.7, have the potential to be discharged from the project site.

- NONE

In addition to the above authorized stormwater discharges, some construction activities have the potential to result in an unplanned (unauthorized) non-stormwater discharge if BMPs fail. These activities include:

- Vehicle Fueling
- Spills/Leaks

7.7.3.1 Non-Stormwater Sampling Schedule

Samples of authorized or unauthorized non-stormwater discharges shall be collected when they are observed.

7.7.3.2 Non-Stormwater Sampling Locations, Collection and Analysis

Samples shall be collected from the discharge point of the construction site where the non-stormwater discharge is running off the project site. Site discharge locations are shown on the plans and include the locations identified below.

Samples shall be collected at the discharge locations where the non-stormwater discharge is leaving the project site. Potential discharge locations are shown on the plans and identified in Section 7.7.3.2.

Grab samples shall be collected and preserved in accordance with the methods identified in Table 7.9. Only personnel trained in water quality sampling under the direction of the QSP shall collect samples. Sample collection and handling requirements are described in Section 7.9.

Samples shall be analyzed for turbidity and ph as described in 7.7.2.6. For non-visible constituents using the analytical methods identified in Table 7.9, and samples will be analyzed by laboratory identified in Section 7.9.

No sampling location(s) on the project site and the contractor's yard have been identified where non-stormwater discharges may runoff from the project site.

Table 7.14 Sample Collection and Analysis for Monitoring Non-Stormwater Discharges

Sample Location Name or Number	Sample Location Latitude and Longitude[(1)] (Decimal Degrees)
TBD	TBD

(1)SMARTS requires location in decimal degree to 5 decimal places

7.7.3.3 Analytical Constituents

All non-stormwater discharges that flow through a disturbed area shall, at minimum, be monitored for turbidity.

All non-stormwater discharges that flow through an area where they are exposed to pH altering materials shall be monitored for pH.

The QSP shall identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, MBAS, TOC, and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Non-stormwater discharge run-on shall be monitored, at minimum, for pH and turbidity. The QSP shall identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, methyl blue active substances (MBAS), total organic carbons (TOC), and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Table 7.15 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.15 Potential Non-Stormwater Discharge Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Disturbed Areas	Sediment	Turbidity

7.7.3.4 Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Turbidity and pH results shall be evaluated for compliance with NALs as identified in Section 7.7.2.4.

Should the runoff sample indicate the discharge of a pollutant which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

Non-stormwater discharge results shall be submitted with the Annual Report.

The General Permit prohibits the discharge of non-stormwater discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the RWQCB

7.8 Training of Sampling Personnel

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring program (SWAMP) 2008 Quality Assurance Program Plan (QAPrP). Training records of designated contractor sampling personnel are provided in Appendix K.

The stormwater sampler(s) and alternate(s) have received the following stormwater sampling training:

Name	Training
	(List Training Courses)
	(List Training Courses)

The stormwater sampler(s) and alternates have the following stormwater sampling experience:

Name	Experience
	(List stormwater sampling experience)
	(List stormwater sampling experience)

7.9 Sample Collection, Preservation and Delivery

Samples will be analyzed by:

Laboratory Name:	
Street Address:	
City, State Zip:	
Telephone Number:	
Point of Contact:	
ELAP Certification Number:	

Samples will be delivered to the laboratory by:

Driven by Contractor	☐ Yes	☐ No
Picked up by Laboratory Courier	☐ Yes	☐ No
Shipped	☐ Yes	☐ No

An adequate stock of monitoring supplies and equipment for monitoring turbidity and will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, field meters, extra batteries; clean powder-free nitrile gloves, sample collection equipment, appropriate sample containers, paper towels, personal rain gear, and Effluent

Sampling Report (Appendix J) and Chain of Custody (CoC) forms provided in CSMP Attachment 1 "Chain of Custody Forms".

7.9.1 Sample Collection Methods

If possible, field teams will consist of two persons. Because of the unpredictability of storm events, and the requirement to sample within the first two hours of runoff, field crews must arrive at the monitoring sites before any significant stormwater runoff has been observed.

7.9.1.1 Detailed Grab Sample Collection Procedures for Each Monitoring Site

Inspect general conditions of the site. Note the conditions of the site at the time of sampling.

Once runoff is observed in the area to be sampled (sheet flow, drainpipe, or other stormwater conveyance), manually collect a water sample with a clean polypropylene collection device, or directly into sample container proved by laboratory.

Once sufficient water has been collected in the collection device, carefully pour the water into each of the laboratory sample bottles using a polypropylene funnel. Note: For collection of the oil and grease sample, a glass or metal funnel should be used.

After all water samples have been collected, clean equipment with a 2% Contrad (or equivalent) detergent solution, rinse off the polypropylene collection device and funnels with distilled water and towel dry to prepare for the next sampling event.

7.9.2 Field Measurement Methods

Certain grab samples will require field measurement of certain parameters. To accomplish this, pour a subsample of stormwater a clean plastic cup for field measurements. pH and electrical conductivity can be measured using hand-held devices. The devices will be calibrated prior to mobilization at the monitoring site. At some locations, colorimetric field test kits (e.g., HACH field kits) may be used to test for the presence of chlorine or detergents. Follow manufacturers' instructions on proper use of the test kits. The measurements will be recorded in field notes and on the chain-of-custody forms. The sub-sample will then be discarded following recording of the field measurements.

7.9.3 Sample Containers and Handling

Sampling procedures involving handling items that have direct contact with the samples (i.e., sampling container, container lid, etc.) will be performed in accordance with proper sample handling techniques designed to minimize contamination of the sample. Sampling personnel are required to wear clean powder-free nitrile gloves. If sampling with a two member team, one member of the field team shall be responsible for sample collection and will change gloves between sample collections, or when the gloves have come in contact with any potential source of contamination. The other field team member will be responsible for cleaning of sampling equipment and all other activities that do not involve handling items that have direct contact with the sample. If one person is collecting and documenting all samples, care shall be taken to not cross-contaminate or introduce contaminates to samples.

7.9.4 Forms and Procedures for Documenting Sample Collection and Field Measurements

The following forms are to be completed during each storm monitoring event at each site:

- Monitoring checklist
- Non-Visible Pollutant Monitoring Report.

