Preliminary Draft

Construction Drainage, Erosion and Sedimentation Control Plan/Stormwater Pollution Prevention Plan
Palen Solar Electric Generating System

Prepared for
Palen Solar Holdings, LLC
March 2013

CH2M HILL
2525 Airpark Drive
Redding, CA 96001
Preliminary Draft
Construction Drainage, Erosion, and Sedimentation Control Plan/
Stormwater Pollution Prevention Plan

Project:
Palen Solar Electric Generating System

Project Site Location:
BLM ROW # CACA 48810, in Townships 5 and 6 South, Range 17 East.
Riverside County, California

Construction Contractors:
To be determined

Construction Contractor’s Qualified SWPPP Practitioner:
To be determined

Draft DESCP/SWPPP Prepared by:
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Draft DESCP/SWPPP Preparation Date:
March 2013

Estimated Project Dates:
Start of Construction: October 2013
Completion of Construction: June 2016

WDID No.: To be determined
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<th>Description</th>
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<tr>
<td>°C</td>
<td>degrees Celsius</td>
</tr>
<tr>
<td>°F</td>
<td>degrees Fahrenheit</td>
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<tr>
<td>BAT</td>
<td>best available technology</td>
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<tr>
<td>BCT</td>
<td>best conventional technology</td>
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<tr>
<td>bgs</td>
<td>below ground surface</td>
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<tr>
<td>BLM</td>
<td>Bureau of Land Management</td>
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<tr>
<td>BMP</td>
<td>best management practice</td>
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<tr>
<td>BRMIMP</td>
<td>Biological Resources Mitigation Implementation and Monitoring Plan</td>
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<tr>
<td>CASQA</td>
<td>California Stormwater Quality Association</td>
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<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
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<tr>
<td>CEC</td>
<td>California Energy Commission</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>COC</td>
<td>chain-of-custody</td>
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<tr>
<td>COD</td>
<td>chemical oxygen demand</td>
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<tr>
<td>CSMP</td>
<td>Construction Site Monitoring Program</td>
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<tr>
<td>DESCMP</td>
<td>Drainage, Erosion, and Sedimentation Control Plan</td>
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<tr>
<td>DO</td>
<td>dissolved oxygen</td>
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<tr>
<td>DTSC</td>
<td>Department of Toxic Substances Control</td>
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<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
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<td>General Permit</td>
<td>State Water Resources Control Board Order No. 2009-0009-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002 Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities</td>
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<tr>
<td>kV</td>
<td>kilovolt(s)</td>
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<td>LRP</td>
<td>Legally Responsible Person</td>
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<td>MSDS</td>
<td>material safety data sheet</td>
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<tr>
<td>MW</td>
<td>megawatt(s)</td>
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<td>NOI</td>
<td>Notice of Intent</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>NOT</td>
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<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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<tr>
<td>OES</td>
<td>Office of Emergency Services</td>
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<td>PCC</td>
<td>Portland cement concrete</td>
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<td>PSH</td>
<td>Palen Solar Holdings, LLC</td>
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<tr>
<td>QA/QC</td>
<td>quality assurance/quality control</td>
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<tr>
<td>QSD</td>
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<td>QSP</td>
<td>Qualified SWPPP Practitioner</td>
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<td>RUSLE; RUSLE2</td>
<td>Revised Universal Soil Loss Equation</td>
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<td>SMARTS</td>
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<tr>
<td>STG</td>
<td>steam turbine-generator</td>
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<tr>
<td>SVOC</td>
<td>semivolatile organic compound</td>
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<td>SWPPP</td>
<td>Stormwater Pollution Prevention Plan</td>
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<tr>
<td>SWRCB</td>
<td>State Water Resources Control Board</td>
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<tr>
<td>TBD</td>
<td>to be determined</td>
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<tr>
<td>VOC</td>
<td>volatile organic compound</td>
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<tr>
<td>WDID</td>
<td>Waste Discharge Identification Documents</td>
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<td>Worker Environmental Awareness Program</td>
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SECTION 1

SWPPP Certifications

SWPPP Certification by Qualified SWPPP Developer

Project Name: Palen Solar Electric Generating System

Qualified Stormwater Pollution Prevention Plan Developer Name: ____________________

Telephone: ____________________

Qualifying Professional Registration: ____________________

Date of SWPPP Preparation: ____________________

“I certify that this document and all attachments were prepared under my guidance, direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Printed Name of QSD: ____________________

Signature:
SECTION 2
Introduction

2.1 Introduction

This Construction Drainage, Erosion, and Sedimentation Control Plan/Stormwater Pollution Prevention Plan (DESCP/SWPPP) developed for the Palen Solar Electric Generating System (PSEGS or Project) site has been prepared to comply with the National Pollutant Discharge Elimination System (NPDES) No. CAS000002 General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ (General Permit).

A copy of the General Permit is provided in Attachment A. Copies of the DESCP/SWPPP and the General Permit will be kept on-site for the duration of the Project.

The DESCP/SWPPP was developed by, and will be amended or revised by, a Qualified SWPPP Developer (QSD), as defined under Section VII of the General Permit.

The DESCP/SWPPP was designed to address the following objectives:

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity are controlled.

2. Where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either are eliminated, controlled, or treated.

3. 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.

4. Calculations and design details, as well as BMP controls for site run-on, are complete and correct.

5. Stabilization BMPs installed to reduce or eliminate pollutants after construction are complete.

6. Post-construction BMPs as defined by General Permit Section XII are identified.

7. Methods to implement BMP inspection, visual monitoring, and Construction Site Monitoring Program (CSMP) requirements are identified.

As required by the California Energy Commission (CEC), the following elements are included to demonstrate that construction activities associated with the Project will not result in an increase in off site flooding potential or sedimentation and that the Project will meet all local, state, and federal regulatory requirements associated with the protection of water quality and soil resources:
• A vicinity map showing the location of all Project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas
• A detailed site delineation that includes the boundary lines of all areas subject to disturbance and the location of existing and Project structures, pipelines, roads, and drainage facilities (limited to available preliminary information)
• A description of watercourses and critical areas
• Site maps showing existing site drainage, interim and Project drainage systems to protect the site and downstream facilities, and drainage area boundaries
• A narrative of the Project site drainage including appropriate measures to be taken to protect the site and downstream facilities
• Hydrology calculations
• Clearing and grading plans including delineation of all areas to be cleared of vegetation and areas to be preserved, including contours and cross sections, elevations, slopes, locations, and the extent of all Project grading (limited to available preliminary information)
• The location of BMPs to be implemented during construction (limited to available preliminary information)
• BMP implementation schedule (limited to available preliminary information)

The DESCP/SWPPP applies to all areas directly related to the construction activity, including, but not limited to, staging areas, storage yards, and access roads. The DESCP/SWPPP will be implemented year-round throughout the duration of the construction activities.

2.2 Permit Registration Documents

Permit Registration Documents (PRDs) will be submitted electronically to SWRCB’s Stormwater Multi Application and Report Tracking System (SMARTS) by the Legally Responsible Person (LRP) on (to be determined).

Copies of the following PRDs will be included as Attachment B:

1. Waste Discharge Identification (WDID) confirmation
2. Notice of Intent (NOI)
3. Risk Level Determination (Construction Site Sediment and Receiving Water Risk Determination)
4. Site Map
5. Annual Fee
6. Signed Certification Statement
2.3 DESCP/SWPPP Availability and Implementation

As required by Section XIV.C of the General Permit, the DESCP/SWPPP will be available at the construction site during working hours while construction is occurring and will be made available upon request by a state or municipal inspector. When the original DESCP/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 DESCP/SWPPP will be made available via a request by radio/telephone. The DESCP/SWPPP will be implemented before the start of ground-disturbing activities.

2.4 DESCP/SWPPP Amendments

This DESCP/SWPPP will be amended:

- Whenever there is a change in construction or operations that may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system
- If any condition of the General Permit is violated or the general objective of reducing or eliminating pollutants in stormwater discharges has not been achieved
- Annually, prior to the defined rainy season, as needed
- When deemed necessary by the LRP or construction contractor

As required by Section XIV.A of the General Permit, the DESCP/SWPPP will be amended or revised by a QSD; the DESCP/SWPPP will include a listing of the date of initial preparation and the date of each amendment. Amendments will be signed by a QSD (General Permit Section VII.B.6). An amendment log will be kept throughout the duration of the Project in Attachment C.

2.5 Retention of Records

As required by Sections I.J.69 and IV.G of the General Permit, a paper or electronic copy of all required records will be maintained for 3 years from the date generated or date submitted, whichever is last. These records will be available at the construction site until construction is completed. Palen Solar Holdings, LLC (PSH) will furnish the RWQCB, SWRCB, or U.S. Environmental Protection Agency (EPA), within a reasonable time, any requested information to determine compliance with this General Permit.

Required records will be maintained at (to be determined).

2.6 Required Non-compliance Reporting

PSH will properly document reportable discharges or other violations of the General Permit. Exceedances and violations will be reported using SMARTS and will include the following:

- Self-reporting of any discharge violations or to comply with RWQCB enforcement actions; and
2.7 Annual Report

An Annual Report will be prepared, certified, and electronically submitted to SMARTS by PSH no later than September 1 of each year. Reporting requirements, identified in Section XVI of the General Permit, include (but are not limited to) a summary of the following (as applicable):

1. Sampling and analysis results including laboratory reports, analytical methods, reporting limits, and chain-of-custody (COC) forms
2. Corrective actions and compliance activities, including those not implemented
3. Violations of the General Permit
4. Date, time, place, and name(s) of the inspector(s) for all sampling, inspections, and field measurement activities
5. Visual observation and sample collection exception records
6. Training documentation of all personnel responsible for General Permit compliance activities

2.8 Changes to Permit Coverage

The General Permit (Section II.C) allows a permittee to reduce or increase 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 sold to a different entity; or when new acreage is added to the Project.

To change the acreage covered, PSH will file modifications to PRDs electronically (revised NOI, site map, DESCP/SWPPP revisions as appropriate, and certification that new landowners have been notified of applicable requirements to obtain permit coverage [including name, address, phone number, and e-mail address of new landowner]) in accordance with requirements of the General Permit within 30 days of a reduction or increase in total disturbed area.

Any updates to PRDs submitted via SMARTS will be included in Attachment E of the DESCP/SWPPP. In addition, any related DESCP/SWPPP revisions/amendments (General Permit Section II.C.2) will be documented in Attachment C.

