Stormwater Management Program Plan

Daniel K. Inouye International Airport

Section C: Construction Site Runoff Control Program

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NPDES Permit No. HIS000005

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1.0 INTRODUCTION

The Department of Transportation, Airports Division (DOTA) has developed this Construction Site Runoff Control Program (Construction Program) to address potential pollutants to the maximum extent practicable (MEP) that may be generated as a result of construction activities. Specifically, soil exposed and disturbed by construction activities is considered a significant source of stormwater pollution. It has been found that runoff from an unstabilized construction site can result in the loss of approximately 35 to 45 tons of sediment per acre each year, versus less than one ton from forested land (EPA 2007). Therefore, the Construction Program includes Best Management Practices (BMPs) to limit the impact of construction activities. Additionally, construction activities may add impervious surfaces such as buildings, roads, and parking lots, which can alter the natural hydrology of the land by increasing the volume and velocity of stormwater runoff and by decreasing its infiltration capacity. The additional stormwater runoff may result in more pollutants entering the Municipal Separate Storm Sewer System (MS4) and receiving waters. Therefore, post-construction controls and/or treatment of stormwater and associated pollutants are included in the DOTA's Permanent Best Management Practice Program (PBMP) (Stormwater Management Program Plan (SWMPP), Section D) and this Construction Site Runoff Control Program which includes a review process to ensure that designs of construction projects address these concerns.

DEFINITION:

Construction - Any activities which result in the **disturbance of land:**

- Clearing
- Grading
- Excavating

Additionally, any supporting activities or staging areas:

- Stockpiles
- Borrow Areas
- Concrete Washout
- Fueling Areas
- Washing / Maintenance
- Material / Waste Storage
- Equipment Storage

1.1 Construction Project Management Types

All construction projects are required to comply with this Construction Program because they all have similar potential environmental impacts. These projects can be broken down into three different types based on their management.

1. DOTA construction projects that are developed with State funding to improve facilities managed by the DOTA. These projects are typically assigned to an Engineering (AIR-E) Project Manager or District Engineer, who will be referred to herein as the State Project Manager (SPM), to oversee the construction work performed by general contractors and their subcontractors.

2. Tenant Improvement Projects (TIP) that are developed by tenants on airport property for facilities which the tenant operates. These projects are typically managed by the tenant with approval from each Airport District Manager and/or District Engineer

3. Off-site construction projects that discharge to the HNL MS4. These projects are typically managed by an off-site entity and environmental oversight is provided by AIR-EE.

1.1.1 Exempted Projects

The following projects maybe exempt from oversight under this Construction Program, but may still be observed by DOTA as a part of the Illicit Discharge Detection and Elimination Program (SWMPP Section B). To qualify for the exemption, AIR-EE will review each project and determine whether a project is exempt. However, *Exempted Projects* must still prevent disturbed soil or other potential pollutants from entering the MS4 or State water, according to the Construction Activities Best Management Practice Field Manual (Attachment C.7).

- Interior renovations, provided the total combined exterior staging areas are less than one (1) acre.
- Minor land disturbance activities performed on a single lot with less than 1/4 acre of disturbed and exposed soil caused by construction activities as approved by AIR-EE.
- Milling and replacing pavement surfaces of runways, taxiways, or other paved areas that do not expose the underlying base course or subgrade material.
- Utility repair work.
- Maintenance and repair activities.

Projects whose total combined disturbed areas and construction support activities (i.e. staging areas, soil stockpile areas, etc.) are one (1) acre or more do not qualify as an *Exempted Project.* Additionally, projects that are part of a larger common plan of development that will ultimately disturb one acre or more of total land area also do not qualify as an *Exempted Project.*

1.2 Roles and Responsibilities

Those parties with specific roles and responsibilities in regards to the Construction Program are included in Table 1.

TABLE 1: CONSTRUCTION PROGRAM ROLES AND RESPONSIBILITIES

Section	Title	Responsibilities
DOT	Director	• Approves DOTA Projects • Signs NPDES Applications and Other Permit Submittals • Reviews and Signs Construction Enforcement • Approves NTP for contracts
AIR-EE	Supervisor	• Provides Program Oversight • Approves Construction Discharge Permits • Provides Notifications to DOH, when necessary • Tracks and Analyzes Program Data • Approves Construction Enforcement

Section	Title	Responsibilities
AIR-EE	Environmental Engineer or Environmental Health Specialists	• Conducts Plan Reviews • Coordinates with Involved Parties (Regulatory Agency, SPM, CM, Designer, Contractor) • Approves Construction Discharge Permits • Provides Notifications to DOH, when necessary • Researches Applicable Permits and Regulations • Conducts Construction Site Inspections (Initial, Routine, Final) • Conducts Enforcement Actions • Updates Database and Maintains Inventories of Construction Projects and BMP Inspections. • Provides Information and Training
AIR-E	Engineering Program Manager	• Oversees DOTA Projects • Approves Construction Discharge Permits • Supports Construction Enforcement • Assists with Developing Guidelines for Internal DOTA Policies Relating to Construction • Reviews and Approves Construction Specifications
AIR-E	State Project Manager (SPM)	• Manages DOTA Projects • Oversees Construction Managers, Project Consultants, and Contractors • Assists with Facilitating NPDES and other Permit Applications • Facilitates Plan Review with AIR-EE • Issues “Notice To Proceed” (NTP) • Facilitates Project Conformance with the DOTA’s Stormwater Management Program Plan (SWMPP) / BMPs / Applicable Permits • Coordinates Enforcement with AIR-EE, including Withholding Payment and Stop Work Orders
Oahu District	Airport Manager	• Oversees TIP and DOTA Projects • Provides Final Approval for TIP • Supports Construction Enforcement
AIR-OME	State Project Manager (SPM)	• Oversees TIP • Facilitates Project Conformance with SWMPP / BMPs / Applicable Permits • Facilitates Plan Review with AIR-EE • Issues NTP • Coordinates Enforcement with AIR-EE (Stop Work Orders)
	Tenants	• Submits Construction Project Review Package for Approval • Facilitates Project Conformance with SWMPP / BMPs • Facilitates and Signs NPDES and other Permit Applications • Addresses Comments from the Project Review

Section	Title	Responsibilities
	Designers	• Obtains NPDES and Other Permits • Develops Construction Documents, including Erosion Control Plans and a Stormwater Pollution Prevention Plan (SWPPP), in Conformance with SWMP / BMPs / Hawaii Administrative Rules (HAR) Chapter 11-55 • Submits Construction Project Review Documents and Addresses Comments
	Construction Managers (CM)	• Conducts or Monitors Weekly BMP Inspection of DOTA Projects • Ensures Staff are Trained on Site BMPs • Assists with Contractor's Conformance with SWMPP/BMPs • Submits BMP Inspection Report to SPM and AIR-EE • Supports Enforcement Actions • Assists with Ensuring Environmental Compliance
	Contractors	• Develops and Submits a Contractor's Site-Specific BMP Plan (SSBMP) and updates the SSBMP, as needed. • Develops, Installs and Maintains BMPs • Conducts BMP Self Inspections • Ensures Representatives Complete DOTA's Annual BMP Training • Ensures Staff are Trained on Site BMPs • Maintains Documentation (SWPPP, NPDES, Connection Permit, Inspection Reports, Training Records) • Submits Forms for NPDES Permits to be the Duly Authorized Representative and Signs Inspection Sheet as well as Updates the SWPPP, if needed, for Sites of One Acre or More. • Ensures Representative are Available During BMP Inspections • Promptly Addresses Deficiencies from DOTA BMP Inspections as well as Contractor Weekly Inspections • Stabilizes All Exposed and Disturbed Areas upon Project Completion or when Earth-disturbing Activities will temporarily cease for a Period of 14 or More Calendar Days.

*Note: Consultants may be used to fill roles where necessary.

2.0 CONSTRUCTION PROJECT REQUIREMENTS

The flow chart, included in Attachment C.1, details each component of the Construction Program and the associated requirements for quick reference.

2.1 Education and Training

DOTA requires that staff with Construction Program responsibilities (e.g. Construction Engineers, Construction and Maintenance Inspectors, and Plan Reviewers) are trained annually. The training is specific to DOTA activities, including the proper installation and maintenance of accepted BMPs, rules, and procedures. The training is further described in SWMPP Section A, 2.1.3, and the pertinent training material is available on the DOTA website:

http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program/

Many of the Construction Program's tasks, such as plan review and inspections, are coupled with an outreach component which is fully described in the DOTA's Public Education Program, SWMPP Section A.

3.0 PLAN REVIEW AND APPROVAL

During the Design Phase of a TIP or DOTA project, the designers of the project will consider the requirements of this Construction Program, Permanent BMP Program (SWMPP Section D), applicable chapters of the Hawaii Administrative Rules (HAR), and all applicable permits. The designer or tenant will consolidate and submit all required design documents, including applicable forms and applications, to DOTA for review. DOTA will review these documents to ensure applicable requirements are met in accordance with DOTA's Environmental Program and HNL's Small MS4 NPDES Permit.

No construction activities on DOTA property can commence prior to AIR-EE's approval of all required design documents, including plans, specifications, applicable forms and applications, and a copy of the Notice of General Permit Coverage (NGPC) or Individual Permit coverage under HAR, Chapter 11-55, Appendix C (if project is one acre or more). Copies of Notice of Coverage for dewatering or hydrotesting activities must also be provided to AIR-EE prior to starting these activities. It is recommended that designers coordinate with AIR-EE early and throughout the design process.

3.1 Construction Design

Designers of the project must ensure that the project's design include both site-specific temporary BMPs for implementation during construction activities and Permanent BMPs, preferably Low Impact Development (LIDs), where applicable. Designers will need to review and follow SWMPP Section D for design requirements pertaining to LIDs and PBMPs.

At a minimum, construction projects are required to implement site-specific temporary BMPs and practices as described in the Construction Activities Best Management Practices Field Manual (Attachment C.7).

A complete set of the project drawings must be submitted by the designer or the tenant to AIR-EE for review and approval for all projects. Specifications must also be submitted to AIR-EE for DOTA projects.

3.2 Documentation

Construction projects are required to provide all documents, as detailed in this section, for review by AIR-EE.

3.2.1 Projects Less Than One Acre

The following is a summary of submittal requirements for non-exempt projects that disturb less than one (1) acre. Total acreage must include all project phases and all construction support activity areas on any property owned, operated, or controlled by the DOTA:

1. Completed Notification Form for Sites Disturbing Less Than One Acre (Attachment C.3) signed by the appropriate party.

2. Project Drawings and Specifications, including a Sediment and Erosion Control BMP Drawing, Title sheet, Construction Notes sheets, and all Civil Drawings. The Sediment and Erosion Control BMP Drawing can be a sketched plan outlining the anticipated activities and the location of all BMPs. A sample Sediment and Erosion Control BMP Plan Drawing is available in Attachment C.3.

    a. The sketched plan should include:
        i. Location drawing of the proposed project, including project boundaries, nearby landmarks/roads, canals, and coastline.
        ii. Storm drains or other drainage ways present in the area and their flow path (For the Daniel K. Inouye International Airport's (HNL's) drainage maps, refer to SWMPP Section B, Attachment B.1 or the DOTA website:

            http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/hnl-storm-water-program/

        iii. The location of temporary and/or permanent vegetative and structural stormwater management and sediment control measures (BMPs).

3. A narrative description of the BMPs to be used during land-disturbing activities and maintenance requirements.
4. Completed Contaminated Soil & Groundwater Review Form. Based upon its findings, a Phase 1 ESA and, possibly, Phase 2 ESA, that are prepared by a qualified environmental consultant, will be required. The Phase 1 ESA, Phase 2 ESA and any Long-Term Environment Hazard Management Plan, when applicable, shall be submitted for review.
5. Permit to Discharge Into the State Airport Drainage System Relating to Construction Projects application (Attachment C.4) if applicable (Refer to Section 3.2.3).
6. A Site-Specific BMP Plan (SSBMP) or Stormwater Pollution Prevention Plan (SWPPP).
7. NPDES permit application Form F (Hydrotesting Waters) or Form G (Construction Activity Dewatering), if applicable.
8. Underground Injection Control (UIC) Permit application, if applicable.
9. Individual Wastewater System (IWS) Permit application, if applicable.
10. Other permit applications, if applicable or related to any of the above document. (i.e. City and County of Honolulu's Industrial Waste Discharge Permit, if pertaining to discharges to sanitary sewer from hydrotesting waters, dewatering activities or other wastewater discharge sources, such as Oil Water Separators (OWS) or vehicle washing facilities.). A copy of each environmental-related permit (i.e. Army Corp of Engineers Permit) shall be provided to AIR-EE upon issuance by the governing agency.