- Chain-of-custody form (other copies will be retained by the laboratory)

Copies of these forms are included in Appendix J.

7.9.5 Laboratory Communication Procedures

Staff will contact the analytical laboratory 24 hours before the anticipated beginning of the storm event. The laboratory will be instructed to prepare sample bottles for use at the monitoring sites and to prepare for receipt of samples during and following the storm event.

7.9.6 Sample Shipping/Delivery and Chain of Custody

After grab samples are collected, staff is responsible for delivery of grab samples to the analytical laboratory as soon as possible to meet sample holding time requirements. If samples are to be analyzed for bacteria, they must be delivered to the laboratory within six hours of sample collection. Samples for all other analyses should be delivered within 24 hours of collection. The laboratory should be notified of estimated time of delivery and be alerted when weekend delivery is required. The following list outlines the packaging and shipping procedures for pick-up:

- Assemble and package all sample bottles in an orderly and secure manner for delivery to the laboratory.
- Verify information on the chain-of-custody form completed by the field crew on a cooler-by-cooler basis.
- If multiple coolers contain bottles from the same station, indicate this on all related forms.
- Use military time (i.e., 2 p.m. = 1400 hours) for all entries.
- If necessary, re-pack coolers with ice to keep samples cool and to prevent breakage.
- Place the completed chain-of-custody form in a re-sealable bag and place the form in the cooler with the bottles.
- Pack any sampler bottles to be cleaned for delivery to lab.

7.9.7 Sample Preservation and Filtration

During collection of grab samples, the field teams will:

- Seal sample bottles in re-sealable plastic bags.
- Place them in a cooler.
- Pack the cooler with ice in order to preserve the samples below 4 degrees Celsius.
- Once samples are at the laboratory, they will be refrigerated until analysis.

Sample filtration and/or preservative may be required for some analyses, including dissolved metals. Because of contamination concerns, this will be performed in the laboratory in accordance with procedures specified by the appropriate analytical method.

7.10 Quality Assurance and Quality Control

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Field logs;

- Clean sampling techniques;
- CoCs;
- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.10.1 Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log include the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the "Effluent Sampling Report". A "BMP Inspection Report" and "Effluent Sampling Report", are included in Appendix J.

7.10.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. Adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.10.3 Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

Proper labeling of samples;

Use of CoC forms for all samples; and

Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in CSMP Attachment 1 "Chain of Custody Forms".

7.10.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this project:

Table 7.17 QA/QC Sample Frequency

QA/QC Sample Type	Sampling Frequency
Equipment Blanks	Will be collected from polypropylene grab sampling equipment prior to the sampling season.
Field Duplicates	Will be collected for 10% of the total number of samples collected.
Laboratory Duplicates	Will be collected for 10% of the total number of samples collected.

Matrix Spike/ Matrix Spike Duplicates	Will be collected for 10% of the total number of samples collected.
Method Blanks	Will be run with each QC batch analyzed by the laboratory.

7.10.4.1 Field Duplicates

Field duplicates will collected and analyzed for 10% or the total number of grab samples collected. Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.10.4.2 Equipment Blanks

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks are typically collected when:

- New equipment is used;
- Equipment that has been cleaned after use at a contaminated site;
- Equipment that is not dedicated for surface water sampling is used; or
- Whenever a new lot of filters is used when sampling metals.

7.10.4.3 Field Blanks

Field blanks assess potential sample contamination levels that occur during field sampling activities. De-ioninzed water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.10.4.4 Travel Blanks

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. De-ioninzed water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.10.5 Data Verification

After results are received from the analytical laboratory, the QSP shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports.
  Make sure all requested analyses were performed and all samples are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values and follow up with the laboratory.
  Occasionally typographical errors, unit reporting errors, or incomplete results are reported

and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP should especially note data that is an order of magnitude or more different than similar locations, or is inconsistent with previous data from the same location.

- Check laboratory QA/QC results.
  EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results.
- Check the data set for outlier values and, accordingly, confirm results and re-analyze samples where appropriate.
  Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent;
  Follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.11 Data Management and Reporting

7.11.1 Analytical Data Validation

Results of precision and accuracy and contamination checks will be reviewed after each storm event. In the event that data quality objectives are not met, data will be qualified and documented as necessary.

- Data collected from the laboratory will be validated through the following procedures:
- Review hard copy data package;
- Compare chain-of-custody forms to logbooks and laboratory data reports to ensure successful data transfer;
- Ensure that laboratory reports are complete;
- Ensure that there are no typographical errors or incongruities in the data;
- Compare QA/QC results with data quality objective criteria;
- Tabulate and analyze the success rate of each QA/QC parameter; and
- Document and report out-of-range values.

7.11.2 Electronic Data Transfer

Data from the laboratory will be delivered in hard copy and electronic format. Both data packages will include:

- A narrative of any problems, corrections, anomalies, and conclusions; and
- Results/summary of QA/QC elements, including:
    1. sample extract and analysis dates
    2. method blanks, laboratory control spikes, and matrix spikes
    3. analytical accuracy
    4. analytical precision
    5. reporting limits

Section 8 References

Project Plans and Specifications, prepared by American Rivers and the National Park Service.

State Water Resources Control Board (2009). Order 2022-0057-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Stormwater Discharge Associated with Construction and Land Disturbing Activities.
Available on-line at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

Appendix A: Calculations

No calculations required for initial SWPPP. Add calculations for amendments as required.

Appendix B: Site Maps

SEE PLANS

Appendix C: Permit Registration Documents and LRP Certification

Permit Registration Documents included in this Appendix

Y/N	Permit Registration Document
	Notice of Intent
	Risk Assessment
	Certification
	Post Construction Water Balance
	Copy of Annual Fee Receipt
	ATS Design Documents
	Site Map, see Appendix B

Appendix D: SWPPP Amendment Certifications

SWPPP Amendment No. _____

Project Name: _____

Project Number: _____

Qualified SWPPP Developer's Certification of the Stormwater Pollution Prevention Plan Amendment

"This Stormwater Pollution Prevention Plan and attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Order No. 2022-057-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below."