2.9 Notice of Termination

To terminate coverage under the General Permit, a Notice of Termination (NOT), a “final site map,” and photographs will be submitted electronically via SMARTS. Filing the NOT will certify that all General Permit requirements have been met.
The NOT will be submitted when the construction Project is complete and within 90 days of meeting all General Permit requirements for termination and final stabilization (General Permit Section II.D), including:

- The site does not pose any additional sediment discharge risk than it did prior to construction activity.
- All construction-related equipment, materials, and any temporary BMPs no longer needed are removed from the site.
- Post-construction stormwater management measures are installed and a long-term maintenance plan that is designed to address a time span that is a minimum of 5 years has been developed.

The NOT will demonstrate through photographs, Revised Universal Soil Loss Equation (RUSLE) results, or results of testing and analysis that the Project meets all of the requirements of Section II.D.1 of the General Permit by one of the following methods:

- 70 percent final cover method (no computational proof required)
- RUSLE/RUSLE2 method (computational proof required)
- Custom method (discharger demonstrates that site complies with final stabilization)
SECTION 3

Project Description

The site is located in the Southern California inland desert, approximately 10 miles east of Desert Center, eastern Riverside County, California. See Site Vicinity Map Figure 1 (all figures are included in Attachment F). The Project will be located on approximately 3,794 acres of Federal land, Bureau of Land Management (BLM) ROW # CACA 48810, in Townships 5 and 6 South, Range 17 East.

PSEGS will be comprised of two adjacent solar fields and associated facilities with a total combined nominal output of approximately 500 megawatt (MW). PSH proposes to develop PSEGS in two operational phases: each phase will consist of one solar field with approximately 85,000 heliostats, a 750 foot tall solar power tower and receiver, and a power block able to generate approximately 250 MW of electricity. Each phase will also share common facilities, including an approximately 15-acre common facilities area located in the southwestern corner of the site containing an administration building, warehouse, asphalt-paved parking area, two double-lined (with high-density polyethylene) 2-acre evaporation ponds, maintenance complex and a meter/valve station for incoming natural gas service to the site; an on-site switchyard; and a single-circuit 230 kilovolt (kV) generation tie-line to deliver power to the electricity grid. The common facilities area will be used as a temporary laydown area during construction. Other on-site facilities will include access and maintenance roads (either dirt, gravel or paved), perimeter fencing, tortoise fencing and other ancillary security facilities.

An additional 40-acre temporary construction laydown area will be located north and west of the common facilities area. This area will be used for equipment laydown, construction parking, construction trailers, a tire cleaning station, heliostat assembly, a temporary concrete batch plant and other construction support facilities. The surface areas within the temporary construction area that are used frequently will be stabilized and dust suppression maximized with a layer of crushed stone in areas subject to heavy daily traffic.

Southern California Gas (SoCal Gas) will upgrade and extend an existing distribution line from its main transmission gas pipeline located approximately 1.8 miles west and south of the site. The existing distribution facilities will be upgraded from a 4 inch pipeline to an 8 inch pipeline. Additionally, SoCal Gas will permit and construct a new 8 inch gas pipeline extension from the current retail meter point to the new PSEGS meter to be located within the common area. Construction activities related to the on-site metering station and metering sets will include grading a pad and installing above- and belowground gas piping, metering equipment, gas conditioning and pressure regulation equipment, and possibly pigging facilities. A distribution power line for metering station operation lighting, communication equipment, and perimeter chain link fencing for security will also be installed.
Figure 2 shows the overall facility boundaries of the Project including linear features. Figure 3 shows the acreage estimates of the various Project features. Figure 4 shows the Overall Site Plan.

### 3.1 Project Elements

#### 3.1.1 Solar Plants

Each solar field will have a heliostat array consisting of approximately 85,000 heliostats. The heliostat arrays will be arranged around a single centralized solar power tower. The heliostats will automatically track the sun during the day and reflect the solar energy to the solar receiver steam generator located on top of the solar power tower. Each solar plant will include a power block, which will be connected via underground and overhead generation tie lines to the on-site switchyard in the northern most portion of the site. Each power block will also have a gas metering set. PSEGS will interconnect to the regional transmission grid at Southern California Edison’s Red Bluff Substation which is currently under construction.

Permanent parking areas will be provided at each power block for operations and maintenance personnel.

#### 3.1.2 Common Facilities Area

A 15-acre common facilities area will be established in the southwestern corner of the site to accommodate an administration building, warehouse, and maintenance complex; evaporation ponds; asphalt-paved visitor and employee parking area; and landscape areas. The administration complex will occupy approximately 4.8 acres and will be served by power from the local 33-kV distribution system and water from water supply wells located in the common area.

An additional 40-acre temporary construction laydown area will be located north and west of the common facilities area. This area will be used for equipment laydown, construction parking, construction trailers, a tire cleaning station, heliostat assembly, a temporary concrete batch plant and other construction support facilities. The surface areas within the common area that are used for construction will be stabilized and dust suppression maximized with a layer of crushed stone in areas subject to heavy daily traffic.

#### 3.1.3 Access Roads and Drive Zones

Primary access to the site during construction will be by a new 1,000-foot, 24-foot wide paved road from Corn Springs Road. The access road will be constructed from a point just north of the I-10 Corn Springs Road entrance/exit ramps east to the Project site entrance. This road will include a 12-foot wide shoulder with gravel surface for truck staging to preclude traffic interferences.

The Project will contain internal roadway and utility corridors for each heliostat field and power block. Each solar plant site will be accessible from a 20-foot-wide paved or hardscape access road from the entrance of the Project site to the power block, and then around the power block.
In addition to the paved or hardscaped access road to the power block of each unit, 12-foot wide unpaved roads will radiate from the power block to provide access through the solar field to the internal perimeter access road. Within the heliostat fields, 10-foot wide “drive zones” will be located concentrically in the field to provide access to the heliostat mirrors for maintenance and cleaning. The drive zones will be located approximately 152 feet apart and will be grubbed to remove vegetation and smoothed.

A 12-foot-wide unpaved path offset from the site fence by 5 feet will be constructed on the inside perimeter of the Project boundary fence for use by PSEGS personnel to monitor and maintain perimeter security and tortoise exclusion fencing. These paths will be grubbed, bladed, and smoothed to facilitate safe use with minimal grading where necessary to cross washes.

3.2 Site Features

3.2.1 Climate

The climate in the Chuckwalla Valley is classified as a “low desert,” and is characterized by high aridity and low precipitation. The region experiences a wide variation in temperature, with very hot summer months and cold dry winters. Annual precipitation ranges from 0.02 to 0.47 inches per month for a total annual precipitation of just under four inches per year.

Table 1 presents the average monthly precipitation (rainfall) from 1913 to 2008 collected from the Blythe Airport, which is located approximately 32 miles east of the Project site.

<table>
<thead>
<tr>
<th>Precipitation</th>
<th>Total</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Monthly</td>
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<td>0.47</td>
<td>0.44</td>
<td>0.36</td>
<td>0.16</td>
<td>0.02</td>
<td>0.02</td>
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<td>0.64</td>
<td>0.37</td>
<td>0.27</td>
<td>0.20</td>
<td>0.39</td>
</tr>
</tbody>
</table>

3.2.2 Watercourses

The Project is located in the alluvial-filled basin of the Chuckwalla Valley in eastern Riverside County. Surface water in the Chuckwalla Valley drains from the surrounding mountains toward Palen or Ford Dry Lakes or playas, the topographic low points within the valley.

The major watercourse in the Project area is Corn Springs Wash, which drains approximately 31 square miles of the Chuckwalla Mountains and flows northeast toward the Project site. Stormwater flows and discharge from springs in the Chuckwalla Mountains travels through Corn Springs Wash and adjacent unnamed washes northeastward before being cut off by I-10. Stormwater flows are intercepted by dikes located south of I-10 and conveyed to three box culverts that cut beneath the roadway of I-10, south (upgradient) of the Project site. These structures were constructed during construction of I-10 and are dikes and culverts that re-concentrate the flows back to three discrete discharge points on the north side of I-10. From these discharge points, stormwater flows continue across the Project.
site flowing northeast towards Palen Mountains. After crossing the Project site, stormwater flow continues southeastward (downgradient) along the front of the Palen Mountains where they end in Ford Dry Lake.

The westerly culvert near the Corn Springs Road Interchange conveys flows from Corn Springs Wash to the northwest corner of the Site. The two other culverts convey flows to the center and east side of the Project site, respectively. The elevated freeway roadbed prevents flows from crossing into the Project site from any other locations.

Although the culverts concentrate the flood flows, the flat topography of the area north of I-10 causes the flow to spread back out as the flows continue northeastward. Aerial photography, vegetation patterns and the existing erosion rills indicate that the flows maintain a fairly straight path across the Project site towards Ford Dry Lake. After the flow has completely crossed the site, the runoff flows southeast along the front of the Palen Mountains for approximately 10 miles before reaching Ford Dry Lake.

### 3.2.3 Groundwater

Groundwater in the area of the Project site is contained within the Colorado River Hydrologic Basin Region that covers about 20,000 square miles of southeastern California. As a part of the Colorado River Hydrologic Basin Region, the Chuckwalla Valley Groundwater Basin (Chuckwalla Hydrologic Unit) is divided into four hydrologic subareas or units: Ford, Palen (which includes the Project site), Pinto and Pleasant subareas. Regionally, the ground surface slopes gently downward in a southeast direction at a gradient of less than one percent toward the Palo Verde Valley and the Colorado River. Locally, topography at the Project site is relatively flat with gentle slopes to the northeast. Site grades typically range from 1.8 percent in the central portion of the site to essentially flat in the northeastern portion of the site. Steeper grades are present at isolated sand dunes along the northern portion of the site (T5S R17E- Section 21). Toward the north and central portions of the site, the ground becomes hummocky as it transitions toward the sand dunes at the toe of the Palen Mountains.

Groundwater flows to the east-southeast below the Project site. The depth to groundwater below the site, measured in well 5/17-33N1 on May 22, 2009, was 180 feet below ground surface (bgs). In addition, in 2009 groundwater was encountered within two soil borings at depths of 68 and 73 feet bgs (Kleinfelder, 2009). Groundwater is not anticipated to be encountered during Project construction activities.

### 3.2.4 Other Critical Areas

The Project disturbance area is relatively undisturbed at present and is dominated by Sonoran creosote brush scrub. Other communities in the disturbance area include desert dry wash woodland, unvegetated ephemeral dry wash, active dunes and stabilized and partially stabilized desert dunes. Harwoods’ milkvetch, a California Native Plant Society-listed and BLM-listed species, was the only Federal or State special-status plant species observed within the disturbance area.

Jurisdictional waters delineations indicate that it is unlikely that waters on the site be considered jurisdictional by the U.S. Army Corps of Engineers. However, 256.7 acres of
desert washes are considered State jurisdictional waters under California Department of Fish and Wildlife (CDFW) jurisdiction. Although all the ephemeral washes occurring within the disturbance area flow toward Palen Dry Lake; none directly flow into it, as all washes begin to flow in a dispersed pattern as sheet flow.