3.2.2 Projects One Acre Or More

The following is a summary of submittal requirements for projects that disturb one (1) acre or more on any property owned, operated, or controlled by the DOTA. Total acreage must include all project phases and all construction support activity areas.:

1. Completed Design Review Checklist (Attachment C.2) signed by the appropriate party.

2. Project Drawings and Specifications, including a Sediment and Erosion Control BMP Drawing, Title sheet, Construction Notes sheets, and all Civil Drawings.

3. Completed Contaminated Soil & Groundwater Review Form. Based upon its findings, a Phase 1 ESA and, possibly, Phase 2 ESA, that are prepared by a qualified environmental consultant, will be required. The Phase 1 ESA, Phase 2 ESA and any Long-Term Environment Hazard Management Plan, when applicable, shall be submitted for review.

4. Permit to Discharge Into the State Airport Drainage System Relating to Construction Projects application (Attachment C.4), if applicable (Refer to Section 3.2.3).

5. Stormwater Pollution Prevention Plan (SWPPP), including a narrative description of the BMPs to be used during land-disturbing activities and maintenance requirements.

6. NPDES Permit application - NOI Form C (Construction), Form F (Hydrotesting Waters), Form G (Construction Activity Dewatering), or any other applicable permits. For more information on applicable NDPES permits refer to HAR 11-54 and HAR 11-55 and the DOH Clean Water Branch.

7. Underground Injection Control (UIC) Permit application, if applicable.

8. Individual Wastewater System (IWS) Permit application, if applicable

9. Other permit applications, if applicable or related to any of the above document. (i.e. City and County of Honolulu's Industrial Waste Discharge Permit, if pertaining to discharges to sanitary sewer from hydrotesting waters, dewatering activities or other wastewater discharge sources, such as Oil Water Separators (OWS) or vehicle washing facilities.). A copy of each environmental-related permit (i.e. Army Corp of Engineers Permit) shall be provided to AIR-EE upon issuance by the governing agency.

3.2.3 Construction Discharge Permit

DOTA construction projects and TIPs that include stormwater runoff sheet flow from ground disturbing construction activities; alterations, removal, or additions (utility connection) to the MS4 system; hydrotesting activities; or construction activity dewatering must obtain a DOTA Permit to Discharge into the State Airport Drainage System Relating to Construction Projects, Attachment C.4.

The Designer or Tenant must submit the Permit application form to AIR-EE. AIR-EE will assign the permit number and route for appropriate DOTA signatures. Final authorization will be contingent upon compliance with the SWMPP, including the installation of adequate temporary BMPs and plans for the inclusion of LIDs and/or PBMPs, where applicable.

3.2.4 Documentation Submittal

For DOTA projects, Designers will submit their documents to the project's SPM who will distribute them to the appropriate parties, including AIR-EE, for review. To expedite the review process, the SPM and the AIR-EE may conduct their reviews concurrently.

For TIPs, tenants must submit their documents to the District Engineer and/or District Office who will distribute them to the Engineering Division, including AIR-EE, for review.

For off-site projects, the Authorized Representative will contact AIR-EE to obtain a Permit to Discharge into the State Airport Drainage System Relating to Construction Projects. A Design Review will be conducted by AIR-EE at that time.

AIR-EE will review the documents and provide comments, if needed. AIR-EE's comments will be logged on the Review Comment Sheet, Attachment C.5, and routed back through the SPM or the District Engineer to the Designer. Designers must consider, reply to, and, where necessary, revise submitted documents in accordance with AIR-EE's comments. The Review Comment Sheet must be updated with the Designer's response and routed back to AIR-EE with all revised and corrected documents.

3.3 Project Review

AIR-EE will review the documents, and log their findings and comments, in accordance with the Review Comment Sheet (Attachment C.5). Specifically, the reviewer will ensure the following conditions are met:

- Conformance with the Construction Activities BMP Field Manual (Attachment C.7).
- Conformance with DOTA's Permanent Best Management Practice Program, SWMPP Section D.
- Plans and BMPs reduce the discharge of potential pollutants to the MEP using the Best Available Technology (BAT) / Best Conventional Pollutant Control Technology (BCT) and will not cause or contribute to an exceedance of water quality standards.
- Conformance with applicable NPDES permit requirements, such as HAR 11-55, App C for construction sites disturbing one acre or more and other applicable permits.

Tenants are responsible for maintenance of PBMPs (i.e. vegetated swales, pervious pavement, etc.) on tenant-leased spaces. DOTA is responsible for the maintenance of PBMPs on DOTA owned and operated spaces.

During the project review process, if it is determined that the environmental impacts of the construction have not been adequately addressed or do not meet the requirements in the DOTA's Environmental Program, the Designer shall be required to revise and resubmit the documents until accepted by AIR-EE.

4.0 PROJECT OVERSIGHT

A critical part of the oversight process is the requirement for inspection of the construction site. Several types of inspections are performed as a part of the Construction Program: Initial Inspections, Independent Inspections, Final Inspections and contractor self-inspections. Additionally, larger projects also have Construction Managers, who may also conduct weekly inspections. Construction Inspection Checklists (Attachment C.6) will be completed for the Initial, Independent, and Final Inspections. These checklists will be stored in DOTA's internal X:Drive and/or Asset Management System (AMS). Photographs supporting the inspector's findings will be attached to the checklist.

4.1 Notice to Proceed

Although this process may vary for individual projects, in general, after the design documents have been approved and the NPDES Permit, if required, has been issued by DOH, the SPM or District Engineer will issue the Notice to Proceed (NTP) to the Construction Contractor or Tenant indicating the following:

- The Contractor shall install all Site-Specific BMPs that are required for the commencement of construction activities.
- Upon completion of the installation of the BMPs, the contractor will request an Initial Inspection of the BMPs.
- Construction activities can commence only after the Initial BMP Inspection has been conducted and all deficiencies that are identified during the Inspection are corrected by the Contractor and accepted by AIR-EE.

4.2 Initial Inspection

Prior to the commencement of construction activities, AIR-EE, or their designated erosion and sediment control inspector, will conduct an initial site BMP inspection. Prior to this inspection, a contractor may only disturb the soil to the extent that is required to install the site-specific temporary BMPs.

As a part of the initial inspection, the inspector will review the site's BMP plan and applicable permits, and verify that the BMPs have been installed as required. Specifically, the inspector will review erosion and sediment controls, good housekeeping practices, and compliance with the site plans and this Construction Program. The inspector will identify any site conditions that may have the potential to discharge pollutants and require corrective actions. All deficiencies that are observed must be corrected by the contractor. During the inspection, the inspector will inform the contractor of the method for conveying the documentation of the corrective actions, which may include emailing photos showing the corrections or conducting a re-inspection.

After all deficiencies have been corrected and accepted by the AIR-EE, the inspector will include the email date or re-inspection date as the corrective action date in DOTA's internal X:Drive and/or AMS to signify that enforcement is closed. Only after the enforcement has been closed may construction activities be allowed to commence. However, the commencement of

construction activities may also be contingent upon other contractual requirements which the contractor may be responsible and are not included in AIR-EE's review.

4.3 Contractor Self-Inspection

Contractors are required to conduct self-inspections of their sites to ensure that BMPs are effective, and activities are not causing a polluted discharge. Although the frequency of this inspection may vary, in general, it is suggested that this inspection be conducted and recorded weekly. Findings from this inspection may trigger corrective actions, such as SWPPP updates or BMP maintenance.

Specific frequencies for this inspection may be required by the Notice of General Permit Coverages (NGPCs), per HAR 11-55, or by the Independent BMP inspector. Contractors must retain documentation of these inspections on-site and present them to the Independent BMP inspectors for review at the time of their inspection.

4.4 Routine Independent Inspections

Independent BMP inspectors are defined as BMP-qualified personnel who are not involved in the day-to-day planning, design, or implementation of the construction contract. The independent inspectors will perform BMP site inspections monthly for construction sites that have NPDES Permits. However, the frequency of the inspection can be altered by the inspector under the following conditions.

1. The inspector may suspend monthly inspections if there will be no construction activities conducted on the site for a period of 30 calendar days or more, and the disturbed soil has been stabilized.

2. The inspection frequency may decrease to quarterly, if, during three successive monthly inspections of a project, no critical or major deficiencies are identified and less than six (6) total minor deficiencies are identified over the three monthly inspections, with no more than three (3) minor deficiencies identified during any one inspection of those three month inspections.

   However, if while under a quarterly inspection frequency, during an inspection, one critical deficiency, or one major deficiency, or a total of three (3) or more minor deficiencies in the project's BMPs or other stormwater management measures are identified, the inspections frequency shall immediately return to monthly.

Additionally, all construction projects with a DOTA Construction Connection, Discharge, and/or Surface Water Runoff Permit will be inspected by an independent BMP inspector at least once annually or more frequently as directed by AIR-EE based on the scope and potential for stormwater discharges.

As a part of the inspection, all documentation for environmental compliance of the site (e.g. SWPPP or BMP plan, applicable permits, site inspections, and training records) must be made

available by the contractor for reviewed by the inspectors. The inspectors will verify that site conditions match those included in the site documents. Furthermore, the inspector will ensure that BMPs are properly maintained and effective in containing potential pollutants. Any deficiencies identified during these inspections must be promptly corrected by the contractor according to the timelines indicated in Table 2. The inspector will inform the contractor of the method for conveying the documentation of the corrective actions, which may include emailing photos showing the corrections or conducting a re-inspection. After all deficiencies have been corrected by the contractor and accepted by the inspector, the inspector will include the email date or re-inspection date as the corrective action date in DOTA's internal X: Drive and/or AMS to signify that enforcement is closed.

TABLE 2: CONSTRUCTION DEFICIENCY TYPES

Deficiency Type	Definition	Timeline for Correction
Critical	Poses an immediate threat for the discharge of pollutants to the MS4 or receiving water. Examples include: illicit discharge, absence of perimeter controls in an area with signs of sediment transport off-site, spills that have not been cleaned near a drain or waterway.	Same day
Major	Poses a significant threat for the discharge of pollutants to a storm drain or receiving water. Examples include: lack of NPDES permit (if required), lack of BMP plan, perimeter BMPs are not functional, dewatering without BMPs, tracking more than 50' from ingress/egress. This may also include any deficiency that is observed as a repeat deficiency over consecutive inspections. (i.e. Repeated Deficiency.)	5 calendar days or before next forecasted rain event, whichever is sooner
Minor	Deficiencies that do NOT pose a treat for discharge of untreated stormwater or pollutants to the storm drain system, surface waters, or State waters, but are not in strict conformance with the SWPPP or BMP Plan. Examples include: BMP plan is not updated, contractor self-inspections are not conducted, BMPs are implemented but require maintenance, tracking less than 50' from ingress/egress.	As directed by inspector

4.5 Final Inspection

AIR-EE, or their designated independent BMP inspector, will conduct a Final BMP Inspection after the Contractor has completed construction, including installing PBMPs and stabilizing exposed soil. The Final BMP Inspection may occur prior to the completion of the project provided that all disturbed soils have been permanently stabilized and planned activities would have a negligible impact to the MS4 or State waters. All deficiencies that are observed during the inspection must be addressed and corrected by the Contractor before the Contractor can remove the temporary BMPs and close the Project. For DOTA projects, all deficiencies observed during the Final BMP Inspection must be corrected before the SPM will issue the Project's Final Acceptance and release the Final Payment to the Contractor.

5.0 ENFORCEMENT RESPONSE PLAN

DOTA has experienced that the majority of deficiencies identified are readily corrected and do not require escalating enforcement. However, the following enforcement response plan details the procedures that will be used when necessary.

5.1 Legal Requirements

5.1.1 DOTA Project Specifications

The specifications for DOTA projects will include a requirement for compliance with the SWMPP. The specifications will also include a description of the enforcement actions that can be taken for non-compliance items, which include withholding payment, issuing stop work order, and levying of liquidated damages. The specifications will also contain a statement that indicates that any environmental fines levied against the State by the DOH or EPA will be passed onto the offending party.