QSD's Signature	Date
QSD Name	QSD Certificate Number
Title and Affiliation	Telephone
Address	Email

Appendix E: Annual Reporting

Project Specific Submittal requirements for
SMARTS Annual Report
CA Construction General Permit (Order No. 2022-057-DWQ)

Complete and submit by August 1st for the annual reporting period ending June 30th.

Site:_____WDID No: ____

Completed By:_____

Date: _____

Checklist of Required Content

	Required Item	SMARTS	Retained on Site
Annual Report Submittal Requirements *(Permit Sections XVI and Attachment C.I.9)*			
SMARTS Form 1 SMARTS Form 2 SMARTS Form 3	Summary of all violations of the General Permit	X	
SMARTS Form 2 SMARTS Form 3	Summary of all corrective actions taken during the compliance year	X	
SMARTS Form 1 SMARTS Form 2 SMARTS Form 3	Identification of any compliance activities or corrective actions that were not implemented	X	
SMARTS Form 1 Attachment 1	The names of individual(s) who performed the facility inspections, sampling, visual observation (inspections), and/or measurements	X	X
Attachment 2	Inspection Log – Include the date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge)	X (general question)	X
Attachment 3	The visual observation and sample collection exception records and reports (including precipitation measurements) specified in Attachments C of the General Permit,	X (general question)	X
Attachment 4	Documentation of all training for individuals responsible for all activities associated with compliance with the General Permit,	X (general question)	X
Additional Requirement for Projects that Conducted Non-Visible Pollutant Monitoring			
Attachment 4	A summary and evaluation of all sampling and analysis results from the last three years, including copies of laboratory reports, QA/QC, analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit"),		

FORM 1 *This form is designed to be consistent with SMARTS Form 1*		
	Yes, No, N/A, if No provide comment	
STORMWATER POLLUTION PREVENTION PLAN (SWPPP) [CGP Section XIV]		
1. Has a SWPPP been prepared by a Qualified SWPPP Developer (QSD) for the construction project?		
2. Does the SWPPP include a Construction Site Monitoring Program (CSMP) section/element?		
3. Are these documents kept onsite?		
GOOD SITE MANAGEMENT "HOUSEKEEPING" [CGP Attachment C, Section B]		
1. Were required good site management "housekeeping" measures for construction materials fully implemented on-site?		
a. Was an inventory of the products used and/or expected to be used conducted?		
2. Were required good site management "housekeeping" measures for waste management fully implemented on-site?		
a. Is there a spill response and implementation element of the SWPPP?		
3. Were required good site management "housekeeping" measures for vehicle storage and maintenance fully implemented on-site?		
4. Were required good site management "housekeeping" measures for landscape materials fully implemented on-site?		
5. Was a list of potential pollutant sources developed?		
6. Were good site management "housekeeping" measures to control air deposition of site materials and from site operations implemented on-site?		

FORM 1 *This form is designed to be consistent with SMARTS Form 1 and shall contain the same information provided via SMARTS for annual reporting*		
	Yes, No, N/A, if No provide comment	
NON-STORMWATER MANAGEMENT [CGP Attachment C, Section C]		
1. Were measures to control all non-stormwater discharges during construction implemented?		
2. Were vehicles washed in such a manner as to prevent non-stormwater discharges to surface waters or to MS4 drainage systems?		
3. Were streets cleaned in such a manner as to prevent unauthorized non-stormwater discharges from reaching surface waters or MS4 drainage systems?		
EROSION CONTROLS [CGP Attachment C, Section D]		
1. Were required erosion controls implemented in accordance with the CGP and SWPPP?		
SEDIMENT CONTROLS [CGP Attachment C, Section E]		
1. Were required sediment controls fully implemented on your site?		
H. RUN-ON AND RUN-OFF CONTROLS [CGP Attachment C, Section F]		
1. Was all site run-on and run-off effectively managed?		
Inspection Maintenance and Repair		
1. Were all site inspections, maintenance, and repairs performed or supervised by a Qualified SWPPP Practitioner (QSP)?		
2. Were site inspections conducted weekly and at least once each 24-hour period during extended storm events?		
3. Were post rain event inspections conducted?		
4. Do your inspection forms/ checklists meet the minimum criteria listed in **CGP Attachment C, Section G.5**?		

FORM 1 *This form is designed to be consistent with SMARTS Form 1 and shall contain the same information provided via SMARTS for annual reporting*		
	Yes, No, N/A, if No provide comment	
5. During any site inspection was BMP maintenance or repairs required?		
6. If BMP maintenance/repair or design change was needed, did implementation begin within 72 hours?		
VISUAL MONITORING [CGP Attachment C, Section I.3]		
1.Were all stormwater discharges that occurred at all discharge locations observed within 2 business days (48 hours) after each qualifying rain event (producing precipitation of ½ inch or more at the time of discharge?		
2. Were all stormwater discharges that occurred from storage or containment systems visually observed prior to discharge?		
3. Were the time, date, and rain gauge reading recorded for each qualifying rain event?		
4. Within 2 business days (48 hours) prior to each predicted qualifying rain event, were visual inspections conducted in compliance with **CGP Attachment C, Section I.3.e&f**?		
5. Are all visual inspection records retained on-site?		
Number of Qualifying Rain Events		
STORMWATER SAMPLING [CGP Attachment C, Section I.6]		
For the sampled events, did you collect three samples, at minimum (representative of the flow and characteristics) each day of discharge per qualified event?		
Were grab samples analyzed for pH and/or turbidity? (Analytical data must be entered in the RAW DATA tab in SMARTS)?		
Were Active Treatment System (ATS) effluent samples taken? (Applies to projects that deployed ATS)		
Was receiving water monitoring conducted? (Analytical data must be entered in the RAW DATA tab in SMARTS)		
NON-STORMWATER DISCHARGE MONITORING [CGP Attachment C, Section I.6]		
1. Were all drainage areas monitored for authorized/ unauthorized non-stormwater discharges quarterly? (Complete **Form 2**)		