The Project site is considered suitable habitat for desert tortoise and Mojave fringe-toed lizard. In addition, Western burrowing owl pairs and associated active burrows have been observed within the disturbance area.

Mitigation (or protective) measures for biological resources, including special-status species that could be affected by Project construction activities, will be taken from existing guidelines developed with the United States Fish and Wildlife and CDFW and those required by the CEC Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). The BRMIMP comprehensively describes avoidance, minimization, and mitigation measures, and provides a matrix to document their implementation and monitor their effectiveness.

In addition to preconstruction surveys, qualified biologists will conduct employee environmental awareness training and monitor construction activities in accordance with agency requirements.

### 3.3 Soils

Soils on site were described as consisting of sandy material and classified as poorly graded sand with silt. Typical fines content in these soils would be expected to be in the range of 5 to 35 percent.

There are three mapped geologic units within the Project limits. These units are dune sand (Qs), alluvium (Qal), and lake deposits (Ql).

Dune sand consists of fine sand and silt that has been deposited as wind-blown deposits. At the Project site the surface deposits are very loose and the buried unit medium dense. Because of the nature of dune sand occurrence, there is the potential for discontinuous buried dune sand deposits throughout the site at any depth.

Alluvium is generally sand and silty sand and ranged from loose to very dense at the site. The alluvium contains gravel and cobbles. In several locations the alluvium is moderately to strongly cemented with calcium carbonate. Alluvium is anticipated to be the dominant material type above the elevation of 423 feet above mean sea level and interfinger with lake deposits at lower elevations.

Lake deposits (mixtures of silts, clays, and fine sands) are at the ground surface in the northeast part of the site (Kleinfelder 2009).

#### 3.3.1 Historical Use

A Phase I Environmental Site Assessment for the Project area (AECOM, 2009a) concluded that no recognized environmental conditions were associated with the Project site.
3.4 Drainage

3.4.1 Preconstruction

The major watercourse in the Project area is Corn Springs Wash, which drains approximately 31 square miles of the Chuckwalla Mountains and flows northeast toward the Project site. Stormwater flows and discharge from springs in the Chuckwalla Mountains travels through Corn Springs Wash and adjacent unnamed washes northeastward before being cut off by I-10. Stormwater flows are intercepted by dikes located south of I-10 and conveyed to three box culverts that cut beneath the roadway of I-10, south (upgradient) of the Project site. These structures were constructed during construction of I-10 and are dikes and culverts that re-concentrate the flows back to three discrete discharge points on the north side of I-10. The westerly culvert near the Corn Springs Road Interchange conveys flows from Corn Springs Wash to the northwest corner of the Site. The two other culverts convey flows to the center and east side of the Project site, respectively. The elevated freeway roadbed prevents flows from crossing into the Project site from any other locations. Although the culverts concentrate the flood flows, the flat topography of the area north of I-10 causes the flow to spread back out as the flows continue northeastward. From these discharge points, surface water flows in a northeasterly direction across the Project site then turns southeast and east along the toe of the Palen Mountains for approximately 10 miles before reaching Ford Dry Lake. There are no perennial streams in the Chuckwalla Valley.

Preconstruction Project site topography, drainage at the Project site, and site hydrology calculations are provided in Attachment G.

3.4.2 During Construction

Protection of soil resources will be an important factor in the design of the erosion and sedimentation controls. To minimize wind and water erosion, open spaces will be preserved and left undisturbed, maintaining existing vegetation to the extent possible with respect to site topography and access requirements.

During construction, portions of the Project site, including portions along the ephemeral washes on the site, will be graded. Grading is not intended to level the site, but rather to prepare the site for installation of the heliostats and ease future maintenance activities. As such, the existing depressions for the drainages will remain, and natural drainage waters are expected to continue to occupy these ephemeral washes. Any grading required will be designed to promote sheet flow where possible.

If needed, stone filters and check dams will be strategically placed throughout the Project site to provide areas for sediment deposition and to promote the sheet flow of stormwater prior to leaving the Project site boundary. Where available, native materials (rock and gravel) will be used for the construction of the stone filter and check dams. Diversion berms will be used to redirect stormwater around critical facilities, as required. Periodic maintenance will be conducted as required after major storm events and when the volume of material behind the check dams exceeds 50 percent of the original volume. Stone filters and check dams are not intended to alter drainage patterns but to minimize soil erosion and promote sheet flow.
Areas compacted during construction activities will be restored, as appropriate, to approximate preconstruction compaction levels to minimize the opportunity for any increase in surface runoff.

3.4.3 Post-construction

The majority of the Project site will maintain the original grades and natural drainage features and, therefore, will require no added storm drainage control. In limited areas, such as the power blocks, switchyard, heliostat assembly area and administrative areas, the stormwater management system will include diversion channels, bypass channels, or swales to direct run-on flow from up-slope areas and run-off flow through and around each facility. Diversion channels will be designed so that a minimum ground surface slope of 0.5 percent will be provided to allow positive, puddle-free drainage. To reduce erosion, storm drainage channels may be lined with a nonerodible material such as compacted rip-rap, geo-synthetic matting, or engineered vegetation.

Grading and mowing during construction may directly result in a permanent loss of a large portion of the ephemeral drainages that are present due to their shallow depths; however, affected drainages would be expected to reform naturally in this landscape where flow patterns are highly variable, both temporally and spatially.

Paved access roads will be designed to allow stormwater to flow unimpeded across the roadways in order to maintain the existing sheet flow pattern.

The design will be developed for sheet flow for all storm events less than or equal to a 100-year, 24-hour storm event. The Project site is in close proximity to the I-10 Freeway. The stormwater management design for the freeway includes three drainage culverts to allow rain to flow from south to north underneath the freeway. The design of the site encompasses a worst-case conservative approach with respect to stormwater runoff and reflects a situation where some of the runoff south of the freeway will overtop the freeway and run on the site.

Based upon the runoff volume calculated in the post-construction condition (100-Yr storm event), the difference in post-construction runoff volume (13979.2 ac-ft) and existing condition runoff volume (13713.9 ac-ft) is 265.3 ac-ft. This computes to a 1.93 percent difference in runoff between the post-construction and the existing condition. This flow increase is spread out along the northern boundary of the site and is not concentrated in any isolated location. Based on the minor increase in runoff, the development of this site should not have a negative impact on any downstream properties.

Development of the Project will result in an increase of 830 acres of impervious surfaces (21.9 percent of total Project area) for the mirror area, paved roadways, power blocks, parking lots, and buildings.

Post-construction drainage at the Project site and site hydrology calculations are provided in Attachment H.
3.5 Clearing and Grading Narrative

The surface soil grade of each area will be designed to provide the minimum requirements for access of installation equipment and materials during site construction and operations. Most of the natural drainage features will be maintained and any grading required will be designed to promote sheet flow where possible. Advantage of the natural permeability of the alluvium at the site will be utilized by minimizing compaction and decompacting soils where necessary.

Cut and fill for grading will occur from within the site. There will be no borrow sites outside of the Project site. Two hundred thousand (0.2 million) cubic yards of cut and fill is planned for the Project.

A preliminary grading plan is depicted on Figures 5a-d.

3.5.1 General Grading and Leveling

Heavy to medium grading will be performed within each plant’s solar power tower and power block areas, for the switchyard, within the administration complex area, and for the heliostat assembly area. The deepest excavations will be restricted to foundations and sumps. Within each of these individual areas, earthwork cuts and fills will be balanced to the greatest degree possible. The earthwork within the power blocks and common area will be excavated and compacted to the recommendations of the associated geotechnical report.

At some washes, limited grading may be required. Surface rocks and boulders will need to be relocated to allow proper installation of heliostats and facilities when they cannot be avoided.

3.5.2 Vegetation Clearing and Cutting

To construct the heliostat array fields located within these sites, some vegetation clearing will occur—but only where necessary to allow for equipment access and stormwater management. In areas where general site grading is not required, vegetation clearing will not occur, except for the drive zones, which will be grubbed, bladed, and smoothed.

An approximate 8- to 12-foot-wide linear swath of vegetation along the entire outer edge of the area to be developed will be cleared and grubbed (but not graded except as required for safe passage of vehicles) to create an internal perimeter path for installation of the tortoise and security fencing.

Vegetation clearing, with leveling or grading limited to arroyo walls, will be performed throughout the sites beneath the heliostats where the existing vegetative cover will not permit access of installation equipment and materials. Other than access roads and drive zones, when necessary, vegetation will be cut with a mower to a height of approximately 12 to 18 inches to allow clearance for heliostat function and at the same time leave the soil surface and root structures intact.

Clearing and grubbing, where shrubs including roots are removed, will be performed for maintenance roads for each solar plant, drive zone paths, the power blocks, in the common area where existing topography must be modified to make suitable parking, building pads and laydown areas; in areas to be graded at the solar plant sites; and to provide access for
installation equipment and materials during construction (areas requiring leveling by grading). For all other areas, existing vegetation (and root systems) will be maintained to anchor the soil and reduce the potential for erosion. Where existing site topography is favorable, the natural drainage features will be maintained.

### 3.5.3 Common Area

The common area will also be used for temporary construction parking areas, construction trailers, a tire cleaning station, and other construction support facilities. The surface areas within the common area that are used for construction will be stabilized and dust suppression maximized with a layer of crushed stone in areas subject to heavy daily traffic.

### 3.5.4 Heliostat Field Preparation

Vegetation clearing, grubbing, and contour smoothing in the heliostat fields will occur where necessary to allow for equipment access and stormwater management. In areas where these activities are not required for access or construction, the vegetation will not be removed but will be mowed (if needed) to a height of approximately 12 to 18 inches.

A linear swath of vegetation along the outer edge of each heliostat field will be cleared, grubbed, and smoothed to create a 12-foot wide external perimeter path for installation and maintenance of the tortoise and security fence and associated external perimeter inspection roads.

Grading of the roads will be performed in limited areas to afford safe passage of vehicles. To allow for external roads, the setback area from the property line will be a minimum of 5 between the edge of the roadway and the property line. Additional setbacks may be required for installation of gas and electric utilities. Elsewhere, vegetation will remain but will be cut (when necessary) to a height that will allow clearance for heliostat function while leaving the root structures intact. Occasional cutting of the vegetation will be performed as needed to permit unobstructed heliostat mirror movement.

#### 3.5.4.1 Installation of Heliostats

The heliostats will be installed in two steps. Initially, the support pylons will be installed using vibratory technology to insert the pylons into the ground (pre-augering prior to the installation of the pylon may be required). Depths are not expected to be greater than 12 feet. Then, the heliostat assembly (mirrors, support structure and aiming system) will be mounted on the pylon.