5.1.2 Tenant Lease Agreement / Revocable Permit

The lease agreements and revocable permits made with tenants on airport property include a clause that requires compliance with environmental laws. Tenants will be expected to comply with this SWMPP when conducting construction activities. Failure to do so may result in enforcement actions and can include termination of the lease agreement.

5.2 Escalating Enforcement

When a deficiency is identified on a construction site, enforcement will be applied on an escalating scale, as described below, until compliance is achieved. Data on enforcement for each project will be retained within DOTA's internal X:Drive and/or AMS.

An exception to the escalating enforcement scale may be applied if the deficiency is an illicit discharge or if the deficiency is a repeated deficiency. In these cases, enforcement may commence by withholding payment and/or issuing a Stop Work Order. The SPM may also levy liquidated damages up to $25,000 per deficiency per day, which is included in the Project Specifications.

5.2.1 Inspection Checklist

The Construction Inspection Checklist, Attachment C.6, will serve as written warning to the Contractor of the items identified during the inspection that are in non-compliance. The Contractor will have a designated time period to correct the deficiencies or be required to request for additional time with a reasonable justification.

5.2.2 Warning Letter / Notice of Apparent Violation

If the Contractor does not correct the deficiency within the designated time period and has not been approved for a time extension, depending on the severity of the deficiency or deficiencies, AIR-EE will determine if an Email Warning or a formal Warning Letter, documenting the contractor's failure to perform, will be issued. The email or written letter will require the

contractor to immediately implement and complete the corrective actions. The email or written letter may also require the contractor to retake the construction stormwater training or other training courses.

Major, Critical, or Repeated Deficiencies may result in an escalated enforcement action to a Notice of Apparent Violation (NAV) in which DOH may be notified of the non-compliance.

If documentation of the corrective actions is not sufficient or not provided by the contractor, AIR-EE will re-inspect the construction site to determine if the deficiencies have been corrected. AIR-EE also reserves the right to re-inspect the site to verify corrective actions, even when documentation is provided.

5.2.3 Additional Enforcement Actions

For DOTA projects, if the deficiencies have not been corrected, one or more of the following additional enforcement actions may be implemented:

1) *Withhold Payment*

   The SPM, working in association with AIR-EE and in accordance to the project specifications, may withhold payment under the appropriate payment item(s) of the Contractor's Progress Payment until the deficiencies have been corrected.

2) *Stop Work Order*

   The SPM may issue a Stop Work Order which will be lifted after the deficiencies have been corrected.

3) *Liquidated Damages*

   In accordance to the project specifications, failure to apply or maintain site specific BMP measures may result in the assessment of liquidated damages. Liquidated Damages, up to $25,000 per day, can be assessed for each non-compliance of the BMP requirements described in the specifications. The Contractor shall not be entitled to recover any Liquidated Damages assessed, even after the deficiencies have been corrected.

   Liquidated Damages will be assessed by issuance of an Enforcement Letter. The Enforcement Letter shall indicate the amount of liquidated damages that are assessed for the non-compliances which shall be deducted from the Contractor's progress payment. The Enforcement Letter will be sent electronically via e-mail and a hard copy to the Contractor's designated representative(s) who is responsible for the Contractor's Construction Site Runoff Control Program. An Enforcement Letter may be issued with or without a previous Verbal Notification, Warning Letter, or Notice of Apparent Violation (NAV).

For TIP projects, if the deficiencies have not been corrected, AIR-EE will work in association with the Airport District Manager to issue a Stop Work Order. After the non-compliant item(s) have

been corrected, the Stop Work Order will be lifted.

5.3 DOH Notifications

Pursuant to HNL's Small MS4 NPDES Permit, DOTA will notify DOH, in writing, when any of the following incidents occur:

- DOTA has exhausted all enforcement procedures and cannot bring the contractor's or tenant's construction site or operations into compliance, or otherwise deems the construction site to pose an immediate and significant threat to water quality, human health or environmental health.
    - Within one (1) week of this determination, DOTA will email a summary of the situation to the cleanwaterbranch@doh.hawaii.gov, Attn: Enforcement Section Supervisor.
    - Within two (2) weeks of this determination, DOTA will submit the Inspection Checklist reports and related correspondence to DOH, via the e-permitting system using the *CWB Compliance Submittal Form for Individual NPDES Permits and NGPCs*. A hard copy set with the signed certification statement and CD will be mailed to DOH.
- DOTA identifies a construction site that is subject to coverage under the DOH's NPDES General Permit for Construction Activities, but has not applied for permit coverage, AIR-EE will notify DOH within two (2) weeks of this discovery via an email to cleanwaterbranch@doh.hawaii.gov.
- Critical Deficiencies that are identified during construction inspections, including the date of the corrective actions.

6.0 EVALUATION METHODS

The Construction Program will be evaluated based on specific metrics included below to determine its effectiveness. Specifically, measurable standards, milestones, and monitoring parameters are included in Table 3 from the MS4 NPDES permit. All final tallies of progress on Construction Program metrics will be included in the annual report to the DOH and EPA.

TABLE 3: CONSTRUCTION PROGRAM MEASURABLE STANDARDS, MILESTONES, AND MONITORING

SWMP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Attach C.7	Construction Activities BMP Field Manual	Require construction projects to implement BMPs per the construction BMP field manual. • Conduct an annual review of the BMP manual. • Modify BMP manual, where necessary.	Confirmation: • Requirement established.	4/14/16
			Tabulation: • # of project starts required to implement BMPs.	Annual
			Confirmation: • Review conducted.	Annual
			Tabulation: • # of new, modified, or revised BMPs based on review.	Annual, As Needed
Section C, 3.3 & Attach C.5	Plan Review	Conduct and document a review of BMP documents and NOI applications for planned construction activities.	Confirmation: • Plan review checklist submitted to DOH.	7/13/14
			Tabulation: • # of projects reviewed.	Annual
Section C, 3.2.3 & Attach C.4	Construction Discharge Permits	Require TIP and DOTA projects to obtain a Permit to Discharge Into the State Airport Drainage System Relating to Construction Projects and track approvals.	Confirmation: • Requirement established.	4/14/15
			Tabulation: • # of permits.	Annual

SWMP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section C, 4.0 & Attach C.6	Inspections	Conduct construction site inspections. • Implement an inspection form and submit to DOH. • Inspect BMPs prior to commencement of construction activities. • Conduct routine inspections. • Track inspections.	Confirmation: • Construction Inspection Checklist submitted to DOH.	7/13/14
			Tabulation: • # of initial inspections.	Annual
			Tabulation: • # of routine inspections.	Annual
Section C, 5.0	Construction Enforcement	Where necessary, conduct enforcement to stop illicit discharges and illegal connections. • Establish rules and penalties. • Develop an Enforcement Response Plan. • Track enforcement actions.	Confirmation: • Rules and penalties established.	4/14/16
			Confirmation: • Enforcement Response Plan developed.	4/14/16
			Tabulation: • # of enforcement actions.	Annual
Section A, 2.1.3 & Section C, 2.1	Training	Provide annual training to targeted groups in accordance with SWMPP Section A, 2.1.3.	Tabulation: • # of parties trained on construction.	Annual
Section A, 2.0 & Section C, 2.1	Education	Include construction related educational material as a part of the Public Education Plan, SWMPP Section A.	Confirmation: • Public Education Plan implemented.	Annual

In Table 4, the DOTA has set goals for the Construction Program above the minimum control measures listed in Table 3. These goals provide a more complete evaluation of the effectiveness of program activities and will be used to make changes to the program where necessary. These goals will be reported separately in the annual report and may or may not be met depending upon several variables, including available manpower and funding for a particular year. For description of Outcome Categories in Table 4, refer to SWMPP Introduction, Attachment VI: Program Effectiveness Strategy.

TABLE 4: CONSTRUCTION PROGRAM GOALS AND EVALUATION METHODS

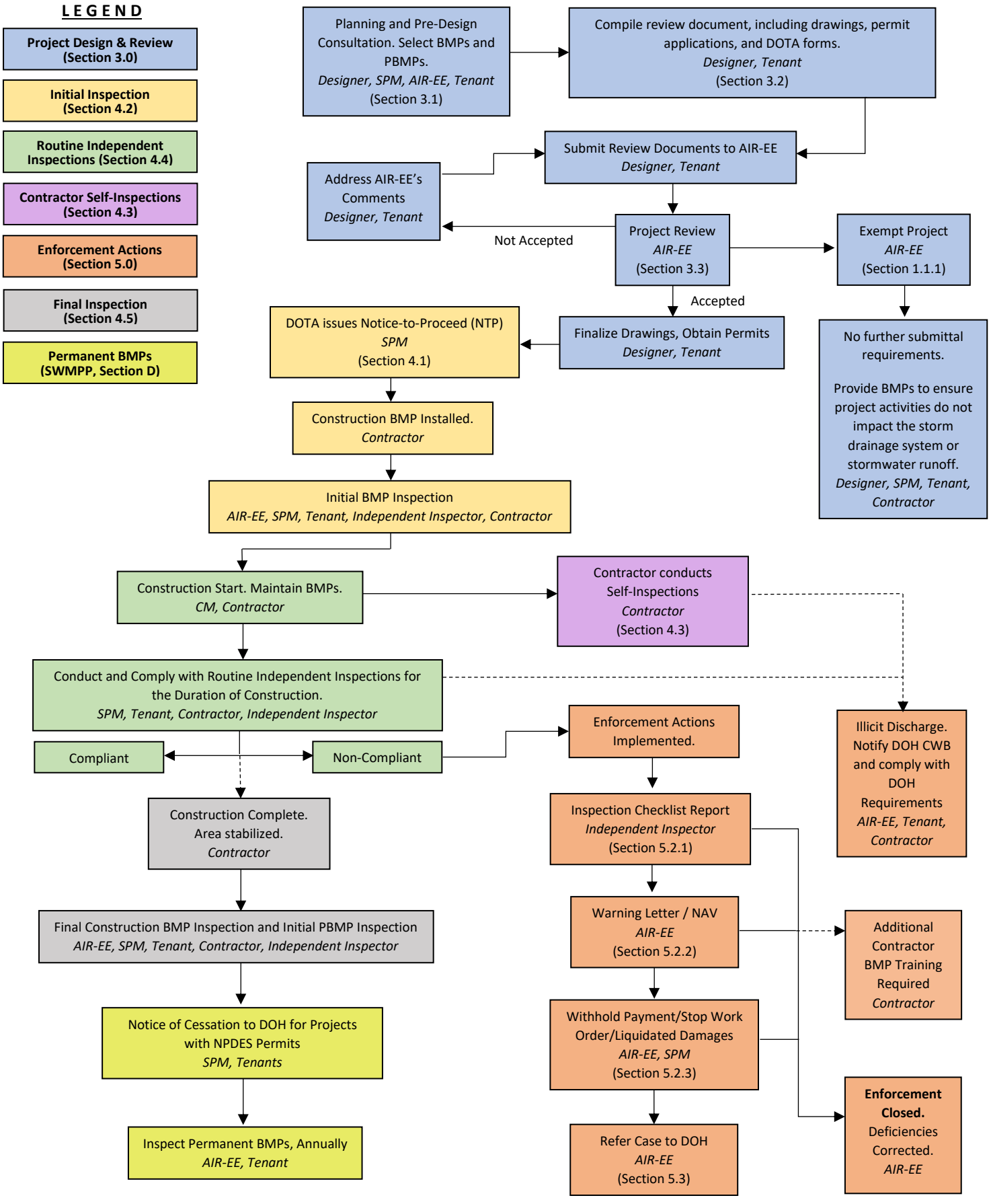
SWMP Reference	Activity	Outcomes / Goals	Evaluation Method	Outcome Category	Timeframe
Section C, 3.3 & Attach C.5	Plan Review	Complete reviews of BMP documents and NOI applications (if applicable) for planned construction activities with ground disturbing activities. • 5% decrease in review cycles required for each project until all the DOTA Environmental Engineer's comments are adequately addressed.	Tabulation: • Baseline Establishment: # of review cycles for each project.	1	6/30/16
			Tabulation: • % decrease in # of review cycles for each project	2-3	3/13/19
Section C, 4.0 & Attach C.6	Inspections	Conduct inspections to verify that project sites are in compliance. • 5% increase in project sites with updated and final version of necessary site plans and permits available during the initial inspection. • Reduction in the total number of deficiencies identified during routine inspections for the year as compared to the 2014 baseline.	Initial Inspection: • Baseline Establishment: # of project sites with completed paperwork.	3	6/30/16
			Initial Inspection: • % increase in project sites with completed paperwork.	3	3/13/19
			Routine Inspection: • Reduction in the # of deficiencies.	3	Annual

SWMP Reference	Activity	Outcomes / Goals	Evaluation Method	Outcome Category	Timeframe
		• 5% reduction in the number of repeated BMP deficiencies as compared to the 2014 baseline.	Routine Inspection: • % reduction in repeated deficiencies.	2-3	3/13/19

Attachment C.1

Construction Process Flow Chart

State of Hawaii, Department of Transportation
Airport Division
Construction Process



August 2020

Attachment C.2

Design Review Checklist

DESIGN REVIEW CHECKLIST

Instructions:

- In accordance with DOTA's Construction Site Runoff Control Program, the Designer or Authorized Representative shall submit this Design Review Checklist with each design submittal phase.
- Please ensure to attach all pertinent documents associated with the Construction BMPs as well as Permanent / Post-Construction BMPs.
- AIR-EE will provide comments on the project submittals using a Review Comments spreadsheet. All review comments from AIR-EE have to be addressed to their satisfaction and closed prior to obtaining an approval from AIR-EE. AIR-EE approval is required to start construction activities.