2. Did visual observations indicate any authorized/ unauthorized non-stormwater discharges?		
3. Were effluent samples taken of the authorized/ unauthorized non-stormwater discharge? (Analytical data must be entered in the **RAW DATA** tab in SMARTS)		
4. Were the effluent samples sent to a laboratory certified for such analyses by the State Department of Health Services?		
5. Were unauthorized non-stormwater discharges eliminated?		
L. NON-VISIBLE POLLUTANT MONITORING [CGP Attachment C, Section I.7]		
1. Were any breaches, malfunctions, leakages, or spills observed during a visual inspection?		
2. How many potential discharges of non-visible pollutants were identified?		
3. For each discharge event (of non-visible pollutants), were samples collected in compliance with **CGP Attachment C, Section I.7.d**? (Analytical data must be entered in the **RAW DATA** tab in SMARTS)		
4. For each discharge event was a comparison sample collected (uncontaminated sample that did not come into contact with the pollutant)? (Analytical data must be entered in the **RAW DATA** tab in SMARTS)		
M. RECORDS [CGP Attachment C, Section I.9]		
1. Are all records of all stormwater monitoring information retained on-site?		
N. TRAINING		
1. Was a Qualified SWPPP Practitioner (QSP) in reasonable charge of SWPPP implementation?		
If **Yes**, Provide Name and Certificate Number:		
2. Were all individuals conducting BMP installation, inspection, maintenance and repairs trained appropriately?		
3. Are complete training records kept on-site and available upon request?		

FORM 1 *This form is designed to be consistent with SMARTS Form 1 and shall contain the same information provided via SMARTS for annual reporting*		
	Yes, No, N/A, if No provide comment	
Authorized NSWD		
Were any authorized Non-Stormwater Discharges observed from July-September?		
Were any authorized Non- Stormwater Discharges observed from October-December?		
Were any authorized Non- Stormwater Discharges observed from January-March?		
Were any authorized Non- Stormwater Discharges observed from April-June?		
Unauthorized		
Were any unauthorized Non- Stormwater Discharges observed from July-September?		
Were any unauthorized Non- Stormwater Discharges observed from October-December?		
Were any unauthorized Non- Stormwater Discharges observed from January-March?		
Were any unauthorized Non- Stormwater Discharges observed from April-June?		

FORM 2

This form is designed to be consistent with SMARTS Form 2 and shall contain the same information provided via SMARTS for annual reporting

Quarter	Date	Authorized or Unauthorized	Source and Location of NSWD	Described NSWD characteristics at the source	Describe NSWD Characteristics at Discharge Location	Described any revised or new BMPs
1						
2						
3						
4						

FORM 3

This form is designed to be consistent with SMARTS Form 3 and shall contain the same information provided via SMARTS for annual reporting

Please enter a general summary of any BMP deficiencies identified for each quarter and the corrective actions taken. Maximum up to 1000 characters.
July - Sept
Oct-Dec
Jan- March
April-June

Appendix E Attachment 1 QSPs

QSP	
Name:	ID:
Company:	Phone:

Appendix E Attachment 2 Inspection Log

Construction Start Date: _____

Date	Inspection	BMP Deficiency, Maintenance or Repair	Precipitation Recorded	QRE

Appendix E Attachment 3 Inspection Records

Copies of Inspection Reports to be filed here.

Appendix E Attachment 4 SWPPP Training Records

Copies of Training Records to be filed here

Appendix E Attachment 5 Sampling and Analysis Results

Include: A summary and evaluation of all sampling and analysis results, including copies of laboratory reports, QA/QC, the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit").

Appendix F: Submitted Changes to PRDs

Log of Updated PRDs

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit covered acreage is to be sought. The SWPPP shall be modified appropriately, with revisions and amendments recorded in Appendix C. Updated PRDs submitted electronically via SMARTS can be found in this Appendix.

This appendix includes all of the following updated PRDs (check all that apply):

☐ Revised Notice of Intent (NOI);

☐ Revised Site Map;

☐ Revised Risk Assessment;

☐ New landowner's information (name, address, phone number, email address); and

☐ New signed certification statement.

Legally Responsible Person	
Signature of Legally Responsible Person or Approved Signatory	Date
Name of Legally Responsible Person or Approved Signatory	Telephone Number

Appendix G: Construction Schedule

Appendix H: Construction Activities, Materials Used, and Associated Pollutants

Table H.a POLLUTANTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES

General Work Activity/ Products With Potential Stormwater Pollutants	Specific Work Activity/Products With Potential Stormwater Pollutants	Pollutant Categories
Planting / Vegetation Management	❑ Vegetation control ❑ Planting ❑ Plant maintenance ❑ Vegetation removal	Nutrients, Metals, Synthetic Organics
Sanitary waste	❑ Portable toilets ❑ Disturbance of existing sewer lines.	Nutrients
Soil preparation/amendments	❑ Use of soil additives/amendments	Nutrients
Solid waste	❑ Litter, trash and debris ❑ Vegetation	Gross Pollutants
Vehicle and equipment use	❑ Equipment operation ❑ Equipment maintenance ❑ Equipment washing ❑ Equipment fueling	Oil and Grease

Table H.1 Construction Activities and Associated Pollutants

Phase	Activity	Associated Materials or Pollutants	Pollutant Category[1]
Land Grading and Development			
Landscaping and Site Stabilization Phase			

[1] Categories per CASQA BMP Handbook (i.e., Sediment, Nutrients, Bacteria and Viruses, Oil and Grease, Metals, Synthetic Organics, Pesticides, Gross Pollutants, and Vector Production)

Appendix I: CASQA Stormwater BMP Handbook Portal: Construction Fact Sheets

Appendix J: Inspection and Monitoring Forms

BMP INSPECTION REPORT

Date and Time of Inspection:			Date Report Written:	
Inspection Type: (Circle one)	Weekly *Complete Parts I,II,III and VII*	Pre-Storm *Complete Parts I,II,III,IV and VII*	During Rain Event *Complete Parts I, II, III, V, and VII*	Post-Storm *Complete Parts I,II,III,VI and VII*

Part I. General Information

Site Information

Construction Site Name:	
Construction stage and completed activities:	Approximate area of site that is exposed:

Photos Taken: (Circle one)	Yes	No	Photo Reference IDs:

Weather

Estimate storm beginning: (date and time)	Estimate storm duration: (hours)
Estimate time since last storm: (days or hours)	Rain gauge reading and location: (in)

Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain with 48-hrs or greater between events)? (Y/N)
If yes, summarize forecast:

Exemption Documentation (explanation required if inspection could not be conducted). Visual inspections are not required outside of business hours or during dangerous weather conditions such as flooding or electrical storms.