The majority of the Project site will maintain the original grades and natural drainage features, and therefore, construction will require machines that are maneuverable and can negotiate the terrain. The siting of pylons will be guided by global positioning system technology. Pylons will be delivered to their locations by an all-terrain vehicle. Installation of the heliostat assemblies will be accomplished with a rough terrain crane. The crane will be able to mount heliostat assemblies on several pylons before moving to the next location.

### 3.5.5 Construction of Power Blocks

Project construction will commence with the building of site roads and the installation of temporary construction facilities including office trailers, parking areas, material laydown areas, a concrete batch plant, and a heliostat assembly facility.
The construction of each plant will begin with grading and construction of earthen berms around the power block areas to divert stormwater followed by the excavation and placement of foundations and other underground facilities. Superstructures and equipment will then be placed on the foundations. Major items include the 750-foot-tall solar power tower and solar receiver steam generator construction, the steam turbine-generator (STG) pedestal and STG, and construction of the air-cooled condenser. Once the mechanical equipment is in place, construction will continue with the installation of the piping, electrical equipment, and cables necessary to connect and power the equipment. Upon completion of construction, the checkout, testing, startup and commissioning of the various plant systems will begin resulting in a fully operational solar plant.

3.6 Stormwater Run-on from Off Site Areas

Calculations of stormwater run-on from off site areas and design details are included in Attachment G.

3.7 Construction Site Estimate Summary

Construction site total area: 3,794 acres
Percentage impervious area before construction: 0%
Percentage impervious area after construction: 21.9%

Information on stormwater flow and runoff coefficients is provided in Attachment H.

3.8 Findings of the Construction Site Sediment and Receiving Water Risk Determination

3.8.1 Sediment Risk

EPA’s *Stormwater Phase II Final Rule: Construction Rainfall Erosivity Waiver Fact 2012 Sheet 3.1* was used to determine the Project’s R value. The SMARTS system was used to obtain the Project site’s K and LS values.

Soil erosivity factor (R) = 24.9
Soil erodibility factor (K) = 0.2
Length-slope factor (LS) = 1.2

The rate of sheet and rill erosion is 6.0 tons per acre, which is considered a low sediment risk.

3.8.2 Receiving Water Risk

The SWRCB 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) was used to determine the Project’s Receiving Water Risk. Ford Dry Lake was not listed on the Section 303(d) list of impaired water bodies.

Ford Dry Lake is a dry lakebed and does not have the designated beneficial uses of “Spawn,” “Cold,” and “Migratory.

A low risk factor to the receiving water was calculated.
3.8.3 Site Risk Level

The Site Sediment Risk Factor is low.

The Receiving Water Risk is low.

Therefore, the Site Risk Level is 1. This DESCP/SWPPP has been prepared to comply with Risk Level 1 (Attachment C of the General Permit).

3.9 Construction Schedule

Construction on the PSEGS is anticipated to begin immediately after the Fall 2013 Desert Tortoise Survey Window. Construction of PSEGS, from perimeter fencing installation to site preparation and grading to commercial operation, is expected to take place from the fourth quarter of 2013 to commercial operation in June 2016. The first phase of construction would include the generation tie-line and the first solar field/power block. The second phase of construction would begin shortly after start of construction of the first phase and would continue to support the commercial operation dates of both units by the end of June 2016. Construction of the common area facilities would occur concurrently with the construction of the first solar plant.

A more detailed construction schedule that includes the phases of significant grading activities, work near drainages, and BMP implementation will be included by the construction contractor in Attachment I.

3.10 Potential Construction Site Pollutant Sources

Following is a list of construction materials that will be used, or are expected to be used, and activities to be performed that have the potential to contribute pollutants other than sediment to stormwater runoff. These pollutants and potential pathways were considered when developing BMPs in accordance with General Permit requirements to reduce or prevent pollutants in discharges. The list will be reviewed by the construction contractor, once selected, and will be revised as necessary when the final construction materials inventory for the site has been developed.

Materials:
- Vehicle fluids, including oil, grease, petroleum, and coolants
- Asphaltic emulsions
- Cement materials
- Base and sub-base material
- Joint and curing compounds
- Concrete curing compounds
- Paints
- Solvents, thinners, and acids
- BMP materials
- Treated lumber (materials and waste)
- Portland cement concrete (PCC); masonry rubble
- Adhesives
- General litter
Activities:
- The storage, transport, and/or use of materials listed above
- Clearing and grubbing operations
- Grading operations
- Trenching operations
- Boring operations
- Paving operations
- Delivery/transportation operations
- Utility excavation and installation operations
- Foundation/structure construction operations
- Vehicle and equipment cleaning, fueling, and maintenance
- Painting

3.11 Identification of Non-stormwater Discharges

Following is a list of non-stormwater discharges that apply to the site. The list will be reviewed by the construction contractor, once selected, and will be revised as needed. Non-stormwater discharges will be eliminated, controlled, or treated in accordance with General Permit requirements to minimize or eliminate the release of pollutants in stormwater.

Non-stormwater Discharges:
- Wash water
- Sanitary wastes
- Concrete washout water
- Paint wash water
- Drilling slurries and drilling fluids
- Pipe testing water
The following narrative section provides a list and description of the potential BMPs to be used on-site during construction activities. The Water Pollution Control Drawings (WPCDs) in Appendix A show typical initial containment BMPs to minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges. The construction contractor will be responsible for the specific details of the BMPs to be used during construction, and for updating the BMP drawings at the start of and during Project construction to reflect modified or new BMPs implemented and maintained on-site in sequence with construction activities.

4.1 Schedule for BMP Implementation

Refer to Attachment I for a Project construction schedule.

BMPs will be implemented to follow the progress of construction activities. As the location of soil disturbances change, erosion controls and sedimentation controls will be adjusted accordingly to control stormwater runoff at the downgrade perimeter. BMPs will be in place throughout the entire construction period.

Sufficient erosion control and sediment control materials will be maintained on-site to allow implementation in conformance with General Permit requirements and as described in this DESCP/SWPPP. This includes implementation requirements for active areas and nonactive areas that require deployment before the onset of rain.

Run-on from off site will be directed away from all disturbed areas or collectively will be in compliance with the effluent limitations in the General Permit.

4.2 Erosion Control and Sediment Control

The site-specific combination of erosion controls and sediment controls to be used during construction will be selected by the construction contractor from those listed below. Corresponding California Stormwater Quality Association (CASQA) 2009 Construction Handbook fact sheets are included in Attachment J.

4.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, is a source control measure designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering or binding soil particles. The Project will incorporate erosion control measures required by regulatory agency permits, contract documents, and other measures selected by the Project owner or the construction contractor.

Project activities will incorporate the following practices:
• Existing vegetation will be preserved when feasible. Vegetation will be cut to a height that will not interfere with construction and operation of the heliostat fields, instead of clearing or grading the entire field.

• Clearing and grading activities will be restricted to areas where foundations, drainage facilities, and all-weather roads must be placed.

• Temporary erosion control measures will be implemented on active and non-active disturbed areas prior to and at regular intervals throughout the defined rainy season, and year-round prior to storm events.

• Erosion in concentrated flow paths will be controlled by lining channels with a non-erodible material such as compacted riprap, geosynthetic matting, or engineered vegetation.

• Diversion berms (for example, earth dikes) or drainage swales will be used, as needed, to redirect stormwater run-on or on-site stormwater flow around critical facilities or away from disturbed soil areas and stockpiles.

• Non-active areas will be stabilized with effective soil cover (such as aggregate, paving, or vegetation) as soon as feasible after construction or disturbance is complete and no later than 14 days after construction or disturbance in that portion of the site has temporarily or permanently ceased.

• The use of plastic materials will be limited when more sustainable, environmentally friendly alternatives exist. Where plastic materials are deemed necessary, the plastic materials will be resistant to solar degradation.

• Areas compacted during construction activities will be restored, as appropriate, to approximate preconstruction compaction levels to minimize the opportunity for any increase in surface runoff.

• Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.

• A combination from the following list of erosion control measures will be implemented during Project construction:

EC-1    Scheduling
EC-2    Preservation of Existing Vegetation
EC-3    Hydraulic Mulch
EC-5    Soil Binders
EC-6    Straw Mulch
EC-7    Geotextiles and Mats
EC-8    Wood Mulching
EC-9    Earth Dikes and Drainage Swales
EC-10   Velocity Dissipation Devices
EC-11   Slope Drains
EC-12   Streambank Stabilization
EC-14   Compost Blankets
EC-15   Soil Preparation/Roughening
EC-16   Non-vegetative Stabilization
4.2.2 Sediment Control

Sediment controls are intended to complement and enhance 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. The Project will incorporate sediment control measures required by regulatory agency permits, contract documents, and other measures selected by the Project owner or the construction contractor.

Project activities will incorporate the following practices:

- Effective sediment perimeter controls will be established and maintained at locations where runoff discharges off site.
- All perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits will be maintained and protected from activities that reduce their effectiveness.
- Sediment controls will be implemented at the draining perimeter of disturbed soil areas, at the toe of slopes, and at outfall areas.
- Stone filters and check dams will be strategically placed, as needed, throughout the Project site to provide areas for sediment deposition and to promote the sheet flow of stormwater prior to leaving the Project site boundary. Where available, native materials (rock and gravel) will be used for the construction of the stone filter and check dams. Stone filters and check dams are not intended to alter drainage patterns but to minimize soil erosion and promote sheet flow.
- Downgradient drop inlets and culverts, if any, will be protected with sediment control measures year-round.
- If utilized, sediment basins will be designed, at a minimum, according to the method provided in CASQA 2009 Construction Handbook.
- Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.
- A combination from the following list of sediment control measures will be implemented during Project construction:

  SE-1  Silt Fence
  SE-2  Sediment Basin
  SE-3  Sediment Trap
  SE-4  Check Dams
  SE-5  Fiber Rolls
  SE-6  Gravel Bag Berm
  SE-7  Street Sweeping and Vacuuming
  SE-8  Sandbag Barrier
  SE-9  Straw Bale Barrier
  SE-10  Storm Drain Inlet Protection
  SE-11  Active Treatment System
  SE-12  Temporary Silt Dike
SE-13 Compost Socks and Berms
SE-14 Biofilter Bags

4.2.3 Tracking Control

All construction entrances and exits will be stabilized to minimize or eliminate soils from being tracked off site by vehicles or construction equipment.

Project activities will incorporate the following practices:

- All immediate access roads will be inspected daily. At a minimum, any sediment or other construction activity-related materials that are deposited on the roads will be removed (by vacuuming or sweeping) daily and before any rain event.
- Construction activity traffic to and from the Project site will be limited to entrances and exits that employ effective controls to prevent off site tracking of sediment.
- A tire cleaning station will be located in the Common Area.
- All vehicles used to transport solid bulk material on public roadways and that have the potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks to provide at least 2 feet of freeboard.
- Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.