Checklist:

Project Name: _____ Date: _____

State Project # (if applicable): _____ Airport: _____

Designer Name: _____ Firm: _____

Email: _____ Phone: _____

Contractor Name (if known): _____ Firm: _____

Email: _____ Phone: _____

Site Location: _____

Project Description: _____

_____

Does the project have additional phases planned? _____

Project Size: _____acres

Total Land Disturbance Size (clearing, grubbing, grading, excavation and construction support activities including separate staging, equipment storage, and stockpile areas (as defined in HAR-11-55, App C)):

_____acres

Design Submittal (check one):

☐ 60% Submittal ☐ 90% Submittal ☐ 100% Submittal ☐ Other

DOCUMENTS SUBMITTED (CHECK ALL SUBMITTED)

☐ Project Plan and Specifications
☐ Project Schedule
☐ BMP Plan
☐ SWPPP
☐ NPDES NOI Form C (Construction)
☐ NPDES NOI Form F (Hydrotesting)
☐ NPDES NOI Form G (Dewatering)
☐ DOTA Construction Discharge Permit
☐ PBMP Plans/Product Sheets
☐ PBMP O&M Cost Analysis
☐ PBMP O&M Plan
☐ PBMP O&M Agreement

CONSTRUCTION ACTIVITY BMPS

DESIGNER'S CONSTRUCTION REQUIREMENTS	YES	NO	N/A
1. Have construction documents and SWPPP been prepared to meet the requirements of HAR 11-55, App C, DOTA's Construction Activities BMP Field Manual, and prevent violations of water quality standards?	☐	☐	☐
2. The following site features should be included on the plans:			
a. Preliminary location, size in square feet, and limits of disturbance	☐	☐	☐
b. Location of storm drainage features (e.g. drains, ditches, ocean, etc.) and stormwater runoff flow paths	☐	☐	☐
c. Location of construction activity BMPs	☐	☐	☐
d. Locations of activities that may generate pollutants (e.g. staging area, stockpiles, concrete washout, etc.)	☐	☐	☐
e. Location of other potential stormwater pollutants	☐	☐	☐
3. Have the following permits been applied for (if required):			
a. NPDES Application (Construction ≥ 1 acre)?	☐	☐	☐
b. Other NPDES Application (Dewatering, Hydrotesting, etc.)?	☐	☐	☐
c. Permit to Discharge into the State Airports Drainage System Relating to Construction Projects?	☐	☐	☐
d. 401 Water Quality Certification (WQC)?	☐	☐	☐
e. 404 Department of the Army (DA) Permit?	☐	☐	☐
f. Coastal Zone Management (CZM) Permit?	☐	☐	☐
g. Special Management Area (SMA) Permit?	☐	☐	☐

CONSTRUCTION ACTIVITY BMPS NARRATIVE (DESIGNERS)

Select all applicable BMPs proposed to be incorporated into the project from the DOTA's Construction Activities BMP Field Manual.

- ☐ C.1: Scheduling
- ☐ C.2: Preservation of Existing Vegetation
- ☐ C.3: Location of Potential Sources of Sediment
- ☐ C.4: Earth Dike
- ☐ C.5: Temporary Drains and Swales
- ☐ C.6: Dust Control
- ☐ C.7: Topsoil Management
- ☐ C.8: Geotextiles and Mats
- ☐ C.9: Grass and Planting
- ☐ C.10: Sand Bag Barrier
- ☐ C.11: Compost Filter Berm or Sock
- ☐ C.12: Storm Drain Inlet Protection
- ☐ C.13: Sediment Trap
- ☐ C.14: Silt Fence
- ☐ C.15: Stabilized Construction Entrance
- ☐ C.16: Construction Road Stabilization
- ☐ C.17: Dewatering Operations
- ☐ C.18: Paving Operations and Waste Management
- ☐ C.19: Structure Construction and Painting
- ☐ C.20: Vehicle and Equipment Cleaning
- ☐ C.21: Vehicle and Equipment Refueling
- ☐ C.22: Vehicle and Equipment Operation and Maintenance
- ☐ C.23: Concrete Curing Water and Compounds Management
- ☐ C.24: Hydrotesting Effluent Management
- ☐ C.25: Water-Jet Wash and Hydro-Demolition Water Management
- ☐ C.26: Material Delivery and Storage
- ☐ C.27: Material Use
- ☐ C.28: Protection of Stockpiles
- ☐ C.29: Solid Waste Management – Hazardous Waste
- ☐ C. 30: Solid Waste Management – Debris
- ☐ C.31: Contaminated Soil Management
- ☐ C.32: Concrete Operation and Waste Management
- ☐ C.33: Sanitary/Septic Waste Management
- ☐ C.34: Spill Prevention and Control
- ☐ C.35: Spill Response Practices
- ☐ C.36: Management of Materials Associated with Paint

Other:

PERMANENT/POST-CONSTRUCTION BMPS (PBMPS) (DESIGNERS)

EXEMPTIONS FROM POST-CONSTRUCTION REQUIREMENTS	YES	NO	N/A

If any of the exemptions are answered in the affirmative, the designer may skip the remainder of the PBMP section. However, the Sustainable High-Performance Guidelines may apply.

➢ Project only consists of trenching and resurfacing associated with utility work.	☐	☐	☐
➢ Project only consists of resurfacing or replacement of damaged pavement.	☐	☐	☐
➢ Sites where runoff does not ultimately discharge to a receiving water.	☐	☐	☐
➢ Project will return the area to pre-development conditions.	☐	☐	☐
➢ Sites where PBMPs may be prohibited due to aircraft safety.	☐	☐	☐
➢ Other (provide explanation for proposed exemption). *Note that all exemptions are contingent upon approval from DOTA.*	☐	☐	☐

POST-CONSTRUCTION PERFORMANCE REQUIREMENTS	YES	NO	N/A
1. Have Low Impact Development (LID) designs been considered first?	☐	☐	☐
2. Have the minimum pollutants of concern been considered (i.e. HNL SWMPP, Section D, 3.1.1)?	☐	☐	☐
3. Do the proposed PBMPs limit targeted pollutants to the Maximum Extent Practicable (MEP)?	☐	☐	☐
4. Is the maintenance requirement for proposed PBMPs feasible to conduct?	☐	☐	☐
5. Has the Retrofit Action Plan been reviewed to determine whether an identified retrofit may be appropriate at the site?	☐	☐	☐

OTHER REQUIREMENTS	YES	NO	N/A
1. Are additional BMPs needed for the project to meet performance standards?	☐	☐	☐
2. Will the project cause prohibited discharges of non-stormwater?	☐	☐	☐
3. Is a shared structural treatment PBMP proposed or appropriate?	☐	☐	☐
4. Was a cost analysis for operations and maintenance (O&M) for several PBMP design alternatives included in the project budget to aid in selecting the appropriate device?	☐	☐	☐
5. Are the PBMP Plans and product sheets submitted to AIR-EE for review?	☐	☐	☐
6. Is there a one-year warranty on the PBMP device, service, maintenance program, and training of DOTA personnel/maintenance personnel, where applicable? For tenant-leased spaces, the DOTA Property Management Division should be consulted in order to add information and tenant requirements for PBMP maintenance and lease agreement. (Provide O&M Agreement or equivalent.)	☐	☐	☐

7. Are PBMP maintenance requirements provided by development and submission of a site-specific PBMP O&M Plan or the use of the DOTA PBMP O&M Manual? Attach PBMP O&M Plan, if applicable. ☐ ☐ ☐

PERMANENT POST-CONSTRUCTION BMP NARRATIVE

Describe LID designs included:

Select all applicable PBMPs proposed to be incorporated into the project design from the DOTA's Stormwater Permanent BMP Manual:

- ☐ PC1: Preservation of Existing Vegetation
- ☐ PC2: Grass and Planting
- ☐ PC3: Mulching
- ☐ PC4: Geotextiles, Mats, and Erosion Control Blankets
- ☐ PC5: Vegetated Buffer Strips and Channels
- ☐ PC6: Earth Dikes, Drainage Swales, and Lined Ditches
- ☐ PC7: Slope Drains and Subsurface Drains
- ☐ PC8: Top and Toe of Slope Diversion Ditches/Berms
- ☐ PC9: Outlet Protection/Velocity Dissipation Devices
- ☐ PC10: Flared Culvert End Sections
- ☐ PC11: Slope Roughening / Terracing/Rounding
- ☐ PC12: Level Spreader
- ☐ PC13: Infiltration Trench
- ☐ PC14: Retention Basin
- ☐ PC15: Green Roofs
- ☐ PC16: Alternative Wetlands
- ☐ PC17: Green Parking
- ☐ PC18: Alternative Pavers
- ☐ PC19: Bioretention
- ☐ PC20: Sand Filters
- ☐ PC21: Oil Water Separator
- ☐ PC22: Continuous Deflective Separation (CDS)
- ☐ PC23: Storm Drain Inlet Protection
- ☐ PC24: Underground Detention Basin
- ☐ PC25: Stormwater Re-use
- ☐ PC26: Fueling Area Design
- ☐ PC27: Maintenance Area Design
- ☐ PC28: Washing Area Design
- ☐ PC29: Loading Area Design
- ☐ PC30: Waste Management Area Design
- ☐ PC31: Material Storage Area Design

Other PBMPs:

CERTIFICATION

Designer: I certify that the design is complete, accurate, and addresses the requirements of DOTA's Environmental Program to the best of my knowledge.

Print Name: _____

Signature: _____ Date: _____

Review:

DOTA PM Signature: _____ Date: _____

DOTA AIR-EE Signature: _____ Date: _____

Attachment C.3

Notification Form
for Sites Disturbing Less Than One Acre

Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

PROJECT DESCRIPTION			
Date:			
Airport District:			
Project/Site Name:			
Projected Start Date (MM/DD/YYYY):		Projected Completion Date (MM/DD/YYYY):	

Describe the project:

Yes	No	Does the project include the installation of any of the following?
☐	☐	Steep slopes (i.e. grade of 20% or more).
☐	☐	Parking lot or building adding 10,000 square feet or more of impervious area within 50' of surface water.
☐	☐	Uncontained aircraft, vehicle, or equipment washing area.
☐	☐	Fueling or petroleum storage area that exceeds requirement for SPCC (i.e. 1,320 gal for above-ground tank(s)).
☐	☐	Modifying, replacing, or installing new MS4 drainage structures.

If yes to any of the above, describe the permanent BMP to be implemented or provide explanation for exemption.

PROJECT INFORMATION	
TENANT OWNER / DOTA PROJECT MANAGER	
Name:	
Project Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	
ENGINEERING / DESIGN COMPANY	
Name:	
Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	
CONTRACTOR ***(if available at time of the Design Review)***	
Name:	
Point of Contact:	
Mailing Address:	
Phone:	
Email Address:	

Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

SITE INFORMATION			
Construction Site Location: (Street Address, Nearest Intersection, Etc.)			
Latitude:		Longitude:	
Tax Map ID:			
Disturbed Area (to nearest tenth of an acre):		Total Project Area (to nearest tenth of an acre):	
Existing Percentage of Impervious Area:		Percentage of Impervious Area After Project Completion:	

WATER BODY INFORMATION			
Nearest Receiving Water Body(s) [RWB]:		Distance to Nearest RWB (feet):	
Any New or Modified Storm Drain Connections:			
Location or ID # of Storm Drains On/Adjacent To Project Area:			
Has the Site-Specific BMP plan (SSBMP) or Stormwater Pollution Prevention Plan (SWPPP) been attached?	☐ Yes ☐ No ☐ N/A		
Do site BMPs control potential pollutants to the maximum extent practicable?	☐ Yes ☐ No ☐ N/A		
Does the project include permanent BMPs? (If not, provide justification)	☐ Yes ☐ No ☐ N/A		

SIGNATURES AND CERTIFICATIONS

Per my signature below, I hereby certify that this project is not part of a Larger Common Plan (LCP) for Development. I understand that additional construction activities at this site may require permit coverage and I am responsible for obtaining any federal, state, or local permits that may be required for this project.