Inspector Information

Inspector Name:	Inspector Title:
Signature:	Date:

Part II. BMP Observations. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level 2 Sites	Failures or other short comings (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Construction Materials			
Inventory of products (excluding materials designed to be outdoors)			
Stockpiled construction materials not actively in use are covered and bermed			
All chemicals are stored in watertight containers with appropriate secondary containment, or in a completely enclosed storage shed			
Construction materials are minimally exposed to precipitation			
Keep all materials stockpiles of treated wood and metals covered during wet weather.			
BMPs preventing the offsite tracking of materials are implemented and properly effective			
Good Housekeeping for Waste Management			
Wash/rinse water and materials are prevented from being disposed into the storm drain system			
Portable toilets are contained to prevent discharges of waste			
Sanitation facilities are clean and with no apparent for leaks and spills			
Equipment is in place to cover waste disposal containers at the end of business day and during rain events			
Discharges from waste disposal containers are prevented from discharging to the storm drain system / receiving water			
Stockpiled waste material is securely protected from wind and rain if not actively in use			
Procedures are in place for addressing hazardous and non-hazardous spills			
Appropriate spill response personnel are assigned and trained			
Equipment and materials for cleanup of spills is available onsite			
Washout areas (e.g., concrete) are contained appropriately to prevent discharge or infiltration into the underlying soil			
Good Housekeeping for Vehicle Storage and Maintenance			
Measures are in place to prevent oil, grease, or fuel from leaking into the ground, storm drains, or surface waters			
All equipment or vehicles are fueled, maintained, and stored in a designated area with appropriate BMPs			
Vehicle and equipment leaks are cleaned immediately and disposed of properly			

Part II. BMP Observations Continued. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level 2 Sites	Failures or other short comings (yes, no, N/A	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Landscape Materials			
Stockpiled landscape materials such as mulches and topsoil are contained and covered when not actively in use			
Erodible landscape material has not been applied 2 days before a forecasted rain event or during an event			
Erodible landscape materials are applied at quantities and rates in accordance with manufacturer recommendations			
Bagged erodible landscape materials are stored on pallets and covered			
Good Housekeeping for Air Deposition of Site Materials			
Good housekeeping measures are implemented onsite to control the air deposition of site materials and from site operations			
Non-Stormwater Management			
Non-Stormwater discharges are properly controlled			
Vehicles are washed in a manner to prevent non-stormwater discharges to surface waters or drainage systems			
Streets are cleaned in a manner to prevent unauthorized non-stormwater discharges to surface waters or drainage systems.			
Erosion Controls			
Wind erosion controls are effectively implemented			
Effective soil cover is provided for disturbed areas inactive (i.e., not scheduled to be disturbed for 14 days) as well as finished slopes, open space, utility backfill, and completed lots			
The use of plastic materials is limited in cases when a more sustainable, environmentally friendly alternative exists.			
Sediment Controls			
Perimeter controls are established and effective at controlling erosion and sediment discharges from the site			
Entrances and exits are stabilized to control erosion and sediment discharges from the site			
Sediment basins are properly maintained			
Linear sediment control along toe of slope, face of slope an at grade breaks (Risk Level 2 Only)			
Limit construction activity to and from site to entrances and exits that employ effective controls to prevent offsite tracking (Risk Level 2 Only)			
Ensure all storm, drain inlets and perimeter controls, runoff control BMPs and pollutants controls at entrances and exits are maintained and protected from activities the reduce their effectiveness (Risk Level 2 Only)			
Inspect all immediate access roads daily (Risk Level 2 Only)			
Run-On and Run-Off Controls			

Run-on to the site is effectively managed and directed away from all disturbed areas.			
Other			
Are the project SWPPP and BMP plan up to date, available on-site and being properly implemented?			

Part III. Descriptions of BMP Deficiencies

Deficiency	Repairs Implemented: Note - Repairs must begin within 72 hours of identification and, complete repairs as soon as possible.	
	Start Date	**Action**
1.		
2.		
3.		

Part IV. Additional Pre-Storm Observations. Note the presence or absence of floating and suspended materials, sheen, discoloration, turbidity, odors, and source(s) of pollutants(s).

	Yes, No, N/A
Do stormwater storage and containment areas have adequate freeboard? If no, complete Part III.	
Are drainage areas free of spills, leaks, or uncontrolled pollutant sources? If no, complete Part VII and describe below.	
Notes:	
Are stormwater storage and containment areas free of leaks? If no, complete Parts III and/or VII and describe below.	
Notes:	

Part V. Additional During Storm Observations. If BMPs cannot be inspected during inclement weather, list the results of visual inspections at all relevant outfalls, discharge points, and downstream locations. Note odors or visible sheen on the surface of discharges. Complete Part VII (Corrective Actions) as needed.	
Outfall, Discharge Point, or Other Downstream Location	
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description

Part VI. Additional Post-Storm Observations. Visually observe (inspect) stormwater discharges at all discharge locations within two business days (48 hours) after each qualifying rain event, and observe (inspect) the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Complete Part VII (Corrective Actions) as needed.	
Discharge Location, Storage or Containment Area	**Visual Observation**

Part VII. Additional Corrective Actions Required. Identify additional corrective actions not included with BMP Deficiencies (Part III) above. Note if SWPPP change is required.	
Required Actions	**Implementation Date**

Risk Level 2 **Effluent Sampling Report**			
Construction Site Name:	Date:	Time Start:	
Sampler:			
Sampling Event Type:	☐ Stormwater	☐ Non-stormwater	☐ Non-visible pollutant

Field Meter Calibration	
pH Meter ID No./Desc.: Calibration Date/Time:	Turbidity Meter ID No./Desc.: Calibration Date/Time:

Field pH and Turbidity Measurements			
Discharge Location Description	pH	Turbidity	Time

Grab Samples Collected		
Discharge Location Description	Sample Type	Time

Additional Sampling Notes:
Time End:

NAL Exceedance Evaluation Summary Report	Page __ of __
Project Name	
Project WDID	
Project Location	
Date of Exceedance	
Type of Exceedance	**NAL Daily Average ☐ pH ☐ Turbidity** **☐ Other (specify) _____**
Measurement or Analytical Method	**☐ Field meter** **(Sensitivity: _____)** **☐ Lab method (specify) _____** **(Reporting Limit: _____)** **(MDL: _____)**
Calculated Daily Average	**☐ pH _ pH units** **☐ Turbidity __ NTU**
Rain Gauge Measurement	**_____ inches**
Visual Observations on Day of Exceedance	
Description of BMPs in Place at Time of Event	
Initial Assessment of Cause	

NAL Exceedance Evaluation Summary Report	Page __ of __
Corrective Actions Taken (deployed after exceedance)	
Additional Corrective Actions Proposed	
Report Completed By	_____ **(Print Name, Title)**
Signature	_____

Quarterly Visual Observations of Non-Stormwater Discharges (NSWD)

[] January – March [] April – June [] July-September [] October- December

Project Name_____ Drainage Area (as identified on SWPPP Map) _____

All projects must

1. conduct one visual observation (inspection) quarterly
2. visually inspect each drainage area for the presence of (or indication of prior) unauthorized and authorized non-stormwater discharges and their sources.
3. maintain on-site records indicating the personnel performing the visual observation (inspections), the dates and approximate time each drainage area and non-stormwater discharge was observed, and the response taken

DATE/TIME OF OBSERVATION **OBSERVER NAME AND TITLE**	**TYPE OF DISCHARGE[1]**	**SOURCE/ LOCATION** Example Condensate from Air Conditioning units at Building C	**DESCRIBE POLLUTANT CHARACTERISTICS** (Odors, Floating or Suspended Martial, Sheen, Discoloration, Turbidity)	**ACTIONS** To eliminate unauthorized NSWD and to reduce/ prevent pollutants from contacting NSWD	**DESCRIBE ANY NEW OR REVISED BMPS AND THEIR IMPLEMENTATION DATE**
Date: Time: Name: Title:	[] Authorized [] Unauthorized				
Date: Time: Name: Title:	[] Authorized [] Unauthorized				
Date: Time: Name: Title:	[] Authorized [] Unauthorized				
Date: Time: Name: Title:	[] Authorized [] Unauthorized				
Date: Time: Name: Title:	[] Authorized [] Unauthorized				

Appendix K: Weather Reports & Rain Event Action Plan

Rain Gauge Log Sheet				
Construction Site Name: Ackerson Meadow Restoration				
WDID #:				
Date (mm/dd/yy)	Time (24-hr)	Initials	Rainfall Depth (Inches)	Notes:

Appendix L: Training Reporting Form

Trained Contractor Personnel Log

Stormwater Management Training Log and Documentation

Project Name: Ackerson Meadow Restoration
WDID #: _____

Stormwater Management Topic: (check as appropriate)

☐ Erosion Control
☐ Sediment Control
☐ Wind Erosion Control
☐ Tracking Control
☐ Non-Stormwater Management
☐ Waste Management and Materials Pollution Control
☐ Stormwater Sampling

Specific Training Objective: _____

Location: _____ Date: _____

Instructor:_____ Telephone: _____

Course Length (hours): _____

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

As needed, add proof of external training (e.g., course completion certificates, credentials for QSP, QSD).

Appendix M:Responsible Parties

Authorization of Approved Signatories

Project Name: Ackerson Meadow Restoration

WDID #: _____

Name of Personnel	Project Role	Company	Signature	Date

_____ _____

LRP's Signature Date

_____ _____

LRP Name and Title Telephone Number

Identification of QSP

Project Name: Ackerson Meadow Restoration

WDID #: _____

The following are QSPs associated with this project

Name of Personnel(1)	Company	Date

(1) If additional QSPs are required on the job site add additional lines and include information here

OPTIONAL

Authorization of Data Submitters

Project Name: Ackerson Meadow Restoration

WDID #: _____

Name of Personnel	Project Role	Company	Signature	Date

_____ _____

Approved Signatory's Signature Date

_____ _____

Approved Signatory Telephone Number

Name and Title

Appendix N: Contractors and Subcontractors

Appendix O: Construction General Permit

The General Permit can be found at:

https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html

CSMP Attachment 1: Chain of Custody Form

CHAIN-OF-CUSTODY **DATE:** **Lab ID:**

DESTINATION LAB: ATTN: **ADDRESS:** **Office Phone:** **Cell Phone:**							REQUESTED ANALYSIS				Notes:
SAMPLED BY:											
Contact:											
Project Name											
Client Sample ID	**Sample Date**	**Sample Time**	**Sample Matrix**	**Container #**	**Container Type**	**Container Pres.**					

SENDER COMMENTS:	**RELINQUISHED BY**		
	Signature:		
	Print:		
	Company:		
	Date:		TIME:
LABORATORY COMMENTS:	**RECEIVED BY**		
	Signature:		
	Print:		
	Company:		
	Date:	TIME:	

CSMP Attachment 2: Field Meter Instructions

CSMP Attachment 3: Supplemental Information

ATTACHMENT D.1

RISK DETERMINATION WORKSHEET

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES
(GENERAL PERMIT)

The Risk Determination Worksheet in this Attachment serves as guidance for construction stormwater dischargers and may be used to manually calculate the site-specific risk of a construction project. Dischargers are required to submit risk information using the Stormwater Multiple Application and Report Tracking System (SMARTS) as part of filing a Notice of Intent for coverage under the Construction Stormwater General Permit.

Dischargers may use SMARTS to auto-populate values for the soil erodibility factor (K factor), length-slope factor (LS factor), and the receiving water risk (the risk sediment poses to receiving waters) based on the provided latitude and longitude coordinates for the project. SMARTS relies on the same data as the GIS map method, which dischargers can use to confirm the auto-populated values. Dischargers may alternatively use the individual method, a site-specific analysis, to determine the K factor, LS factor, and receiving water risk where GIS data may not accurately reflect the site's characteristics.

Dischargers may use a combination of the GIS map method or individual method to calculate the K factor, LS factor, sediment risk, and receiving water risk in steps 1 and 2, depending on which method is judged to be the most accurate for the site.

SMARTS will automatically determine the combined Risk Level based on the entered information.