The following tracking control measures will be implemented during Project construction:

TC-1 Stabilized Construction Entrance/Exit
TC-2 Stabilized Construction Roadway
TC-3 Tire Wash

4.2.4 Wind Erosion Control

During construction of the Project, dust erosion control measures will be implemented to minimize the loss of wind-blown soil from the site.

Project activities will incorporate the following practices:

- Disturbed soil areas of the Project site will be watered regularly to control dust and to maintain optimum moisture levels for compaction as needed, but to avoid runoff, the areas will not be watered excessively. Sediment controls may be used at the edges of these areas as necessary to minimize sediment discharge.
- Areas of high erosion may require application of an approved palliative to reduce dust and prevent excess moisture on the road.
- No vehicle will exceed posted speed limits within the construction site. The construction site entrances will be posted with visible speed limit signs.

Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.
The following control method will be implemented for dust suppression:

WE-1 Wind Erosion Control

## 4.3 Non-stormwater and Materials Management

Stormwater discharges and authorized non-stormwater discharges regulated by the General Permit will not contain a hazardous substance equal to or in excess of reportable quantities established in 40 CFR 117.3 and 40 CFR 302.4, unless a separate NPDES has been issued to regulate those discharges.

The discharger will minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and management practices that achieve BAT for toxic and nonconventional pollutants and BCT for conventional pollutants. Non-stormwater management and materials management BMPs are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating off site discharge.

### 4.3.1 Non-stormwater Management

The Project will comply with good engineering practices, applicable laws, and regulations for the storage and use of these materials to minimize the potential for a release of hazardous materials.

Project activities will incorporate the following practices:

- A dedicated fueling, maintenance, and vehicle storage area will be protected with berms and/or dikes to prevent run-on and runoff and to contain spills. Secondary containment around fuel/oil tanks (stationary or mobile) will meet the minimum requirements of EPA 40 CFR Part 112 with regard to secondary containment or more stringent state requirements, if applicable. Any spills will be contained and cleaned up immediately. Any soil impacted by fuel or oil spills will be removed and disposed of by a licensed hauler at an approved disposal site.

- Self-propelled vehicles will be fueled off site or at the temporary fueling area.

- Fuel trucks will also be used for on-site fueling, whether at the temporary fueling area or for mobile fueling elsewhere on the site. Drip pans will be used for mobile fueling. Each fuel truck will be equipped with absorbent spill cleanup materials and a spill containment boom at all times.

- Drip pans or absorbent pads will be used for vehicle and equipment maintenance activities that involve grease, oil, solvents, or other vehicle fluids.

- Vehicles and construction equipment will not be washed on-site.

- Vehicles and equipment will be inspected daily and before coming on-site for signs of leaks and will be on a regular maintenance schedule.

- Drip pans or absorbent materials will be placed under paving equipment when not in use; paving equipment will be parked over plastic to prevent soil contamination.
• During dewatering activities, if any contamination is detected via odors or visible sheens, the collected stormwater will be handled and properly disposed of in a manner consistent with federal, state, and local regulations.

• Batch plants will be located away from watercourses or drainage courses. Continuous interior AC or PCC berms will be constructed around batch plant equipment (mixing equipment, silos, concrete drop points, conveyor belts, admixture tanks, etc.) to facilitate proper containment and cleanup of releases. Runoff from the paved or unpaved portion of the batch plant will be directed into a sump and pipe to a lined washout area or dewatering tank.

• Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.

• A combination of the following list of non-stormwater management measures will be implemented during Project construction:

  NS-1 Water Conservation Practices  
  NS-2 Dewatering Operations  
  NS-3 Paving and Grinding Operations  
  NS-4 Temporary Stream Crossing  
  NS-5 Clear Water Diversion  
  NS-6 Illicit Connection/Discharge  
  NS-7 Potable Water/Irrigation  
  NS-8 Vehicle and Equipment Cleaning  
  NS-9 Vehicle and Equipment Fueling  
  NS-10 Vehicle and Equipment Maintenance  
  NS-12 Concrete Curing  
  NS-13 Concrete Finishing  
  NS-16 Temporary Batch Plants

4.3.2 Waste Management and Materials Pollution Control

Waste management and materials pollution control BMPs are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with stormwater. These BMPs also involve day-to-day operations of the construction site, are under the control of the construction contractor, and are additional “good housekeeping practices,” which involve keeping a clean, orderly construction site.

• Good housekeeping practices will be followed to reduce the risk of pollutants entering stormwater discharges. All construction personnel will be responsible for monitoring and maintaining housekeeping tasks and reporting potential problems to the construction contractor’s site manager.

• Only enough products required for doing the job will be stored.

• All materials will be stored in a neat and orderly manner in the appropriate containers. Materials that may adversely impact stormwater, such as paint, oils, greases, and sealers, will be stored in covered areas such as temporary/permanent buildings or trailers. Secondary containment will be provided for the storage of hazardous materials.
• Temporary containment facilities for hazardous materials will provide for a spill containment volume able to contain precipitation from a 25-year storm event, plus 10 percent of the aggregate volume of all containers or 100 percent of the capacity of the largest container within its boundary, whichever is greater. The containment facility will be impervious to the materials stored therein for a minimum contact time of 72 hours.

• All hazardous materials will be handled and stored in accordance with applicable codes and regulations.

• Products will be kept in the original container with the original manufacturer’s label.

• Products will not be mixed unless recommended by the manufacturer.

• Containers will be emptied prior to their disposal.

• Products will be used and disposed of according to the manufacturer’s recommendations.

• Rinse or wash waters or materials will be collected and disposed of off site in accordance with applicable regulations.

• When and where appropriate, posters, bulletin boards, or meetings will be used to remind and inform construction personnel of required good housekeeping, maintenance, and cleanup procedures.

Project activities will incorporate the following practices:

• Stockpiles will be managed according to the type of material being stockpiled and the season, as follows:

  - Soil stockpiles will be covered or protected with soil stabilization measures and perimeter sediment barriers during the rainy season, periods of heavy winds greater than 25 miles per hour, and/or when inactive for longer than 10 days; and protected with perimeter sediment barriers during the non-rainy season.

  - Concrete/asphalt rubble, rock, and aggregate base and subbase stockpiles will be covered and protected with perimeter sediment barriers year-round unless actively being used.

  - Cold mix asphalt stockpiles will be protected with perimeter sediment barriers and covered year-round unless actively being used.

  - Stockpiled waste material will be protected with perimeter sediment barriers and covered year-round unless actively being used.

• Exposure of construction materials (not including materials designed to be outside, such as equipment pads) to precipitation will be minimized.

• Curbs and dikes will be provided around all chemical storage areas, hazardous waste products, areas with possibility of oil spill, and washout areas to prevent stormwater run-on and runoff.
• No erodible landscape material (such as pesticides) will be applied within 2 days before a forecasted rain event or during periods of precipitation. Erodible landscape material will be stored on pallets and covering when not being used or applied.

• A licensed sanitary waste management contractor will collect all sanitary wastes from the portable units. The units will be serviced weekly, at a minimum. Portable units will be placed on a flat area at least 25 feet from drain inlets. Portable units will be anchored to prevent blowing or tipping over, and all leaks or spills will be reported immediately. Portable units will be provided with secondary containment.

• Waste disposal containers will be covered at the end of every business day and during a rain event. Drainage from the waste disposal containers, if any, will be captured and will not be allowed to drain off site. Waste containers will be emptied a minimum of once per week, or more often if necessary, and the trash will be hauled to the local waste disposal facility. No construction waste will be buried on-site. All site personnel will be instructed regarding the correct procedure for waste disposal.

• Concrete washout areas and other washout areas that may contain additional pollutants will be provided with an impermeable containment so there is no discharge into the underlying soil and onto the surrounding areas. Excess concrete and concrete washout slurries will be discharged to a temporary concrete washout facility. The washout facility will be maintained to provide adequate holding capacity with a minimum freeboard of 4 inches for abovegrade facilities and 12 inches for belowgrade facilities. The washout facility will be cleaned, or a new facility will be constructed, once the washout is 75 percent full. Dried concrete will then be removed and disposed of at an approved off site location. No surplus concrete or drum washwater will be disposed of onto the ground surface.

• Regular inspections of the material storage areas will be conducted. Preventive maintenance will include regular inspection and maintenance of structural stormwater controls (for example, catch basins and oil/water separators), as well as other facility equipment and systems.

• Operators and construction personnel will be asked to report unusual conditions to the appropriate personnel. If contaminated soil is encountered during construction, the area and/or material will be properly contained during investigative actions. If soils require temporary stockpiling, piles will be placed on and covered with plastic sheeting or tarps that are secured safely and bermed to prevent runoff from leaving the area. Samples will be collected and sent to a certified analytical laboratory for characterization. If contamination is detected, the waste will be handled and properly disposed of in an authorized waste management facility. In addition, the appropriate local, state, and federal agencies will be notified. The construction contractor will establish contingencies for the proper disposal of contaminated soils (for example, use of licensed hauler, approved landfill) early in the construction period.

• Implementation and maintenance of BMPs will be according to measures outlined in the applicable CASQA 2009 Construction Handbook BMP fact sheets.
Spill prevention and cleanup practices will be as follows:

- Spill cleanup materials, material safety data sheets (MSDSs), a material inventory, and emergency contact numbers will be maintained at the material storage area. A material inventory will be prepared by the construction contractor and inserted in Attachment K.

- Site personnel will be instructed on spill cleanup procedures and location of cleanup supplies, and the construction contractor will be responsible for implementing these practices.

- Materials and equipment for the cleanup of a relatively small spill will be kept in the material storage area. Cleanup equipment may include brooms, rags, gloves, shovels, goggles, sand, sawdust, absorbent, plastic or metal trash containers, and protective clothing.

Spill response procedures will be as follows:

- Step 1: Upon discovery of a spill, stop the source of the spill.

- Step 2: Cease all spill material transfer until the release is stopped and waste is removed from the spill site.

- Step 3: Initiate containment to prevent spill from reaching surface waters.

- Step 4: Notify construction contractor supervisor of the spill.

- Step 5 (by construction contractor supervisor): Notify the construction contractor emergency coordinator immediately and coordinate further cleanup activities.

- Step 6 (by construction contractor personnel or qualified contractors): Report any significant spill of hazardous material to the appropriate state and/or local agencies by construction contractor personnel or qualified contractors. Table 2 lists the Project’s environmental emergency contacts.

- Step 7: Record a description of the spill, cause, and cleanup measures taken.