I certify that all land-disturbing construction and associated activity pertaining to this site shall be accomplished pursuant to and in keeping with the terms and conditions of all relevant regulations including, but not limited to, the Federal Clean Water Act (33 USC 1251), Hawaii Revised Statutes 342D, Hawaii Administrative Rules (HAR) §11-54 and §11-55, DOTA's Construction Site Runoff Control Program, and any applicable DOTA Stormwater Management Program Plan. I hereby acknowledge that personnel from the Hawaii Department of Transportation's Airports Division or Hawaii Department of Health has the right of access to the site at all times for the purpose of on-site inspections during the course of construction and to perform inspections following the project completion. 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 Project Designer	Signature of Project Designer	Date

Printed Name of Tenant Owner (if applicable)	Signature of Tenant Owner (if applicable)	Date

Notification Form for Sites Disturbing Less Than One Acre (Not Part of a Larger Common Plan of Development)

Reviewed by:_____ Date: _____

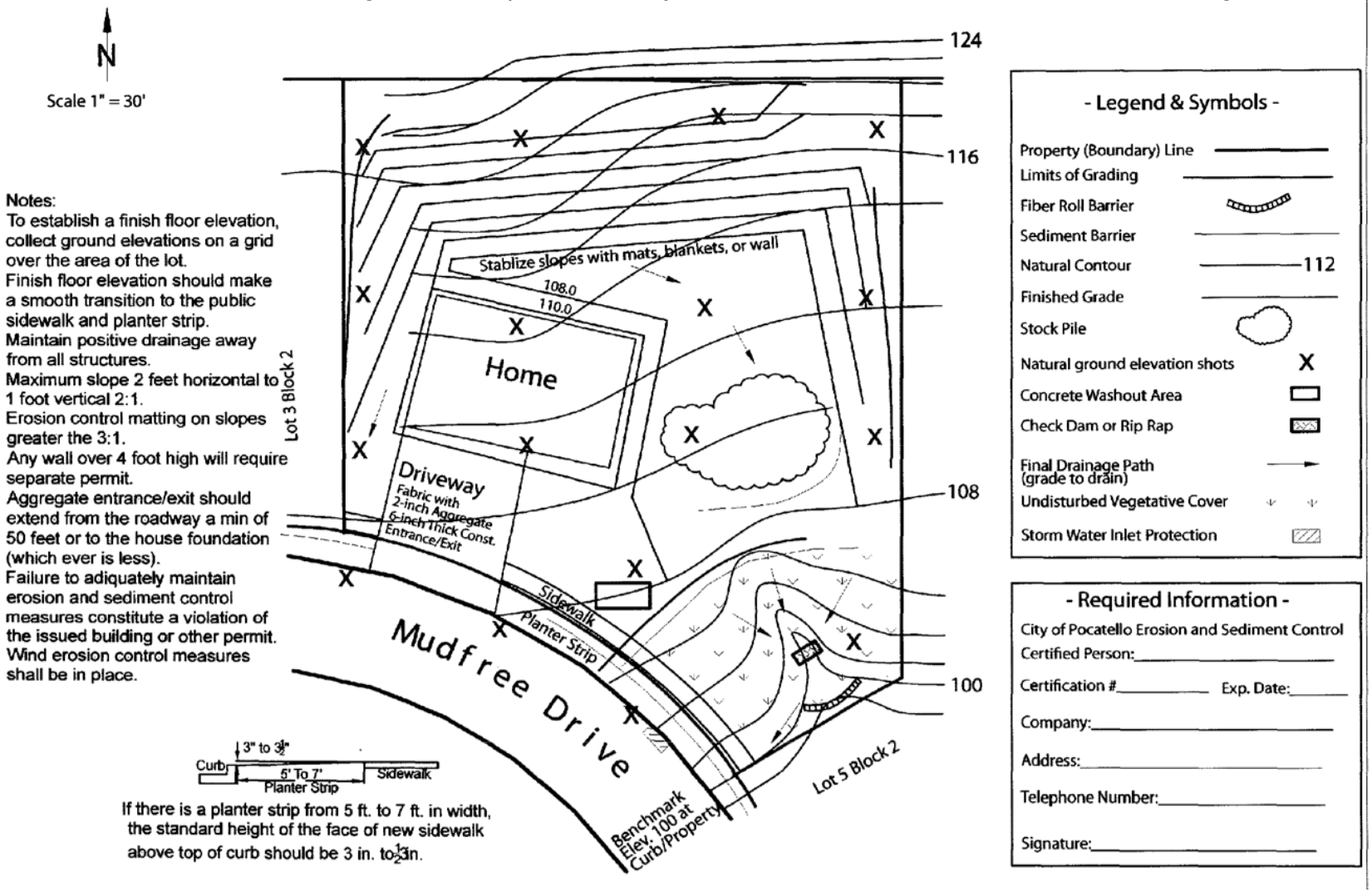
Notes:

1. This form is for the use on projects that will disturb less than 1 acre and are **not** a part of Larger Common Plan (LCP) for development. **If this project is part of an LCP for sale or development this form may not be used.**

2. You must type or print legibly. You must include the following documents.
   - The original notification form signed by the permittee.
   - A sketched plan outlining the anticipated activities and the location of all proposed sediment and erosion control devices.
   - The Site-Specific BMP Plan (SSBMP) or Stormwater Pollution Prevention Plan (SWPPP).

Notification Form for Sites Disturbing Less Than One Acre
(Not Part of a Larger Common Plan of Development)

Figure 1: Sample Small Project Erosion and Sediment Control Plan Drawing



Attachment C.4

Permit to Discharge Into the State Airport Drainage System Relating to Construction Projects

Discharge Permit No.: **Issuance Date:**

PERMIT TO DISCHARGE INTO THE STATE AIRPORT DRAINAGE SYSTEM RELATING TO CONSTRUCTION PROJECTS

Pursuant to Hawaii Administrative Rules, Chapter 11-55, application is hereby made to discharge into the Airport drainage system at the location (s) specified below and at no other place. The permit shall expire within 5 years of issuance date.

1. Name of Airport: _____
2. Name of Tenant: _____
3. Name of Project: _____
4. PMID/TMK: _____
5. Basin ID: _____
6. Location: _____
7. Type of Discharge:

☐ Stormwater from construction site ☐ Construction Dewatering ☐ New Drainage Connection
☐ Other ☐ Hydrotesting ☐ Alteration to Drainage

Licensee*, the undersigned, hereby agree to the following:

1. That the Licensee shall indemnify and hold the State free and harmless from all suits and actions resulting from the licensee's discharge operations.

2. That the Licensee will comply with all requirements of the DOTA SWMPP, including construction project plan review and inspections. The Licensee will promptly correct any deficiencies identified by DOH or DOTA.

3. That the Licensee shall provide appropriate best management practices and treatment devices for the removal of soil particles and other pollutant(s) in the discharge. Such discharge shall meet the basic water quality criteria applicable to all waters, as identified in Hawaii Administrative Rules, Chapter 11-54, Section 4 and any other applicable sections, at the point of discharge into State waters.

4. That the Licensee shall obtain National Pollutant Discharge Elimination System (NPDES) permit/permit coverage (if applicable) as required by the State Department of Health (DOH) and submit a copy to the State Department of Transportation, Airport Division (DOTA).

5. That the Licensee shall make all restoration to any State Airport or Airport tenant property damaged during the Licensee's discharge operations in accordance with DOTA.

6. That the Licensee shall discontinue the discharge should DOH determine that the receiving waters are being polluted, or the discharge does not meet the effluent requirements of the NPDES permit, or the Licensee's operations are not in the best interest of the general public. In addition, the Licensee shall be liable for any and all penalties as a result of discharges from the Licensee's operation.

7. That a copy of any effluent monitoring required by the NPDES permit shall be furnished to DOTA.

8. That the Licensee shall inspect and clean the inlets to the State Airport drainage system prior to discharging. If DOTA determines that any materials or substances from the Licensee's discharge operations have settled into any storm sewer, the Licensee shall immediately remove and clear any material and substance to the satisfaction of DOTA.

9. That the Licensee shall notify the DOTA Engineering Branch, Environmental Section (AIR-EE) of dewatering operations at least 24 hours before commencing discharge.

10. The Licensee shall require this permit to be a part of the contract with the contractor.

Signature of Licensee Date

Print Name and Title

Company Name

Company Address

City, State, Zip Code

Telephone Number

Fax Number

Approved:

Engineering Program Manager Date

Environmental Section Supervisor Date

*****Licensee shall be the owner or authorized representative of the tenant's company.
Attach: Drain Connection Plans, if applicable.

DRAIN CONNECTION WORKSHEET

If any item is listed as "no," explain the reason for its exclusion from this submittal

	IS INFO PROVIDED?	
ITEM	**Yes**	**No**
1) Project Location and Project Site Map showing subject discharge points to Airport drainage system.	☐	☐
2) Provide discharge location to each drainage feature in NAD 83 Geographic coordinates (latitude, longitude).	☐	☐
3) Runoff Flow Chart.	☐	☐
4) Quantity of stormwater and site process water entering drain system.	☐	☐
5) Site Specific Construction Best Management Practices (BMP) Plan or Stormwater Pollution Prevent Plan (SWPPP), including a detailed summary of Erosion Control BMPs, project location map, and construction schedule.	☐	☐
6) Site Specific Permanent Best Management Practices (PBMP) plan, drawing, or report (*Note: Projects must meet PBMP requirements detailed in the DOTA's *Stormwater Permanent BMP Manual* (unless exempt) in order to receive an airport drainage discharge permit.)	☐	☐
7) NPDES Permit Application, where applicable.	☐	☐

LEGEND:

D10 (25) — — BASIN NUMBER/EXHIBIT NUMBER
— — SHEET NUMBER(S)

- Drainage
- Drain Force Main
- Drainage Catch Basin
- Drainage Inlet
- Drainage Manhole
- Oil Water Separator
- Offsite Drainage (not HNL MS4)
- Abandoned/Plugged
- 12345 Tenant Maintained (not DOTA)
- Drain Filter
- Hydrodynamic Separator
- Dry Well
- Other Permanent BMPs

D1 (17), D2 (17), D3 (17), D4 (17), D5 (15), D6 (17), D7 (21), D8 (21), D9 (21), D10 (22, 23, 24, 25), D11 (26), D12 (26), D13 (26), D14 (26), D15 (2), D16 (2), D17 (17), E (26, 27), F (26, 27)

B1 (15), B2 (16), B3 (10, 11), B4 (12), B5 (13), B6 (13), B7 (14), B8 (14), B9 (15), B10 (15), B11 (15), B12 (16), B13 (17), B15 (18), B16 (18), B17 (19)

A1 (2), A2 (3), A3 (4), A4 (5), A5 (5), A6 (6), A7 (7), A8 (7), A9 (8), A10 (9)

C1 (10), C2 (20)

1500 0 1500 3000
GRAPHIC SCALE IN FEET

North

DANIEL K. INOUYE INTERNATIONAL AIRPORT (HNL)

