NATIONAL ACCELERATOR LABORATORY

ENVIRONMENT, SAFETY & HEALTH DIVISION

Chapter 26: Stormwater

Construction Requirements

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1 Purpose

The purpose of these requirements is to prevent stormwater pollution from construction activities. They cover planning, permitting, conducting, and completing construction, soil excavation, and grading activities that may affect stormwater runoff at SLAC. They apply to workers, supervisors, project and field construction managers, subcontractors, and the stormwater program manager.

Construction activities include clearing, grading, and disturbances to the ground, such as stockpiling and excavating. Potential impacts to stormwater from construction include spills, sediment, debris, and chemicals or other materials entering the storm drainage system.

2 Requirements

All projects regardless of size must adhere to SLAC's site-wide industrial general permit, associated *best management practices (BMPs)*, and pertinent federal, state, and local laws and regulations.

The project manager and/or field construction manager (FCM) are responsible for ensuring stormwater requirements are met by subcontractors. (See Chapter 42, "Subcontractor Safety".)

Both the FCM and the stormwater program manager are responsible for regularly inspecting construction sites to ensure all requirements are being met.

2.1 Plans and Permitting

Construction activities require completion of plans and in some cases obtaining of permits, as detailed below.

2.1.1 Construction General Permit

A construction project that disturbs one or more acres of soil – or projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres – must comply with the requirements of the SWRCB's construction general permit (CGP).

Construction projects regulated under the CGP require the following:

- A project-specific SWPPP and construction monitoring plan, developed by a qualified SWPPP developer (QSD) and implemented by a qualified SWPPP practitioner (QSP).

- SWPPP preparation should be included in the construction subcontractor's scope of work. The SWPPP is the plan for mitigating environmental pollution before, during, and after the project.
- A notice of intent (NOI), prepared by the subcontractor and submitted by the SLAC project manager, along with a fee, to the SWRCB via SMARTS at least 10 days before work begins. The stormwater program manager must approve all submissions to the SWRCB.
- Completion of inspections and stormwater monitoring by the subcontractor as required by the CGP.

2.1.2 Erosion and Sedimentation Control Plan

A construction project that disturbs less than one acre of soil or a project that does not disturb soil but otherwise has the potential to impact stormwater or the storm drainage system (including demolition, excavation of asphalt, outdoor construction, outdoor materials fabrication or storage) requires the development of an erosion and sedimentation control plan.

The plan is developed by either the subcontractor or SLAC project manager and submitted to the stormwater program manager using the Stormwater: Erosion and Sedimentation Control Plan Form.

2.1.3 Jurisdictional Waters Permit

Projects that impact jurisdictional water features, for example, San Francisquito Creek, may require permitting from the US Army Corps of Engineers (CWA Section 404) and a water quality certification from the RWQCB (CWA Section 401). These permits may take up to a year to obtain, and planning should be conducted appropriately. Project managers should contact the biological resources protection program manager for assistance in determining whether the water/wetland meets the definition of jurisdictional (that is, is subject to the regulatory requirements of the Clean Water Act). See Chapter 59, "Biological Resources Protection", for more information.

2.2 Project Design

In addition to obtaining required permits, construction projects must consider the following during the project design and planning phase.

2.2.1 Energy Independence and Security Act Section 438 Requirements

Construction projects that exceed 5,000 square feet must comply with the stormwater runoff requirements of Section 438 of the Energy Independence and Security Act (EISA), which calls for federal developments to maintain or restore pre-development hydrology.

During the design process, the project manager must submit a report to the stormwater program manager documenting how EISA Section 438 requirements will be met or rationale documenting applicability of exemption criteria. The stormwater program manager reviews the report and coordinates with the Department of Energy (DOE) SLAC Site Office (SSO) for approval.

2.2.2 Low-impact Development Design Criteria

Construction projects should incorporate low-impact development (LID) design criteria whenever possible. The goal of LID site design is to reduce the hydrologic impact of development to creeks and streams by

maintaining pre-development drainage patterns. The optimal LID site design minimizes runoff volume and preserves existing flow paths.

2.2.3 Best Available Technology

Construction projects must minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and management practices that achieve BAT (best "economically" available technology) for toxic and non-conventional pollutants and BCT (best conventional "pollution control" technology) for conventional pollutants. Avoid the use of non-biodegradable materials in structural BMPs.

2.2.4 Restoration Design

To prevent erosion following project completion, bare soil must be covered with biodegradable erosion control matting and planting/hydroseeding fast-growing annual and perennial grasses. Such vegetation shields and binds the soil. See SLAC's Landscape Vegetation and Planting Guidance for details.

2.3 Construction Site Requirements

2.3.1 Before Construction

- The project manager or FCM must collaborate with SLAC employees and subcontractors to plan the project.
- The project manager should appropriately plan for the resources and time required to obtain and implement the applicable environmental permits described herein
- The project manager must ensure the appropriate plans and obtain permits are developed, as detailed in Section 2.1. This includes obtaining a SLAC excavation permit, if required. (See Chapter 11, "Excavation Safety".)
- The FCM must review with SLAC project personnel and subcontractors the specific required stormwater protection measures that are to be performed before, during, and after the project.

2.3.2 During Construction

The FCM will ensure that the following are implemented properly:

- Project-specific SWPPP, if applicable, or erosion and sedimentation control plan
- Inspection and monitoring requirements of the CGP; if applicable
- Storm drain protection and material handling
- Spill reporting, prevention, and cleanup
- Construction-related best management practices (BMPs) (see especially Stormwater: Category 13 BMPs – Building Repair, Remodeling, and Construction)

Measures to protect storm drains/catch basins in the project area and material staging areas are the responsibility of the subcontractor and include the following:

- Construct diversion dikes to channel runoff around the construction site, as appropriate.