- Step 8: Review and amend the DESCP/SWPPP to address the violation if the general objective of reducing or eliminating pollutants in stormwater discharges has not been achieved.
TABLE 2
Environmental Emergency Telephone List

<table>
<thead>
<tr>
<th>Company/Organization</th>
<th>Telephone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Facility Emergency Coordinator:</td>
<td>TBD</td>
</tr>
<tr>
<td>24-hour Telephone Number:</td>
<td>TBD</td>
</tr>
<tr>
<td>Alternate Facility Emergency Coordinator:</td>
<td>TBD</td>
</tr>
</tbody>
</table>

Other Resources

- 3E Company (MSDS by FAX): (800) 451-8346
- Chemtrec (emergency chemical information): (800) 424-9300
- Poison Control Center: (800) 662-9886

Federal Agency

- U.S. Coast Guard/National Response Center: (800) 424-8802

State Agencies

- California Office of Emergency Services (OES): (800) 852-7550
- California Department of Toxic Substances Control (DTSC)*: (800) 852-7550
- California Department of Fish and Game*: (800) 852-7550
- California State Lands Commission: (562) 590-5201
- Regional Water Quality Control Board (RWQCB)*: (760) 340-4521

Local Contacts

- Riverside County Department of Environmental Health: (760) 863-8976
- Fire: 911
- Police: 911

*DTSC, RWQCB and CDFW have requested that emergency notifications to these offices be made through the OES 800 number.

The following list of waste management and materials pollution control measures will be implemented during Project construction:

WM-1 Material Delivery and Storage
WM-2 Material Use
WM-3 Stockpile Management
WM-4 Spill Prevention and Control
WM-5 Solid Waste Management
WM-6 Hazardous Waste Management
WM-7 Contaminated Soil Management
WM-8 Concrete Waste Management
WM-9 Sanitary and Septic Waste Management
WM-10 Liquid Waste Management

4.4 Post-construction Stormwater Management

4.4.1 Post-construction Control Practices

The majority of the Project site will maintain the original grades and natural drainage features and, therefore, will require no added storm drainage control. In limited areas, such as the power blocks, substation, heliostat assembly buildings, and administrative areas, the
stormwater management system will include diversion channels, bypass channels, or swales to direct run-on flow from upslope areas and runoff flow through and around each facility. Diversion channels will be designed so that a minimum ground surface slope of 0.5 percent will be provided to allow positive, puddle-free drainage. To reduce erosion, storm drainage channels may be lined with a nonerodible material such as compacted riprap, geosynthetic matting, or engineered vegetation. The design will be developed for sheet flow for all storm events less than or equal to a 100-year, 24-hour storm event.

Solar field development will maintain unobstructed sheet flow, with water exiting the site in existing natural contours and flowpaths. Relatively small rock filters and local diversion berms through the heliostat fields may be installed as needed to discourage water from concentrating and maintain sheet flow.

Grading and mowing during construction may directly result in a permanent loss of a large portion of the ephemeral drainages that are present because of their shallow depths; however, affected drainages would be expected to reform naturally in this landscape where flow patterns are highly variable, both temporally and spatially.

Paved access roads will be designed to allow stormwater to flow unimpeded across the roadways in order to maintain the existing sheet flow pattern.

Post-construction stormwater management features will be maintained by the Project owner.
SECTION 5
BMP Inspection, Maintenance, and Rain Event Action Plans

5.1 BMP Inspection and Maintenance

The Qualified SWPPP Practitioner (QSP) is responsible for overall site management, including making site personnel aware of required data collection and reporting elements of the DESCP/SWPPP. The QSP is a certified individual assigned responsibility for the implementation of all elements of the DESCP/SWPPP, including non-stormwater and stormwater visual observations and sampling and analysis.

All inspection, maintenance repair, and sampling activities at the Project location will be performed or supervised by a QSP representing the Project owner. The QSP may delegate any or all of these activities to an employee trained to do the tasks appropriately, but must ensure adequate deployment.

The QSP or designated representative will monitor the weather daily using National Weather Service\(^1\) reports to track conditions and alert crews to the onset of rainfall events.

The QSP or designated representative will perform weekly inspections and observations; before a forecasted storm\(^2\); after a qualifying rain event\(^3\) that causes runoff from the Project area; and at 24-hour intervals during extended rain events to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended.

Attachment L includes a blank inspection form that will be used to record results of the inspection and assessment. Completed inspection forms will be included in Attachment L or in an accompanying file/binder that is referenced in the DESCP/SWPPP and readily accessible on-site.

A tracking or follow-up procedure will follow any inspection that identifies deficiencies in BMPs; records will be included in Attachment L or in an accompanying file/binder that is referenced in the DESCP/SWPPP and readily accessible on-site. CASQA 2009 Construction Handbook BMP fact sheets in Attachment J will be referenced for inspection and maintenance measures for each selected BMP.

Corrective actions will be implemented within 72 hours for deficiencies identified during inspections. DESCP/SWPPP amendments will be prepared by the QSD if warranted by the problem encountered and corrective action required.

\(^1\) http://www.srh.noaa.gov/
\(^2\) 50 percent or greater chance of producing precipitation in the Project area.
\(^3\) A qualifying rain event is any event that produces 0.5 inch or more precipitation with a 48-hour or greater period between rain events.
At a minimum, erosion and sediment controls will be cleaned, repaired, or replaced under these conditions:

- In advance of the rainy season and prior to a storm event
- When sediment or other debris has accumulated to greater than one-third the height of the barrier
- When sediment accumulation reaches one-third of the trap capacity
- When more than one-third of the cross section of a conveyance structure, such as a drainage swale or ditch, is plugged or blocked

Table 3 provides a BMP implementation and maintenance schedule. The selection of BMPs can potentially change during Project construction, and Table 3 will be amended accordingly.

<table>
<thead>
<tr>
<th>Best Management Practices</th>
<th>Implementation</th>
<th>Inspection Frequency</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt fence</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Replace torn sections; repair up-rooted sections; clean out collected sediment when greater than 1/3 height of fence</td>
</tr>
<tr>
<td>Fiber rolls; coir logs; compost socks; biofilter bags</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Replace crushed sections; replace rotted sections; clean out collected sediment when greater than 1/3 height of roll</td>
</tr>
<tr>
<td>Sediment basin; Sediment trap</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair damage and remove obstructions as needed; stabilize eroded areas; clean out collected sediment when 1/2 of designated storage volume of basin or 1/3 of trap capacity; dewater within 72 hours</td>
</tr>
<tr>
<td>Check dams; velocity dissipation devices</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Replace degraded or missing rock, bags, etc.; clean out when collected soil greater than 1/3 of barrier height</td>
</tr>
<tr>
<td>Dikes and drainage swales; slope drains</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair as needed</td>
</tr>
</tbody>
</table>
### TABLE 3
BMP Implementation and Maintenance Schedule

<table>
<thead>
<tr>
<th>Best Management Practices</th>
<th>Implementation</th>
<th>Inspection Frequency</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-stormwater and materials management</td>
<td>Planned prior to construction</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Dispose of waste materials weekly; contract with outside vendors as needed; keep material storage areas clean and orderly; train all employees on correct use of materials and spill response</td>
</tr>
<tr>
<td>Erosion control blankets (geotextiles); non-vegetative stabilization; compost blankets</td>
<td>In sequence with construction activities; prior to forecasted rain event</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair eroded areas; replace and repair geotextiles and mats as needed</td>
</tr>
<tr>
<td>Sandbags</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair, reshape, replace bags as necessary; replace bags exposed to sunlight every 2 to 3 months; clean out collected sediment when greater than 1/3 barrier height</td>
</tr>
<tr>
<td>Gravel bags</td>
<td>Prior to construction and in sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair, reshape, replace bags as necessary; replace bags exposed to sunlight every 2 to 3 months; clean out collected sediment when greater than 1/3 barrier height</td>
</tr>
<tr>
<td>Storm drain inlet protection</td>
<td>Prior to construction</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Clean and repair filters or fabric fence as needed; clean out collected sediment when greater than 1/3 barrier height</td>
</tr>
<tr>
<td>Hydraulic mulch</td>
<td>In sequence with construction activities; prior to forecasted rain event</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair eroded areas; reapply on bare areas as needed</td>
</tr>
<tr>
<td>Mulch (straw, wood, organic); soil binders</td>
<td>In sequence with construction activities; prior to forecasted rain event</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair eroded areas; reapply on bare areas as needed</td>
</tr>
</tbody>
</table>
### TABLE 3
**BMP Implementation and Maintenance Schedule**

<table>
<thead>
<tr>
<th>Best Management Practices</th>
<th>Implementation</th>
<th>Inspection Frequency</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroseeding; seeding (if applicable)</td>
<td>As soon as possible after disturbance has permanently or temporarily ceased, but in no case more than 14 days after the construction activity in an area has ceased (except when construction activity will resume on that portion of the site within 21 days)</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly; monitored every May for the first 3 years following Project completion</td>
<td>Reseed areas that do not meet revegetation criteria</td>
</tr>
<tr>
<td>Streambank stabilization</td>
<td>In sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair eroded areas; replace BMP measure as needed</td>
</tr>
<tr>
<td>Straw bale barrier</td>
<td>In sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Replace rotted sections; clean out collected sediment when greater than 1/3 height of barrier</td>
</tr>
<tr>
<td>Active treatment system</td>
<td>In sequence with construction activities</td>
<td>Follow guidelines of the Construction General Permit Attachment F – Active Treatment System Requirements</td>
<td>Follow guidelines of the Construction General Permit Attachment F – Active Treatment System Requirements</td>
</tr>
<tr>
<td>Concrete washout</td>
<td>In sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Clean out, or construct new facility, once the washout is 75 percent full</td>
</tr>
<tr>
<td>Aggregate surfacing</td>
<td>Completion of grading activities</td>
<td>Weekly</td>
<td>Keep all temporary roadway ditches clear; periodically apply additional aggregate as needed</td>
</tr>
<tr>
<td>Stabilized construction entrance/exit</td>
<td>Prior to grading/earth disturbance</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Remove aggregate, separate and dispose of sediment when construction entrance/exit is clogged with sediment; keep all temporary roadway ditches clear; check for damage and repair as needed; replace gravel material when surface voids are visible</td>
</tr>
<tr>
<td>Stabilized construction roadway</td>
<td>Prior to start of associated construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Keep all temporary roadway ditches clear; periodically apply additional aggregate on gravel roads</td>
</tr>
<tr>
<td>Best Management Practices</td>
<td>Implementation</td>
<td>Inspection Frequency</td>
<td>Maintenance</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Stockpile management</td>
<td>In sequence with construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Repair or replace perimeter controls and covers as needed</td>
</tr>
<tr>
<td>Street sweeping and vacuuming</td>
<td>Start of construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); when actively in use, inspect points of ingress and egress daily, otherwise weekly</td>
<td>Remove tracked or spilled sediment outside the construction limits at a minimum daily</td>
</tr>
<tr>
<td>Tire wash</td>
<td>Prior to start of associated construction activities</td>
<td>Inspect before and after storm events (and once each 24-hour period during extended storm events); weekly</td>
<td>Remove accumulated sediment in wash rack to maintain system performance; repair as needed</td>
</tr>
</tbody>
</table>
Personnel at the site will receive training appropriate for individual roles and responsibilities on the Project. Appropriate personnel will receive training on DESCP/SWPPP implementation, BMP inspection and maintenance, and record keeping. Stormwater management and BMPs are included in the Worker Environmental Awareness Program (WEAP) materials. Completion of the WEAP training, which also includes a video presentation, is required for each construction worker on the Project. WEAP training records will be kept on-site during construction.