Date : **MARCH 2019**

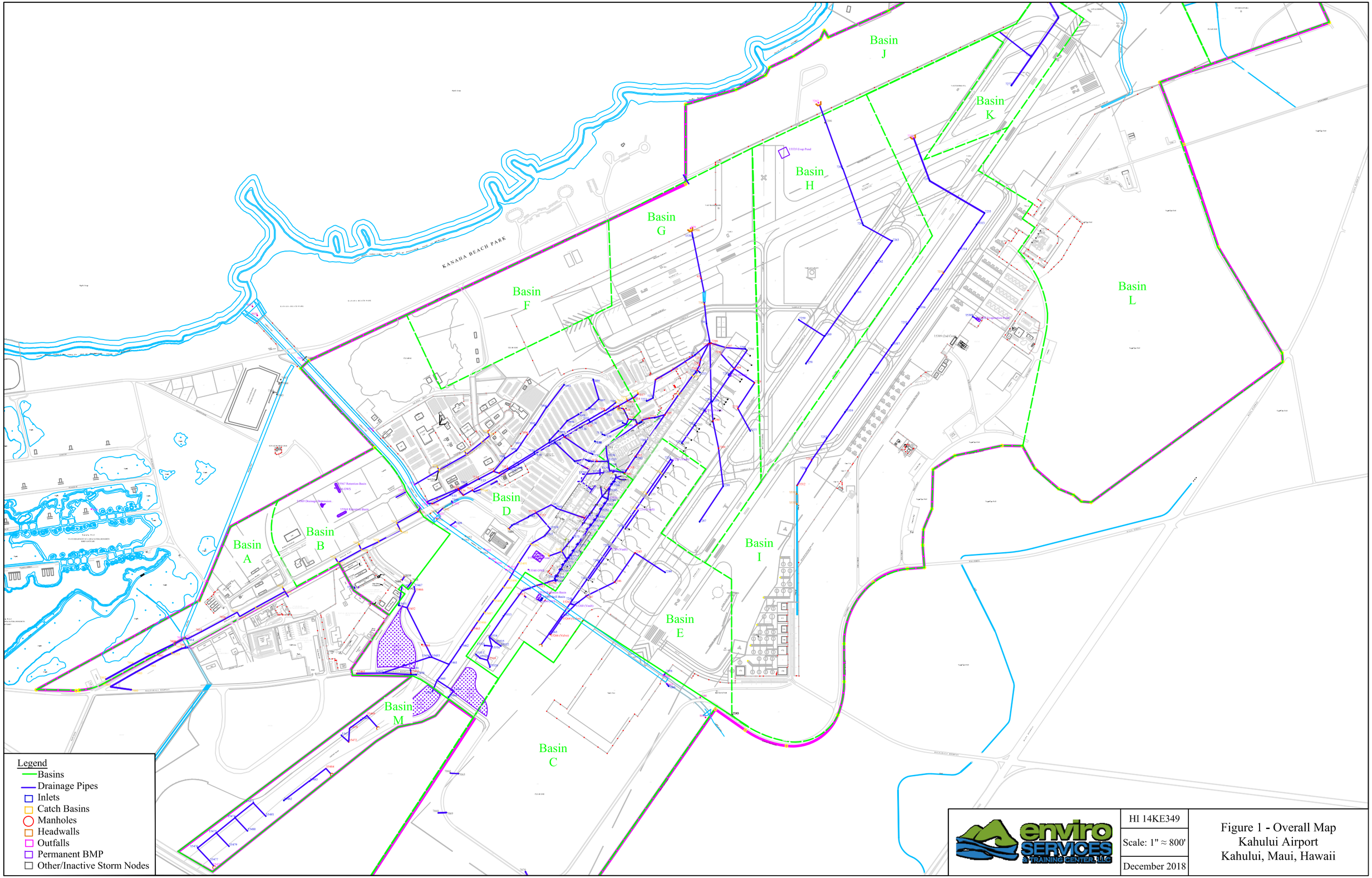
EXHIBIT:

Airports Division

INDEX

DRAINAGE NETWORK
HNL SMALL MS4

SHT 1 OF 27



HI 14KE349	
Scale: 1" ≈ 800'	
December 2018	

Figure 1 - Overall Map
Kahului Airport
Kahului, Maui, Hawaii

Attachment C.5

Review Comment Sheet

AIRPORTS DIVISION
REVIEW COMMENT SHEET

TYPE OF REVIEW: _____ PROJECT TITLE: _____ DATE: _____
AIRPORT: _____ PROJECT NO: _____ REVIEWER: _____
DATE ON DOCUMENTS: _____ REVISION NO: _____ SECTION: AIR-EE

COMMENT ID	REVIEWER CONTACT INFO	DATE MM/DD/YY	Dwg.Sht./ Spec. Pg.No.	Dwg Detail/ Spec. Para.	ORIGINAL REVIEW COMMENT	RESPONDENT CONTACT INFO	RESPONSE	CONCUR	NON-CONCUR	FIO	CLOSED Y/N	DATE MM/DD/YY	BACK CHECK COMMENT (Needed only if NOT closing comment)
1.													
2.													
3.													
4.													
5.													
6.													
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8.													
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19.													
20.													
21.													
22.													
23.													
24.													

All comments have been closed.

Reviewer Signature: _____ Date: _____

Note: Project review is considered approved when all comments have been closed.
Check the FIO column when comments are provided for information purposes only.

Attachment C.6

Construction Inspection Checklists (Initial, Monthly, and Final Inspections)

INITIAL CONSTRUCTION INSPECTION CHECKLIST

Project Name:	
Date:	Start / End Time:
Project No.:	NPDES Permit # (if any):
Inspection Company: _____	
Inspector:	Phone Number:
Construction Management Company / Tenant:	
CM / Tenant Representative:	Phone Number:
Contractor Company:	
Contractor's Representative:	Phone Number:
Weather Conditions:	

Check One: ☐ HNL SWMPP, DOTA ☐ OGG SWMPP, DOTA ☐ Non-Permitted Airport, DOTA
☐ HNL SWMPP, TIP ☐ OGG SWMPP, TIP ☐ Non-Permitted Airport, TIP ☐ Other:

	Inspection Items	***Yes***	***No***	***N/A***	***Comments***
1.	Is the Project greater than one (1) acre? This includes the project limits area and areas of construction support activities. a. If yes, has an NGPC Permit from the DOH been obtained?	☐ ☐	☐ ☐	☐ ☐	
2.	Has the Contractor's SWPPP/SSBMP been submitted and approved by DOTA? a. Has a copy been provided to AIR-EE?	☐ ☐	☐ ☐	☐ ☐	
3.	Are the applicable regulatory permits (i.e. NGPC, Army Permit) and updated SWPPP available on-site?	☐	☐	☐	
4.	Are personnel at the site aware of applicable BMPs and the location of the BMP Plan? a. Is a record of completion of the BMP training retained on site?	☐ ☐	☐ ☐	☐ ☐	
5.	Are contractor self-inspections performed as required in HAR 11-55, App C or at least every 7 days? a. Has a rain gauge been properly installed and included in the Contractor's SWPPP? Or, identify the Contractor's source for weather station readings.	☐ ☐	☐ ☐	☐ ☐	
6.	Is there approval to connect to the MS4 and/or make changes to the storm drain system? (i.e. Permit to Discharge into State Airport Drainage System)	☐	☐	☐	
7.	Dewatering Operations (Reference Construction Activities BMP Field Manual C.17) a. Has a NOI-G been submitted to DOH, and DOH issued a NGPC Permit? b. Are Dewatering Facilities located at designated areas and properly constructed and protected?	☐ ☐	☐ ☐	☐ ☐	

INITIAL CONSTRUCTION INSPECTION CHECKLIST

Inspection Items		*Yes*	*No*	*N/A*	*Comments*
	BMP MEASURES CHECKLIST				
8.	HydroTesting Waters a. Has a NOI-F been submitted to DOH, and DOH issued a NGPC Permit?	☐	☐	☐	
9.	Are Dust Control Measures (i.e. dust screens) properly constructed? (Reference Construction Activities BMP Field Manual C.6)	☐	☐	☐	
10.	Are all perimeter controls and sediment barriers installed and adequately constructed (keyed into substrate)? (Reference Construction Activities BMP Field Manual C.10, C.11, C.14)	☐	☐	☐	
11.	Are all storm drain inlets, catch basins, and manholes identified and adequately protected? (Reference Construction Activities BMP Field Manual C.12) a. Within Project Limits. b. Beyond Project Limits, receiving stormwater runoff from project site.	☐ ☐	☐ ☐	☐ ☐	
12.	Are Sediment Detention Basin and Sediment Traps properly constructed? (Reference Construction Activities BMP Field Manual C.13)	☐	☐	☐	
13.	Are the construction entrance/exits properly located at designated areas, constructed and stabilized? (Reference Construction Activities BMP Field Manual C.15 and C.16)	☐	☐	☐	
14.	Are Vehicle and Equipment Fueling, Cleaning and Maintenance Areas located at designated areas and properly constructed and protected? (Reference Construction Activities BMP Field Manual C.20, C.21, C.22)	☐	☐	☐	
15.	Are Material Storage Areas properly located at designated areas and properly protected? (Reference Construction Activities BMP Field Manual C.23) a. Are Material Storage Areas covered? b. Are Material Storage Areas surrounded by earth berm or other approved containment devices? c. For liquid chemicals and waste, are secondary containment facilities available?	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	
16.	Are trash and solid waste collection areas properly located at designated areas? (Reference Construction Activities BMP Field Manual C.27) a. Do the trash containers have covers? b. Are the trash containers watertight?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	

INITIAL CONSTRUCTION INSPECTION CHECKLIST

Inspection Items		*Yes*	*No*	*N/A*	*Comments*
	BMP MEASURES CHECKLIST				
17.	If contaminated soils are anticipated to be encountered during construction, are designated contaminated stockpile areas identified and properly located away from storm drains, open ditches, or water bodies? (Reference Construction Activities BMP Field Manual C.28)	☐	☐	☐	
18.	Are Concrete Washout Facilities properly located at designated areas, clearly marked and properly constructed and protected? (Reference Construction Activities BMP Field Manual C.29) a. Are Concrete Washout Facilities located 50-feet, minimum, away from storm drains, open ditches, or water bodies? b. Identify Concrete Washout Facilities. Check all applicable. i. Portable Bins (i.e. metal, plastic) ii. Excavated pit or surrounded by earth berm with plastic lining iii. Other, be specific.	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐	
19.	Are Sanitary and Septic Waste Facilities located at designated areas and properly constructed? (Reference Construction Activities BMP Field Manual C.30) a. Are portable toilet facilities properly secured to prevent "tipping?" b. Are facilities located away from storm drains, open ditches, or water bodies?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
20.	Are Spill Kits available on-site at designated locations? (Reference Construction Activities BMP Field Manual C.31)	☐	☐	☐	
21.	Are Non-Stormwater Washout Facilities (i.e. paint, hand wash) located at designated areas, clearly marked, properly constructed and controlled?	☐	☐	☐	
22.	Are discharge points and receiving waters free of any sediment deposits or other signs of illicit discharge?	☐	☐	☐	
23.	Other, be specific	☐	☐	☐	
24.		☐	☐	☐	
25.		☐	☐	☐	
26.		☐	☐	☐	
27.		☐	☐	☐	

INITIAL CONSTRUCTION INSPECTION CHECKLIST

List BMPs from the SWPPP and whether they are properly implemented.

BMP		Implemented		Comments
		Yes	No	
1.		☐	☐	
2.		☐	☐	
3.		☐	☐	
4.		☐	☐	
5.		☐	☐	
6.		☐	☐	
7.		☐	☐	
8.		☐	☐	
9.		☐	☐	
10.		☐	☐	
11.		☐	☐	
12.		☐	☐	
13.		☐	☐	
14.		☐	☐	
15.		☐	☐	
16.		☐	☐	

Additional Comments:

*Use additional paper if the number of BMPs exceed the space allotted.