Instructions:

Step 1 – Determine sediment risk via one of the following options:

- GIS Map Method - EPA Rainfall Erosivity Calculator & GIS Map
- Individual Method - EPA Rainfall Erosivity Calculator & Individual Data

Step 2 – Determine receiving water risk via one of the following options:

- GIS Map Method - GIS Map of Sediment-Sensitive Watersheds
- Individual Method - Provided Sediment Impaired Water Bodies

Step 3 – Determine combined Risk Level

Step 1 – Sediment Risk Worksheet

The Construction Stormwater General Permit requires dischargers to calculate sediment risk by multiplying the rainfall erosivity (R), soil erodibility (K), and length-slope (LS) factors. Determine the values for each of the factors and use the table below to assess the site-specific sediment risk for the construction project.

a. Rainfall Erosivity (R) Factor

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-minute 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.

A guide for the U.S. EPA Rainfall Erosivity Factor Calculator (https://www.waterboards.ca.gov/water_issues/programs/stormwater/smarts/construction/docs/rfactor_guide.pdf) is available to dischargers to assist with calculating the site-specific R factor.

R Factor Value = **20**

b. Soil Erodibility (K) Factor

The soil erodibility (K) factor 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.

A soil erodibility nomograph is provided on page 4 to assist the discharger with determining the site-specific K factor.

K Factor Value = **0.2**

c. Length-Slope (LS) Factor

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.

A length-slope table is provided on page 5 to assist the discharger with estimating the weighted LS factor for the site prior to construction.

LS Factor Value = **7.8**

d. Watershed Erosion Estimate

Estimate watershed erosion by multiplying the R, K, and LS factors, then use the table below to determine the site-specific sediment risk for the project.

Watershed Erosion Estimate (tons/acre) = R x K x LS = **28.72**

Watershed Erosion Estimate (tons/acre)	Site-Specific Sediment Risk
Less than 15 tons/acre	Low
Greater than or equal to 15 tons/acre and less than 75 tons/acre	**Medium**
Greater than or equal to 75 tons/acre	High

Site-specific Sediment Risk (High, Medium, or Low) = MEDIUM

e. Sediment Risk GIS Map Method

In addition to the U.S. EPA Rainfall Erosivity Factor Calculator, State Water Board staff has prepared map tools to assist dischargers with estimating site-specific K and LS factors. Dischargers may use the map tools instead of manually determining the K and LS factors using the nomograph on page 4 and tables on page 5. Additionally, SMARTS is equipped with an auto-populate feature that can generate K and LS factors given the project latitude and longitude coordinates.

K Factor Map

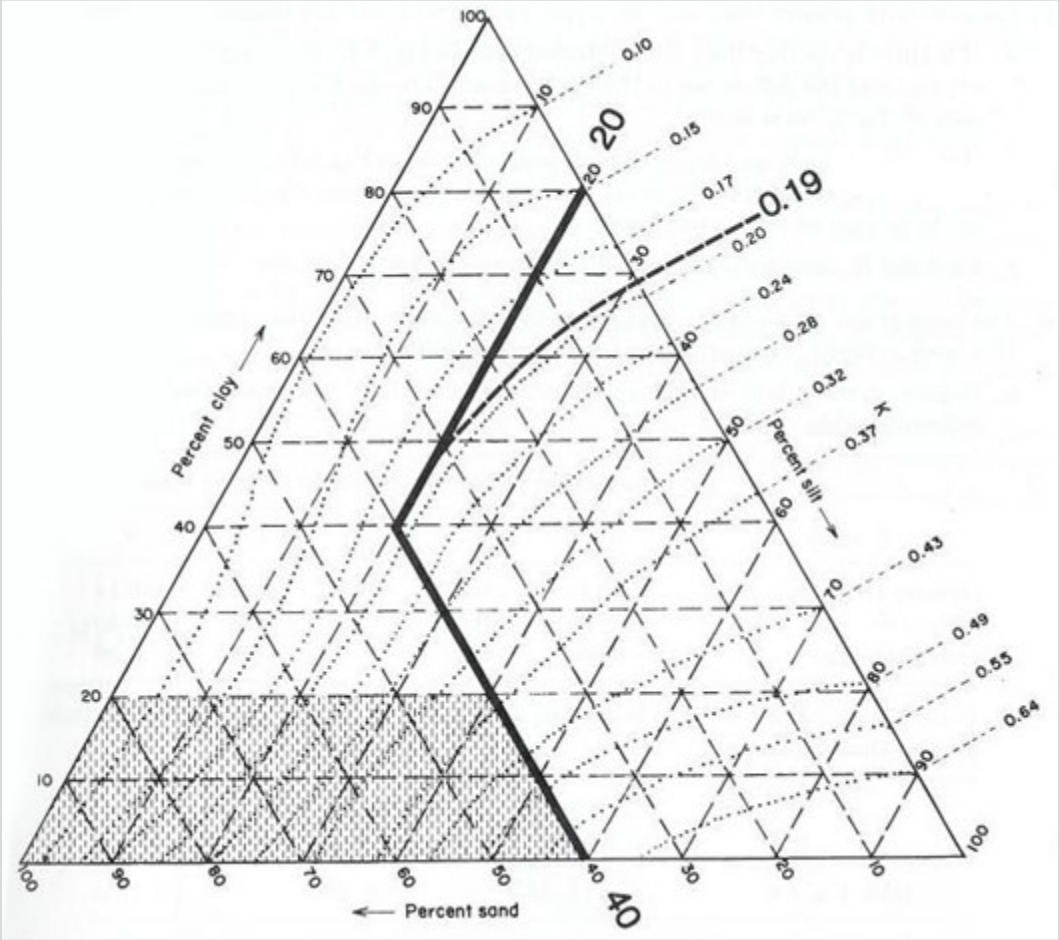
(https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/guidance/k_factor_map.pdf)

LS Factor Map

(https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/guidance/ls_factor_map.pdf)

Soil Erodibility (K) Factor Nomograph

The K factor can be determined by using the nomograph method, which requires that a particle size analysis (ASTM D-422)[1,2] be conducted to determine the percentages of sand, very fine sand, silt, and clay. Use the figure below to determine the appropriate K factor value.