All training activities (formal and informal) will be documented, and records will be included in Attachment M or in an accompanying file/binder that is referenced in the DESCP/SWPPP and readily accessible on-site.

All elements of the DESCP/SWPPP will be developed by a QSD and implemented by a QSP. The QSP may delegate tasks to trained employees provided adequate supervision and oversight is provided.

Documentation of all training for persons responsible for implementing the requirements of the General Permit will be provided in the Annual Report.
SECTION 7

Responsible Parties and Operators

7.1 Responsible Parties

A list of authorized representatives will be provided in Attachment N, along with Project site personnel who will be responsible for DESCP/SWPPP activities, including the QSD and QSP.

Attachment N will include the name and contact information for the individuals, their role on the Project, date of training, and date of recorded entry, as well as a copy of training certificates or other verification of training.

This list will include the names of the individuals granted authority to sign permit-related documents. Copies of the written authorizations for duly authorized representatives will be retained in Attachment N.

7.2 Contractor List

Attachment O will include a list of names of all contractors, subcontractors, and individuals who will be directed by the QSP. The list will include telephone numbers, work addresses, the specific areas of responsibility for each contractor, and emergency contact numbers.
The CSMP has been developed and implemented to address the following objectives:

- To demonstrate that the site is in compliance with the Discharge Prohibitions
- To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives
- To determine whether immediate corrective actions, additional BMP implementation, or DESCP/SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges
- To determine whether BMPs included in the DESCP/SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges

8.1.1 Applicability of Permit Requirements
The CSMP identifies monitoring requirements for Risk Level 1, applicable to the Project site.

8.1.2 Visual Monitoring for Forecasted Rain Events
Within 2 business days (48 hours) prior to each forecasted rain event, the following will be inspected:

1. All stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, appropriate corrective actions will be implemented.
   a. The inspector will look for the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

2. Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.
   a. The inspector will look for the presence or absence of floating and suspended materials, a sheen on the surface, discolorations, turbidity, odors, and source(s) of any observed pollutants.

3. All BMPs to identify whether they have been properly implemented in accordance with the DESCP/SWPPP. If needed, appropriate corrective actions will be implemented.

8.1.3 Visual Monitoring for Qualifying Rain Events
The General Permit identifies a qualifying storm event for stormwater-related observations as any event that produces 0.5 inch or more precipitation within a 48-hour or greater period.
between rain events. A rain gauge will be installed and maintained on-site to allow for measuring and recording of precipitation totals.

1. Within 2 business days (48 hours) after each qualifying rain event, an inspection will be conducted to:
   a. Identify whether BMPs were adequately designed, implemented, and effective
   b. Identify additional BMPs and revise the DESCP/SWPPP accordingly

2. The discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying rain event producing precipitation of 0.5 inch or more at the time of discharge will be inspected. Stored or contained stormwater that will likely discharge after operating hours due to anticipated precipitation will be observed prior to the discharge during operating hours.

The time, date, and rain gauge reading of all qualifying rain events will be recorded on the Site Inspection Form included in Attachment L. Names of personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations also will be recorded.

**Visual Monitoring Exemptions.** Inspections do not need to be conducted under the following conditions:

1. During dangerous weather conditions such as flooding and electrical storms
2. Outside scheduled site business hours

If no inspections were conducted due to these exceptions, an explanation will be included in the DESCP/SWPPP and in the Annual Report documenting why the inspections were not conducted.

**Monitoring Locations.** The entire Project area will be observed as part of the inspections.

**8.1.4 Visual Monitoring for Non-stormwater Discharges.**

One inspection will be conducted quarterly in each of the following periods: January to March, April to June, July to September, and October to December.

- The inspector will observe each drainage area for the presence of (or indications of prior) unauthorized and authorized non-stormwater discharges and their sources.
- The inspector will document the presence or evidence of any non-stormwater discharge (authorized or unauthorized), pollutant characteristics (for example, floating and suspended material, sheen, discoloration, turbidity, or odor), and source.

Names of personnel performing the observations, the dates and approximate time each drainage area and non-stormwater discharge was observed, and the response taken to eliminate unauthorized non-stormwater discharges and to reduce or prevent pollutants from contacting non-stormwater discharges will be documented; records will be maintained in Attachment L.

Inspections are only required during daylight hours (sunrise to sunset) and safe weather conditions.
8.2 Sampling and Analysis Plan for Non-visible Pollutants

This section describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater discharges from the Project site and off site activities directly related to the Project.

8.2.1 Scope of Monitoring Activities

The following construction materials, wastes, or activities are potential sources of non-visible pollutants to stormwater discharges from a project. The list will be reviewed by the construction contractor, once selected, and will be revised as necessary when the final construction materials inventory for the site has been developed.

- Vehicle batteries
- Concrete curing
- Sealants
- Adhesives
- Cleaning products
- Solvents; thinners
- Herbicides
- Dust palliatives
- Soil binders
- Painting products
- Line flushing products
- Masonry products

No soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil are anticipated to be used on the Project site.

Stormwater run-on to this site is not anticipated to have the potential to contribute non-visible pollutants to stormwater discharges from the Project.

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.

8.2.2 Monitoring Strategy

8.2.2.1 Sampling Schedule

Samples for the applicable non-visible pollutant(s) and a sufficiently large uncontaminated background sample will be collected during the first 2 hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples will be collected during daylight hours (sunrise to sunset) and will be collected regardless of the time of year, status of the construction site, or day of the week.

In conformance with the EPA definition, a minimum of 72 hours of dry weather will be used to distinguish between separate rain events.
Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during inspections conducted before or during rain events:

- 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) storage 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 sewer system.

- An operational activity with the potential to contribute non-visible pollutants: (1) was occurring during or within 24 hours prior to the rain event, (2) applicable BMPs were observed to be breached, malfunctioned, or be improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters.

- 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.

- 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 sewer system.

### 8.2.2.2 Sampling Locations

Sampling locations will be based on proximity to planned non-visible pollutant storage, occurrence, or use; accessibility for sampling; personnel safety; and other factors in accordance with the applicable requirements in the General Permit. At this time, no sampling locations have been identified for the collection of samples of runoff that drain areas where there will be application of soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil. The construction contractor will identify sampling locations for soil amendments, as needed.

A location will be identified by the construction contractor 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 will be selected such that the sample will not have come in contact with: (1) operational or storage areas; (2) potential non-visible pollutants due to historical use of the site; (3) areas in which soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied; or (4) disturbed soils areas.

### 8.2.3 Monitoring Preparation

Samples on the Project site will be collected by the following construction contractor sampling personnel:
Name/Telephone Number: TBD

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants 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 contact 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 surgical gloves, sample collection equipment, coolers, an appropriate number and volume of sample bottles, identification labels, resealable storage bags, paper towels, personal rain gear, ice, Sampling Activity Log (Attachment P) forms, and COC forms. The construction contractor will obtain and maintain the field-testing instruments for analyzing samples in the field (as needed) by sampling personnel.

Safety practices for sample collection will be in accordance with the construction contractor’s Health and Safety Plan.

The QSP will contact sampling personnel 24 hours prior to a forecasted rain event and if one of the triggering conditions is identified during an inspection before, during, or after a storm event. This will ensure that adequate sample collection personnel, supplies, and field test equipment for monitoring non-visible pollutants are available and mobilized to collect samples on the Project site in accordance with the sampling schedule.

### 8.2.4 Analytical Constituents

#### 8.2.4.1 Identification of Non-visible Pollutants

Table 4 lists specific sources and types of potential non-visible pollutants anticipated to be on the Project site and the applicable water quality indicator constituent(s) for that pollutant.

<table>
<thead>
<tr>
<th>Pollutant Source</th>
<th>Pollutant</th>
<th>Water Quality Indicator Constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batteries</td>
<td>Acid, lead</td>
<td>pH, lead, sulfuric acid</td>
</tr>
<tr>
<td>Cleaners</td>
<td>Acid, phosphate, solvents</td>
<td>pH, phosphate, VOC, SVOC</td>
</tr>
<tr>
<td>Painting products</td>
<td>Paint strippers, solvents, thinners</td>
<td>COD, VOC, SVOC</td>
</tr>
<tr>
<td>Thinners</td>
<td>VOC, COD</td>
<td>COD, VOC</td>
</tr>
<tr>
<td>Sealant</td>
<td>Sealants</td>
<td>COD</td>
</tr>
<tr>
<td>AC and PCC</td>
<td>Curing compounds</td>
<td>pH, alkalinity, VOC, SVOC</td>
</tr>
<tr>
<td>Adhesives</td>
<td>Adhesives</td>
<td>COD, phenols, SVOC</td>
</tr>
</tbody>
</table>

**Notes:**

AC = asphalt concrete
COD = chemical oxygen demand
SVOC = semi-volatile organic compound
VOC = volatile organic compound
8.2.5 Sample Collection and Handling

8.2.5.1 Sample Collection Procedures

Samples of discharge will be collected at the designated sampling locations for observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and/or historical site usage areas that triggered the sampling event.

Grab samples will be collected and preserved in accordance with the methods identified in Table 5. Only personnel trained in proper water quality sampling will collect samples.