INITIAL CONSTRUCTION INSPECTION CHECKLIST

Description of Potential Non-Compliance:

No.	Description	Photo No.	Deficiency Type	Follow-up Date

Check box if:

☐ No incidents of potential non-compliance were found, and I certify that this inspection found this site to be in full compliance with both the Stormwater Management Program Plan and applicable permits. All items must be checked "Yes" to be considered in full compliance. *(Site is ready for construction to commence.)*

☐ Incidents of potential non-compliance were found and discussed with Site Manager. If any items were checked "No" then this box must be checked. Document any incidences of non-compliance with photograph(s) and description of the non-compliance(s). *(All non-compliance issues must be corrected and documented before construction is allowed to commence.)*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Name: _____

Signature: _____ Date: _____

INITIAL CONSTRUCTION INSPECTION CHECKLIST

INSPECTION PHOTOGRAPHS

Photo 1 Description:	**Photo 2 Description:**
Photo 3 Description:	**Photo 4 Description:**

CONSTRUCTION INSPECTION CHECKLIST

Project Name: _____

Date: _____ Start / End Time: _____

Project No.: _____ NPDES Permit # (if any): _____

Name of Inspector's Firm: _____

Name of Inspector: _____ Phone Number: _____

On-site Representative: _____ Phone Number: _____

Weather Conditions: _____

Type of Inspection (check one): ☐ Weekly ☐ Monthly ☐ Follow-up ☐ Other:

	Inspection Items	***Yes***	***No***	***N/A***	***Comments***
1.	Are previously noted deficiencies corrected?	☐	☐	☐	
2.	Is there approval to connect to the MS4 and/or make changes to the storm drain system?	☐	☐	☐	
3.	Are the applicable regulatory permits and updated SWPPP available on-site?	☐	☐	☐	
4.	Are personnel at the site aware of applicable BMPs and the location of the BMP Plan?	☐	☐	☐	
5.	Are contractor self-inspections performed as required in HAR 11-55, App C or at least every 7 days?	☐	☐	☐	
6.	Are spill kits available on-site and spills promptly removed?	☐	☐	☐	
7.	Are all slopes and disturbed areas not actively being worked properly stabilized?	☐	☐	☐	
8.	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☐	☐	☐	
9.	Are discharge points and receiving waters free of any sediment deposits or other signs of illicit discharge?	☐	☐	☐	
10.	Are storm drain inlets and waterways properly protected?	☐	☐	☐	
11.	Is the construction exit preventing sediment from being tracked into the street?	☐	☐	☐	
12.	Is trash/litter from work areas collected and placed in covered dumpsters?	☐	☐	☐	
13.	Are proper washout facilities (i.e. paint, concrete) available, clearly marked, and maintained?	☐	☐	☐	
14.	Are materials that are potential stormwater contaminants stored inside or under cover?	☐	☐	☐	
15.	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or other deleterious material?	☐	☐	☐	
16.	Are non-stormwater discharges (i.e. wash water, dewatering) properly controlled?	☐	☐	☐	

CONSTRUCTION INSPECTION CHECKLIST

List BMPs from the SWPPP and whether they are properly implemented and maintained.

BMP		Implemented		Maintained		Comments
		Yes	No	Yes	No	
1.		☐	☐	☐	☐	
2.		☐	☐	☐	☐	
3.		☐	☐	☐	☐	
4.		☐	☐	☐	☐	
5.		☐	☐	☐	☐	
6.		☐	☐	☐	☐	
7.		☐	☐	☐	☐	
8.		☐	☐	☐	☐	
9.		☐	☐	☐	☐	
10.		☐	☐	☐	☐	
11.		☐	☐	☐	☐	
12.		☐	☐	☐	☐	
13.		☐	☐	☐	☐	
14.		☐	☐	☐	☐	
15.		☐	☐	☐	☐	

Additional Comments:

*Use additional paper if the number of BMPs exceeds the space allotted.

CONSTRUCTION INSPECTION CHECKLIST

Description of Potential Non-Compliance:

No.	Description	Photo No.	Deficiency Type	Follow-up Date

NOTE: Descriptions of deficiency types may be found in Table 2 of the HNL Stormwater Management Program Plan Section C.4.4

Check box if:

☐ No incidents of potential non-compliance were found, and I certify that this inspection found this site to be in full compliance with both the Stormwater Management Program Plan and applicable permits. All items must be checked "Yes" to be considered in full compliance.

☐ Incidents of potential non-compliance were found and discussed with Site Manager. If any items were checked "No" then this box must be checked. Document any incidences of non-compliance with photograph(s) and description of the non-compliance(s).

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Name: _____

Signature: _____ Date: _____

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Project Name:	
Date:	Start / End Time:
Project No.:	NPDES Permit # (if any):
Inspection Company:	
Inspector:	Phone Number:
Construction Management Company / Tenant:	
CM / Tenant Representative:	Phone Number:
Contractor Company:	
Contractor's Representative:	Phone Number:
Weather Conditions:	

Check One: ☐ HNL SWMPP, DOTA ☐ OGG SWMPP, DOTA ☐ Non-Permitted Airport, DOTA
☐ HNL SWMPP, TIP ☐ OGG SWMPP, TIP ☐ Non-Permitted Airport, TIP ☐ Other:

	Inspection Items	***Yes***	***No***	***N/A***	***Comments***
	REGULATORY PERMITS:				
1.	Is the Project greater than one (1) acre? This includes the project limits area and areas of construction support activities. a. If yes, has all the requirements of the NGPC Permit from the DOH been satisfactorily met?	☐ ☐	☐ ☐	☐ ☐	
2.	Have all requirements of applicable regulatory permits been completed and the permits closed? (i.e. Building, Grading, Army Permit)	☐	☐	☐	
3.	Have all the contractor's self-performed inspection reports as required in HAR 11-55 been submitted to the DOTA SPM or DOTA AIR-EE?	☐	☐	☐	
4.	Was there approval to connect to the MS4 and/or make changes to the storm drain system? (i.e. Permit to Discharge into State Airport Drainage System) a. Have these been properly completed in compliance with the Construction Contract Documents?	☐ ☐	☐ ☐	☐ ☐	
5.	Other, be specific.	☐	☐	☐	

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Inspection Items		Yes	No	N/A	Comments
TEMPORARY BMP MEASURES CHECKLIST					
6.	Are Dust Control Measures (i.e. dust screens) properly constructed? (Reference Construction Activities BMP Field Manual C.6)	☐	☐	☐	
7.	Are all perimeter controls and sediment barriers installed and adequately constructed (keyed into substrate)? (Reference Construction Activities BMP Field Manual C.10, C.11, C.14)	☐	☐	☐	
8.	Are all storm drain inlets, catch basins, and manholes identified and adequately protected? (Reference Construction Activities BMP Field Manual C.12) a. Within Project Limits. b. Beyond Project Limits, receiving stormwater runoff from project site.	☐ ☐	☐ ☐	☐ ☐	
9.	Are Sediment Detention Basin and Sediment Traps properly constructed and maintained? (Reference Construction Activities BMP Field Manual C.13)	☐	☐	☐	
10.	Are the construction entrance/exits properly constructed and stabilized? (Reference Construction Activities BMP Field Manual C.15 and C.16)	☐	☐	☐	
11.	Are Sanitary and Septic Waste Facilities properly secured to prevent "tipping?"	☐	☐	☐	
12.	Are Spill Kits available on-site at designated locations? (Reference Construction Activities BMP Field Manual C.31)	☐	☐	☐	
13.	Are discharge points and receiving waters free of any sediment deposits or other signs of illicit discharge?	☐	☐	☐	
14.	Other, be specific	☐	☐	☐	
15.		☐	☐	☐	
TEMPORARY STAGING & STORAGE FACILITIES					
16.	Have all Dewatering Operation Facilities been removed and the site properly restored and permanently stabilized?	☐	☐	☐	
17.	Have all Vehicle and Equipment Fueling, Cleaning and Maintenance Areas been cleaned, restored and properly stabilized?	☐	☐	☐	
18.	Have all Material Storage Areas been properly cleaned, restored and properly stabilized?	☐	☐	☐	

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Inspection Items		Yes	No	N/A	Comments
	TEMPORARY STAGING & STORAGE FACILITIES				
19.	Trash and Solid Waste Collection Areas. (Reference Construction Activities BMP Field Manual C.27) a. Do the trash containers have covers? b. Are the trash containers watertight?	☐ ☐	☐ ☐	☐ ☐	
20.	Were contaminated soils encountered during construction? a. Have all contaminated soils been properly disposed? Were records provided? b. Have all contaminated soil stockpile areas been properly cleaned, restored and permanently stabilized?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
21.	Have all Concrete Washout Facilities been cleaned and removed? a. Have the areas been properly restored and permanently stabilized?	☐ ☐	☐ ☐	☐ ☐	
22.	Have Non-Stormwater Washout Facilities (i.e. paint, hand wash) been removed and the area properly restored and permanently stabilized?	☐	☐	☐	
23.	Have all temporary contractor's storage and staging areas, including areas beyond the project limits, been properly restored and permanently stabilized?	☐	☐	☐	
24.	Other, be specific	☐	☐	☐	
25.		☐	☐	☐	
	PERMANENT BMP MEASURES CHECKLIST				
26.	Have all impervious surfaces, such as sidewalks and pavements, been constructed in compliance to the Construction Contract Documents?	☐	☐	☐	
27.	Is the new Drainage System completed in compliance to the Construction Contract Documents? a. Are all runoff waters flowing according to Construction Contract Documents? b. Are permanent drain inlet protection properly installed, functioning, and maintained?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
28.	Have all permanent Plants and Grass been installed? a. Do the Plants and Grass meet the requirements of Plant Establishment and exhibit healthy growth? b. Is the permanent irrigation system for the plants and grass functioning properly?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
29.	Have all permanent Mats and/or Erosion Control Blankets been properly installed according to the DOTA's Stormwater Permanent BMP Manual and Manufacturer's recommended procedures?	☐	☐	☐	
30.	Have all exposed and/or previously disturbed areas been permanently stabilized?	☐	☐	☐	

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Inspection Items		*Yes*	*No*	*N/A*	*Comments*
PERMANENT BMP MEASURES CHECKLIST					
31.	Does the vegetation that existed on areas of the site where no construction activity occurred still exhibit similar health and growth as observed prior to the commencement of construction activities.	☐	☐	☐	
32.	This Project consists of the following Design Facilities and Structures for Stormwater Source Control:				
	a. Fueling Area Design (Permanent BMP Manual Section PC26)	☐	☐	☐	
	b. Maintenance Area Design (Permanent BMP Manual Section PC27)	☐	☐	☐	
	c. Washing Area Design (Permanent BMP Manual Section PC28)	☐	☐	☐	
	d. Loading Area Design (Permanent BMP Manual Section PC29)	☐	☐	☐	
	e. Waste Management Area Design (Permanent BMP Manual Section PC30)	☐	☐	☐	
	f. Material Storage Area Design (Permanent BMP Manual Section PC31)	☐	☐	☐	
33.	This Project consists of the following Permanent BMP Facilities and Structures for Stormwater Treatment.				
	a. Mulching (Permanent BMP Manual Section PC3)	☐	☐	☐	
	b. Earth Dikes, Drainage Swales, and Lined Ditches (Permanent BMP Manual Section PC6)	☐	☐	☐	
	c. Slope Drains and Subsurface Drains (Permanent BMP Manual Section PC7)	☐	☐	☐	
	d. Slope Diversion Ditches and/or Berms (Permanent BMP Manual Section PC7)	☐	☐	☐	
	e. Top and Toe of Slope Diversion Ditches/Berms (Permanent BMP Manual Section PC8)	☐	☐	☐	
	f. Outlet Protection / Velocity Dissipation Devices (Permanent BMP Manual Section PC9)	☐	☐	☐	
	g. Flared Culvert End Sections (Permanent BMP Manual Section PC10)	☐	☐	☐	
	h. Slope Roughening / Terracing / Rounding (Permanent BMP Manual Section PC11)	☐	☐	☐	
	i. Level Spreader (Permanent BMP Manual Section PC12)	☐	☐	☐	

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Inspection Items		Yes	No	N/A	Comments
PERMANENT BMP MEASURES CHECKLIST					
	Permanent BMP Facilities and Structures for Stormwater Treatment. (continue)				
	j. Infiltration Trench (Permanent BMP Manual Section PC13)	☐	☐	☐	
	k. Retention Basin (Permanent BMP Manual Section PC14)	☐	☐	☐	
	l. Green Roofs (Permanent BMP Manual Section PC15)	☐	☐	☐	
	m. Alternative Wetlands (Permanent BMP Manual Section PC16)	☐	☐	☐	
	n. Green Parking (Permanent BMP Manual Section PC17)	☐	☐	☐	
	o. Alternative Pavers (Permanent BMP Manual Section PC16)	☐	☐	☐	
	p. BioRetention (Rain Gardens) (Permanent BMP Manual Section PC19)	☐	☐	☐	
	q. Sand Filters (Permanent BMP Manual Section PC20)	☐	☐	☐	
	r. Oil Water Separator (Permanent BMP Manual Section PC21)	☐	☐	☐	
	s. Continuous Deflective Separation (CDS) (Permanent BMP Manual Section PC22)	☐	☐	☐	
	t. Underground Detention Basin (Permanent BMP Manual Section PC24)	☐	☐	☐	
	u. Stormwater Re-Use (Permanent BMP Manual Section PC25)	☐	☐	☐	
34.	Have all applicable PBMP Operations & Maintenance Plans been provided to DOTA?	☐	☐	☐	
	a. Are maintenance personnel trained and is maintenance scheduled appropriately?	☐	☐	☐	
35.	Other, be specific	☐	☐	☐	
36.		☐	☐	☐	
37.		☐	☐	☐	

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

List BMPs from the SWPPP and whether they are properly implemented.