- Remove existing vegetation only when absolutely necessary.
- Protect sloped areas by installing silt fencing, erosion control matting, wattles, or other protective measures.
- Place straw bales, wattles, berms, inserts, or other inlet protection measures to protect storm drain inlets from runoff.
- Maintain a stabilized entrance/exit for all construction sites. Properly grade the entrance/exit and then cover with aggregate. Use gravel approaches to reduce soil compaction and limit the tracking of sediments into streets.
- Maintain good housekeeping. Keep the site free of debris and sweep paved and concrete surfaces regularly.
- Remove debris, excessive sediment build-up, and opportunistic plants from channels and culverts as needed.
- Prevent erosion of channel banks by repairing the bank in a timely manner.
- See Stormwater: Category 19 BMPs – Weed Abatement if herbicide use is planned and Chapter 59, "Biological Resources Protection", if maintenance work may impact riparian of wetland vegetation.
- On no less than a daily basis, cover all stockpiled soil and excavated materials with secured plastic sheeting, or place the soil and excavated materials in covered bins.
- Dry sweep the entry roadways whenever construction traffic has deposited soil from the construction site.
- Clean the worksite by the end of each day by dry sweeping paved areas. Only use water to wash fine soil onto dirt areas, not down the street. (Never wash soil down storm drains.)
- Inspect each construction site before, during, and after a storm. Remove any buildup of sediment. Ensure that all storm drain protection measures are working properly.
- During the rainy season (October 1 through May 31), cover freshly graded surfaces with temporary vegetation, gravel, mulch, or erosion control blankets.

Project personnel will take the following spill prevention, response, and cleanup measures:

- Maintain all vehicles and heavy equipment.
- Inspect frequently for leaks.
- Conduct all vehicle/equipment maintenance and refueling at one location away from storm drains.
- Use secondary containment, as feasible.
- Promptly report spills to SLAC Site Security at ext. 5555.
- Clean up all discharges into the environment according to the guidance provided in Chapter 16, "Spills".

2.4 After Construction

The following measures must be taken to clean up construction debris and restore the site:

- Inspect all catch basins in the site area.
- Clean the site and remove all construction debris.

- Remove all non-biodegradable BMP measures. All synthetic material used for erosion prevention and other stormwater BMPs, such as wattles encased in plastic netting and synthetic silt fences shall be removed at the end of construction and shall not be part of the final site restoration.
- Prevent erosion by covering bare soil with biodegradable erosion control matting and planting/hydroseeding.
- Plant permanent vegetation as soon as possible after excavating and grading activities are complete.

The following steps must be taken to terminate the project's construction general permit:

- At the end of the project, the subcontractor must provide SLAC with all SWPPP-related inspection sheets and recordkeeping.
- The stormwater program manager will complete a final site walkthrough with the FCM or delegate.
- The project manager will file the notice of termination (completion) to close out the permit after receiving approval from the stormwater program manager.

3 Forms

The following forms and systems are required:

- California Environmental Protection Agency, State Water Resources Control Board. Notice of Intent (NOI) and Notice of Termination (NOT) under the California Construction General Permit (CGP). To be completed by project management for projects that disturb more than one acre of soil. Available from SMARTS.
- California Environmental Protection Agency, State Water Resources Control Board. Stormwater Multiple Application and Report Tracking System (SMARTS). System for construction general and industrial general permit submittals
- Stormwater: Erosion and Sedimentation Control Plan Form (SLAC-I-750-0A16J-007). Form for documenting erosion and sedimentation control measures to be taken for construction projects that disturb less than one acre of soil but have the potential to impact stormwater. To be completed by project manager or field construction manager.

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- Erosion and sedimentation control plans, project-specific SWPPPs, inspection records, and other project-specific documents are to be available at the project site for the duration of the project.
- The subcontractor must provide copies of all project-specific documents to the stormwater program manager at the conclusion of the project. The stormwater program manager will maintain copies for at least three years from the date generated.

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 26, "Stormwater"
  - Stormwater: General Requirements (SLAC-I-750-0A16J-006)
  - Stormwater: Best Management Practices Index (SLAC-I-750-0A16V-001) (see for a complete list of stormwater BMPs)
  - Stormwater: Category 13 BMPs – Building Repair, Remodeling, and Construction (SLAC-I-750-0A16E-013)
  - Storm Water Pollution Prevention Plan (SWPPP) (SLAC-I-750-0A16M-002)
- Chapter 11, "Excavation Safety"
- Chapter 16, "Spills"
- Chapter 42, "Subcontractor Safety"
- Chapter 59, "Biological Resources Protection"

Other SLAC Documents

- Water Resources

Other Documents

- Title 42, *United States Code*, "The Public Health and Welfare", Chapter 152, "Energy Independence and Security", Subchapter 3, "Energy Savings in Buildings and Industry", Part C, "High-Performance Federal Buildings", Section 17094, "Storm water Runoff Requirements for Federal Development Projects (42 USC 17094) (Energy Independence and Security Act [EISA] Section 438)
- Environmental Protection Agency. Office of Water. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (EPA 841-B-09-001)
- Department of Defense, United States Army Corps of Engineers. United Facilities Criteria, Low Impact Development (UFC 3-210-10)
- California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Industrial Activities (Order 2014-0057-DWQ) (as amended)
- California Environmental Protection Agency, State Water Resources Control Board. General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ)
- California Environmental Protection Agency, State Water Resources Control Board. Construction Stormwater Program
- California Environmental Protection Agency, State Water Resources Control Board. Low Impact Development – Sustainable Storm Water Management
- California Department of Transportation, Division of Environmental Analysis, Stormwater Program. Construction Site Best Management Practices Manual (CTSW-RT-17-314.18.1)