Samples will be collected by placing a separate lab-provided sample container directly into a stream of water downgradient and close to the potential non-visible pollutant discharge location. This separate lab-provided sample container will be used to collect water, which will be transferred to sample bottles for laboratory analysis. The upgradient and uncontaminated background samples will be collected prior to collecting the downgradient sample to minimize cross-contamination. Sampling personnel will collect the water upgradient of where they are standing. Once the separate lab-provided sample container is filled, the water sample will be poured directly into sample bottles provided by the laboratory for the analyte(s) being monitored.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Analytical Method</th>
<th>Minimum Sample Volume</th>
<th>Sample Bottle</th>
<th>Sample Preservation</th>
<th>Reporting Limit</th>
<th>Maximum Holding Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOCs-solvents</td>
<td>EPA 8260B</td>
<td>3 × 40 mL</td>
<td>VOA-glass</td>
<td>Store at 4°C, HCl to pH &lt; 2</td>
<td>1 μg/L</td>
<td>14 days</td>
</tr>
<tr>
<td>SVOCs</td>
<td>EPA 8270C</td>
<td>1 × 1 L</td>
<td>Glass-amber</td>
<td>Store at 4°C</td>
<td>10 μg/L</td>
<td>7 days</td>
</tr>
<tr>
<td>Pesticides</td>
<td>EPA 8081A</td>
<td>1 × 1 L</td>
<td>Glass-amber</td>
<td>Store at 4°C</td>
<td>0.1 μg/L</td>
<td>7 days</td>
</tr>
<tr>
<td>Herbicides</td>
<td>EPA 8151A</td>
<td>1 × 1 L</td>
<td>Glass-amber</td>
<td>Store at 4°C</td>
<td>Check lab</td>
<td>7 days</td>
</tr>
<tr>
<td>COD</td>
<td>EPA 410.4</td>
<td>1 × 250 mL</td>
<td>Glass-amber</td>
<td>Store at 4°C, H₂SO₄ to pH &lt; 2</td>
<td>5 mg/L</td>
<td>28 days</td>
</tr>
<tr>
<td>TDS</td>
<td>EPA 160.1 (TDS)</td>
<td>1 × 100 mL</td>
<td>Polypropylene</td>
<td>None</td>
<td>ppm</td>
<td>Immediate</td>
</tr>
<tr>
<td>pH</td>
<td>EPA 150.1</td>
<td>1 × 100 mL</td>
<td>Polypropylene</td>
<td>None</td>
<td>Unitless</td>
<td>Immediate</td>
</tr>
<tr>
<td>Alkalinity</td>
<td>SM 2320B</td>
<td>1 × 250 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C</td>
<td>1 mg/L</td>
<td>14 days</td>
</tr>
<tr>
<td>Nitrate</td>
<td>EPA 353.2</td>
<td>1 × 125 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C, H₂SO₄ to pH &lt; 2</td>
<td>Check lab</td>
<td>28 days</td>
</tr>
<tr>
<td>Phosphate</td>
<td>EPA 365.3</td>
<td>1 × 125 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C</td>
<td>Check lab</td>
<td>28 days</td>
</tr>
<tr>
<td>Organic nitrogen</td>
<td>TKN – NH₃</td>
<td>1 × 1 L</td>
<td>Glass-amber</td>
<td>Store at 4°C, H₂SO₄ to pH &lt; 2</td>
<td>Check lab</td>
<td>28 days</td>
</tr>
<tr>
<td>TOC</td>
<td>EPA 415.1</td>
<td>1 × 250 mL</td>
<td>Glass</td>
<td>Store at 4°C, H₂SO₄ to pH &lt; 2</td>
<td>Check lab</td>
<td>28 days</td>
</tr>
<tr>
<td>Potassium</td>
<td>EPA 200.7</td>
<td>1 × 250 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C, HNO₃ to pH &lt; 2</td>
<td>0.1 mg/L</td>
<td>6 months</td>
</tr>
</tbody>
</table>
## TABLE 5
Sample Collection, Preservation, and Analysis for Monitoring Non-visible Pollutants

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Analytical Method</th>
<th>Minimum Sample Volume</th>
<th>Sample Bottle</th>
<th>Sample Preservation</th>
<th>Reporting Limit</th>
<th>Maximum Holding Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenols</td>
<td>EPA 8270C</td>
<td>1 × 1 L</td>
<td>Glass-amber</td>
<td>Store at 4°C</td>
<td>Check lab</td>
<td>7 days</td>
</tr>
<tr>
<td>Metals (Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Na, Th, Va, Zn)</td>
<td>EPA 6010B/7470A</td>
<td>1 × 250 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C, HNO₃ to pH &lt; 2</td>
<td>0.1 mg/L</td>
<td>6 months</td>
</tr>
<tr>
<td>Metals (chromium VI)</td>
<td>EPA 7199</td>
<td>1 × 500 mL</td>
<td>Polypropylene</td>
<td>Store at 4°C</td>
<td>1 µg/L</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

Notes:
- < = less than
- °C = degree(s) Celsius
- µg/L = microgram(s) per liter
- mg/L = milligram(s) per liter
- COD = chemical oxygen demand
- DO = dissolved oxygen
- H₂SO₄ = hydrogen sulfide
- HNO₃ = nitric acid
- L = liter
- ppm = parts per million
- PCB = polychlorinated biphenyl
- TDS = total dissolved solids
- TOC = total organic carbon
- VOA = volatile organic analysis

To maintain sample integrity and prevent cross-contamination, sampling collection personnel will:

- Wear a clean pair of surgical gloves prior to the collection and handling of each sample at each location
- Prevent the inside of the sample bottle from contacting any material other than the water sample
- Discard sample bottles or sample lids that have been dropped onto the ground prior to sample collection
- Prevent the cooler lid from remaining open for an extended period of time once samples are placed inside
- Avoid sampling near a running vehicle where exhaust fumes may affect the sample
- Avoid touching the exposed end of a sampling tube, if applicable
- Prevent rainwater from rain gear or other surfaces from dripping into sample bottles
- Avoid eating, smoking, or drinking during sample collection
- Avoid sneezing or coughing in the direction of an open sample bottle
- Minimize the exposure of the samples to direct sunlight, as sunlight may cause biochemical transformation of the sample to take place
• Decontaminate sampling equipment prior to sample collection using a trisodium phosphate-soapy water wash, distilled water rinse, and final rinse with distilled water

• Dispose of decontamination water/soaps appropriately, such as avoiding discharge to the receiving water

8.2.5.2 Sample Handling Procedures
Immediately following collection, sample bottles for laboratory analytical testing will be capped, labeled, and documented on a COC form provided by the analytical laboratory; sealed in a resealable storage bag; placed in an ice-chilled cooler, as close to 4°C as practicable; and delivered within 24 hours to the California-certified laboratory:

Laboratory Name: TBD
Address: TBD
Telephone Number: TBD

Immediately following collection, samples for field analysis will be tested in accordance with the field instrument manufacturer’s instructions, and results will be recorded on the Sampling Activity Log (Attachment P).

8.2.5.3 Sample Documentation Procedures
Original data documented on sample bottle identification labels, COC forms, Sampling Activity Logs, and Inspection Checklists will be recorded using waterproof ink. These will be considered accountable documents. If an error is made on an accountable document, the individual will make corrections by lining through the error and entering the correct information. The erroneous information will not be obliterated. Corrections will be initialed and dated.

Sampling and field analysis activities will be documented using the following:

• **Sample Bottle Identification Labels:** Sampling personnel will attach an identification label to each sample bottle. At a minimum, the following information will be recorded on the label:
  - Project name
  - Project number
  - Unique sample identification number and location:
    - [Project Number]-[Six digit sample collection date]-[Location]
      *(Example: 0G5304-081801-Inlet472)*
    - Quality assurance/quality control (QA/QC) samples will be identified similarly using a unique sample number or designation *(Example: 0G5304-081801-DUP1)*
  - Collection date and time (no time applied to QA/QC samples)
  - Analysis constituent
• **Sampling Activity Logs:** A log of sampling events will identify:
  - Sampling date
  - Separate times for collected samples and QA/QC samples recorded to the nearest minute
  - Unique sample identification number and location
  - Analysis constituent
  - Names of sampling personnel
  - Weather conditions (including precipitation amount)
  - Field analysis results
  - Other pertinent data

• **COC Forms:** Samples to be analyzed by a laboratory will be accompanied by a COC form provided by the laboratory. Only the sample collectors will sign the COC form over to the lab. COC procedures will be strictly adhered to for QA/QC purposes.

• **Stormwater Quality Construction Inspection Checklists:** When applicable, the construction contractor’s stormwater inspector will document, on the checklist, that samples for non-visible pollutants were taken during a rain event.

### 8.2.6 Sample Analysis

Samples will be analyzed for the applicable constituents using the analytical methods identified in Table 5. For samples collected for field analysis, collection, analysis, and equipment calibration will be in accordance with the field instrument manufacturer’s specifications.

### 8.3 Quality Assurance / Quality Control

For an initial verification of laboratory or field analysis, duplicate samples will be collected at a rate of 10 percent or one duplicate per sampling event. The duplicate sample will be collected, handled, and analyzed using the same protocols as primary samples. A duplicate sample will be collected at each location immediately after the primary sample has been collected. Duplicates will be collected where contamination is likely, not on the background sample. Duplicate samples will not influence evaluations or conclusions; however, they will be used as a check on laboratory quality assurance.

### 8.4 Data Management and Reporting

A copy of water quality analytical results and QA/QC data will be submitted by the construction contractor to the Project owner within 5 days of sampling (for field analyses) and within 30 days (for laboratory analyses).

Lab reports and COC will be reviewed for consistency between lab methods, sample identifications, dates, and times for both primary samples and QA/QC samples. Data, including COC forms and Sampling Activity Logs, will be kept with the DESC/SWPPP.
8.5 Data Evaluation

An evaluation of the water quality sample analytical results, including figures with sample locations, the water quality analytical results, and the QA/QC data, will be included in the on-site DESCP/SWPPP.

Should the runoff/downgradient sample show an increased level of the tested analyte relative to the background sample, the BMPs, site conditions, and surrounding influences will be assessed to determine the probable cause for the increase. As determined by the site and data evaluation, appropriate BMPs will be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs will be recorded as an amendment to the DESCP/SWPPP.

8.6 Change of Conditions

Whenever DESCP/SWPPP monitoring indicates a change in site conditions that might affect the appropriateness of sampling locations or introduce additional non-visible pollutants of concern, testing protocols will be revised accordingly. All such revisions will be recorded as amendments to the DESCP/SWPPP.

8.7 Record Keeping and Reports

Records of all stormwater monitoring information and copies of all reports (including Annual Reports) will be retained for a period of at least 3 years from date of submittal or longer if required by the RWQCB. All records will be maintained on-site while construction is ongoing.

These records include:

- The date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation
- The individual(s) who performed the facility inspections, sampling, visual observation (inspections), and/or measurements
- The date and approximate time of analyses
- The individual(s) who performed the analyses
- A summary of all analytical results from the last 3 years, the method detection limits and reporting units, the analytical techniques or methods used, and the COC forms
- Rain gauge readings from site inspections
- QA/QC records and results
- Non-stormwater discharge inspections and visual observation (inspections) and stormwater discharge visual observation records
- The records of any corrective actions and follow-up activities that resulted from analytical results or inspections
• Visual observation and sample collection exception records