The figure above is the Erickson triangular nomograph used by the USDA to determine the K factor for a soil based on its texture (percent silt plus very fine sand, percent sand, percent organic matter, soil structure, and permeability).

1 ASTM D-422 is the standard test method used for the quantitative determination of the distribution of particle sizes in soils.

2 Environmental Protection Agency, American Society for Testing and Materials (ASTM) Standards, <https://www.epa.gov/sites/default/files/2020-01/documents/sedc_2004-2005_append.pdf> [as of June 22, 2022]

Nomograph from Erickson 1977, as referenced in Goldman et. al., 1986.
Length-Slope (LS) Factor Table for Construction Sites

To determine a construction site's specific LS factor locate the intercept of the site's Sheet Flow Length (ft) and Average Watershed Slope (percent). Table from Renard et. al., 1997.

Sheet Flow Length (ft)	Average Watershed Slope (percent)									
	0.2	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0
< 3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.35
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.37
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.38
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.39
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.40
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	0.45	0.57
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	0.70	0.91
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	0.91	1.20
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	1.10	1.46
150	0.05	0.09	0.17	0.33	0.50	0.68	0.86	1.05	1.43	1.88
200	0.06	0.10	0.18	0.37	0.57	0.79	1.02	1.25	1.72	2.34
250	0.06	0.10	0.19	0.40	0.64	0.89	1.16	1.43	1.99	2.72
300	0.06	0.10	0.20	0.43	0.69	0.98	1.28	1.60	2.24	3.09
400	0.06	0.11	0.22	0.48	0.80	1.14	1.51	1.90	2.70	3.75
600	0.06	0.12	0.24	0.56	0.96	1.42	1.91	2.43	3.52	4.95
800	0.06	0.12	0.26	0.63	1.10	1.65	2.25	2.89	4.24	6.03
1000	0.06	0.13	0.27	0.69	1.23	1.86	2.55	3.30	4.91	7.02

Sheet Flow Length (ft)	Average Watershed Slope (percent)								
	12.0	14.0	16.0	20.0	25.0	30.0	40.0	50.0	60.0
< 3	0.36	0.38	0.39	0.41	0.45	0.48	0.53	0.58	0.63
6	0.41	0.45	0.49	0.56	0.64	0.72	0.85	0.97	1.07
9	0.45	0.51	0.56	0.67	0.80	0.91	1.13	1.31	1.47
12	0.47	0.55	0.62	0.76	0.93	1.08	1.37	1.62	1.84
15	0.49	0.58	0.67	0.84	1.04	1.24	1.59	1.91	2.19
25	0.71	0.85	0.98	1.24	1.56	1.86	2.41	2.91	3.36
50	1.15	1.40	1.64	2.10	2.67	3.22	4.24	5.16	5.97
75	1.54	1.87	2.21	2.86	3.67	4.44	5.89	7.20	8.37
100	1.88	2.31	2.73	3.57	4.59	5.58	7.44	9.13	10.63
150	2.51	3.09	3.68	4.85	6.30	7.70	10.35	12.75	14.89
200	3.07	3.81	4.56	6.04	7.88	9.67	13.07	16.16	18.92
250	3.60	4.48	5.37	7.16	9.38	11.55	15.67	19.42	22.78
300	4.09	5.11	6.15	8.23	10.81	13.35	18.17	22.57	26.51
400	5.01	6.30	7.60	10.24	13.53	16.77	22.95	28.60	33.67
600	6.67	8.45	10.26	13.94	18.57	23.14	31.89	39.95	47.18
800	8.17	10.40	12.69	17.35	23.24	29.07	40.29	50.63	59.93
1000	9.57	12.23	14.96	20.57	27.66	34.71	48.29	60.84	72.15

Step 2 – Receiving Water Risk Worksheet

Receiving water risk is based on whether a project drains to a water body or watershed that is sediment-sensitive. If the answer to either question below is "yes", the project is considered a **high** receiving water risk. If the answer to both questions below is "no", the project is considered a **low** receiving water risk.

1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed water body impaired by sediment? For help with identifying impaired water bodies, please refer to the 2020 – 2022 California Integrated Report (Clean Water Act Section 303(d) - 305(b) Report) (https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html).

OR

2. Does the disturbed area discharge (either directly or indirectly) to a water body with designated beneficial uses of COLD, SPAWN, and MIGRATORY? For help with identifying designated beneficial uses, please refer to the appropriate Regional Water Quality Control Board Basin Plan below.

Region 1 – North Coast Basin Plan
(https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/)

Region 2 – San Francisco Bay Basin Plan
(https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html#2010basinplan)

Region 3 – Central Coast Basin Plan
(https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/index.html)

Region 4 – Los Angeles Basin Plan
(https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/)

Region 5 – Central Valley Basin Plan[3]
(https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.html)

Region 6 – Lahontan Basin Plan
(https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/index.html)

Region 7 – Colorado River Basin Plan
(https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/)

Region 8 – Santa Ana Basin Plan
(https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.html)

3 The Central Valley Basin Plan lists the COLD beneficial use designation as part of the SPAWN and MIGRATORY beneficial uses. Waterbodies will be considered high-risk receiving waters if listed as SPAWN (COLD) and MIGRATORY (COLD).

Region 9 – San Diego Basin Plan
(https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.html)

Sediment-Sensitive Watershed GIS Map Method

State Water Board staff has prepared a High-Risk Receiving Watershed Map tool (https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/guidance/receivingwaterrisk.pdf) to assist dischargers with determining site-specific receiving water risk. Additionally, SMARTS is equipped with an auto-populate feature that can determine the receiving water risk based on the project latitude and longitude coordinates. Projects located in the watersheds highlighted in red are considered high-risk. Please note that the map option may not reflect the correct receiving watershed, lacking site-specific drainage information.

The discharger is responsible for identifying the appropriate receiving water. If the project does not discharge to the watershed as depicted on the High-Risk Receiving Watershed Map, please contact the appropriate Regional Water Quality Control Board.

Site-Specific Receiving Water Risk (High or Low) = **LOW**

Step 3 – Combined Risk Level Matrix

The below matrix is used to determine the combined Risk Level of the project, factoring in both sediment risk and receiving water risk.

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

Combined Risk Level (1, 2, or 3) = **2**