BMP		Implemented		Comments
		Yes	No	
1.		☐	☐	
2.		☐	☐	
3.		☐	☐	
4.		☐	☐	
5.		☐	☐	
6.		☐	☐	
7.		☐	☐	
8.		☐	☐	
9.		☐	☐	
10.		☐	☐	
11.		☐	☐	
12.		☐	☐	
13.		☐	☐	
14.		☐	☐	
15.		☐	☐	
16.		☐	☐	
Additional Comments:				

*Use additional paper if the number of BMPs exceed the space allotted.

FINAL CONSTRUCTION & POST-CONSTRUCTION BMP INITIAL INSPECTION CHECKLIST

Description of Potential Non-Compliance:

No.	Description	Photo No.	Deficiency Type	Follow-up Date

Note: Description of deficiency types may be found in Table 2 of the HNL Stormwater Management Program Plan, Section C.4.4.

Check box if:

☐ No incidents of potential non-compliance were found, and I certify that this inspection found this site to be in full compliance with both the Stormwater Management Program Plan and applicable permits. All items must be checked "Yes" to be considered in full compliance. *(Site is ready for removal of temporary BMP measures and closure of site.)*

☐ Incidents of potential non-compliance were found and discussed with Site Manager. If any items were checked "No" then this box must be checked. Document any incidences of non-compliance with photograph(s) and description of the non-compliance(s). *(All non-compliance issues must be corrected and documented. Temporary BMP measures must remain until all post-construction BMPs have been completed and accepted.)*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Name: _____

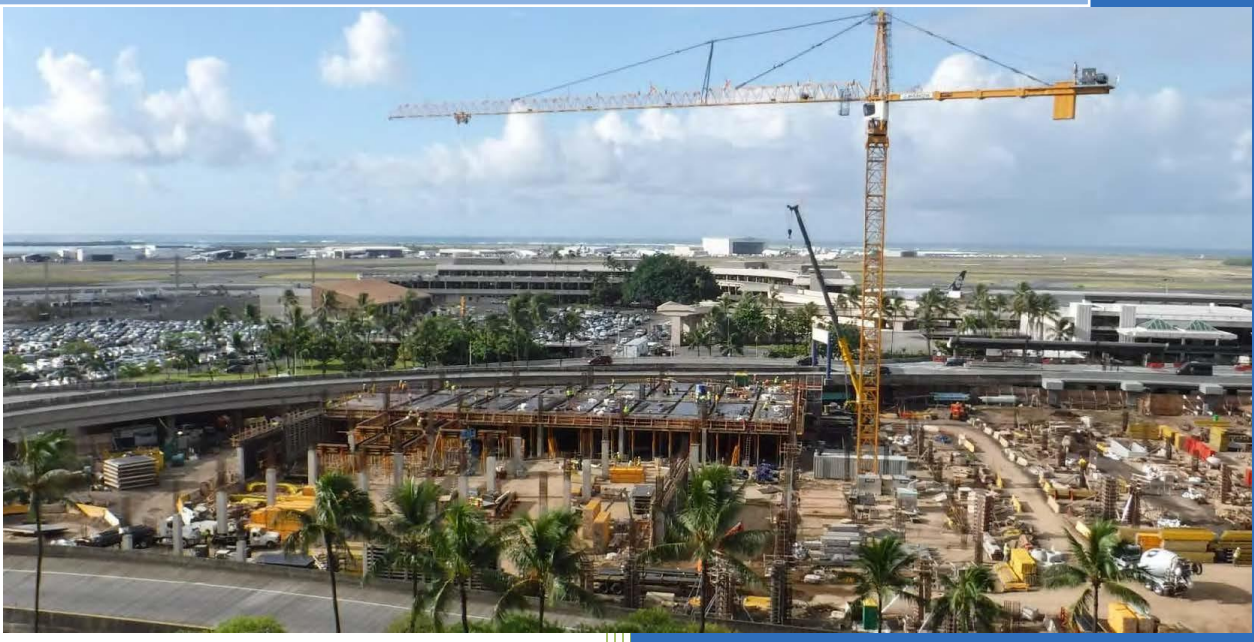
Signature: _____ Date: _____

Attachment C.7

Construction Activities BMP Field Manual

Best Management Practices

Construction Activities BMP Field Manual



STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION
400 Rodgers Boulevard, Suite 700
Honolulu, Hawaii 96819-1880

August 2019

Table of Contents

ACRONYMS

AIR-EE	State of Hawaii Department of Transportation, Airports Division, Environmental Engineering Section
AOA	Airport Operations Area
AST	Aboveground Storage Tank
BMP	Best Management Practice
C&D	Construction and Demolition
CIH	Certified Industrial Hygienist
CWB	Clean Water Branch
DOH	State of Hawaii, Department of Health
DOT	State of Hawaii, Department of Transportation
DOTA	State of Hawaii, Department of Transportation, Airports Division
EC	Emergency Coordinator
FAA	Federal Aviation Administration
FOD	Foreign Object Debris
HAR	Hawaii Administrative Rules
HEER	Health Hazard Evaluation and Emergency Response
HNL	Daniel K. Inouye International Airport
MS4	Municipal Separate Storm Sewer System
SDS	Safety Data Sheet
NRC	National Response Center
OGG	Kahului Airport
SPCC	Spill Prevention, Control, and Countermeasure
SWMPP	Stormwater Management Program Plan
SWPPP	Stormwater Pollution Prevention Plan
PCS	Petroleum-Contaminated Soil
PPE	Personal Protective Equipment
U.S.	United States of America

1.0 INTRODUCTION

The purpose of this *Construction Activities Best Management Practices (BMP) Field Manual* is to provide guidance on BMP selection, installation, and maintenance procedures for construction activities. Implementation of these BMPs is intended to prevent or reduce the discharge of pollutants to the State of Hawaii, Department of Transportation, Airports Division (DOTA) municipal separate storm sewer system (MS4) thereby protecting State waters from pollutant discharges. This manual does not constitute an exhaustive list of all BMPs available for use. Designers and contractors may use other BMPs than those listed in this manual provided they are approved by DOTA.

This manual is intended for use by DOTA staff, consultants, and contractors involved in projects that require construction work within DOT Airports' properties. The BMPs included in this manual focus on the areas of erosion control, sediment control, tracking control, potential pollutant control, and materials and waste management control. Erosion control BMPs are devices installed or constructed by the contractor on disturbed soil to protect the ground surface from erosion due to wind, rain, or runoff. Sediment control BMPs are measures that intercept and detain sediment-laden runoff prior to discharge offsite or to the storm sewer system. These devices detain runoff to promote infiltration and/or sedimentation. Tracking control BMPs are devices or procedures that minimize the amount of sediment and debris that is tracked offsite by vehicles and equipment. BMPs that control potential pollutants from site activities or materials and waste handling control and are established practices and procedures to control potential pollutants at their source.

BMP selection should be determined by an evaluation of the existing conditions, requirements of the project area, and potential pollutants. It is advised to install multiple BMPs to effectively prevent pollution from entering the MS4. For example, drain inlet protection is considered the last defense and should be combined with other BMPs that are designed to prevent pollution at the source.

Each BMP measure provided in this manual consists of the following sections:

- Description
- Limitations
- Practice
- Maintenance and Inspection

The BMP measures should be maintained and only removed after the potential source of the discharge of pollutants is eliminated, removed and stabilized, or the area is restored to pre-construction conditions. These are not Permanent BMP measures.

For Permanent BMP measures, please refer to the following sources.

- Stormwater Permanent BMP Manual located at
    - Daniel K. Inouye Airport previously known as Honolulu International Airport (HNL) Stormwater Management Program Plan (SWMPP), Section D Permanent BMP Program, Attachment D.1.

- Kahului Airport (OGG) Construction and Post-Construction Stormwater Management Plan, Section 2 and Appendix G

- Permanent BMP Operations & Maintenance Manual
  - HNL SWMPP Section D Permanent BMP Program, Attachment D.4.
  - OGG Construction and Post-Construction Stormwater Management Plan, Section 2 and Appendix I
- HNL SWMPP Section D Permanent BMP Program, Attachment D.2 Post-Construction BMP Handout.

Disclaimer

The information presented in this Construction Activities BMP Field Manual was taken from available and most recent sources deemed to be representative of the acceptable BMPs and stormwater runoff control measures. This manual has been prepared as a reference guideline, however, due to site-specific conditions, the selection of the BMPs must be used in conjunction with the best professional judgment and sound engineering principles to assure proper function and performance of the BMPs contained herein. The author does not guarantee the accuracy or completeness of this document and will not assume any liability or responsibility for the use of, or for any damages resulting from the use of any information contained herein. The detail and the wording in this manual will not necessarily result in compliance with the Standard Specifications. Application of BMPs should comply with applicable federal, state, and county regulations.

2.0 EROSION CONTROL BMPS

2.1 C.1 Scheduling

Description
Proper scheduling of construction activities can reduce the area and duration of soil exposure to erosion by wind, rain, runoff, and vehicle tracking.

Limitations
None.

Practice		
☐	C1.1	Avoid rainy periods as much as possible. Schedule major grading operations during dry months (April through October).
☐	C1.2	Monitor the weather forecast for rainfall. Allow sufficient time before rainfall begins to stabilize the soil with vegetation or physical means or to install temporary sediment trapping devices.
☐	C1.3	Minimize area of soil exposed at any one time. Schedule projects to disturb only small portions of the site at a time. Complete grading as soon as possible.
☐	C1.4	Avoid creation of open-water areas or features that can attract wildlife that are hazardous to airport operations.
☐	C1.5	Stabilize the finished graded area within seven (7) calendar days after completion of grading or one (1) calendar day before an anticipated rainfall event. Initiation of stabilization must commence within one (1) calendar day from the end of soil-disturbing activities.
☐	C1.6	Stabilize non-active exposed areas, where activity will not resume for a period of 14 or more calendar days, within seven (7) calendar days from the end of soil-disturbing activities or one (1) calendar day before an anticipated rainfall event. Initiation of stabilization must commence within one (1) calendar day from the end of soil-disturbing activities.
☐	C1.7	Backfill open trenches as soon as possible. Sequence trenching projects so open portions of the trench are backfilled before excavating the next trench section.
☐	C1.8	Minimize disturbance on steep slopes (greater than 15 percent in grade). If disturbance of steep slopes is unavoidable, phase disturbance and use stabilization techniques.

Maintenance and Inspection		
☐	M1.1	Verify that the work is in accordance with the construction schedule. If the work deviates from the schedule, take corrective actions.
☐	M1.2	Update the construction schedule as specified in the contract or as needed for unforeseen changes.

2.2 C.2 Preservation of Existing Vegetation

Description
Carefully planned preservation and protection of existing vegetation at construction sites minimizes the potential of harming or needlessly destroying existing trees, vines, shrubs and/or grasses that stabilize soil and control erosion. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. Vegetation also helps to keep soil from drying out and becoming susceptible to erosional wind sweeps. Identifying the type of vegetation desirable or ideal for the area to preserve can also contribute to the aesthetics of the post-construction site.

Limitations

- Topography, sub-surface geological characteristics, soil quality and a restrictive land development area are just a few site conditions that can make it difficult and expensive to preserve existing vegetation at a development site.
- Federal Aviation Administration (FAA) rules regarding aircraft clearances and lines of site may require the removal of existing vegetation. Reduced root systems equate to diminished anchoring of soil and a proportional increase in erosion via traffic (foot or vehicular/machinery).

Practice		
☐	C2.1	Preservation of existing vegetation shall be practiced in the following locations: • Areas within the project site where construction activities are not required. • Sensitive areas where natural vegetation exists and should be preserved, such as on steep slopes (e.g., steeper than 3:1), areas near watercourses, and wooded areas. • Areas where local, state, or federal governments require preservation, such as delineated wetlands, marshes, shorelines, conservation land, etc. • Swales and natural drainage ways and paths.
☐	C2.2	The following criteria may be used for deciding which vegetation will remain on the site: • Aesthetic values: Consideration should be given to foliage, flowering habits, bark and crown characteristics (for trees). • Freedom from disease and rot. • Life span of trees: Short-lived trees need not be preserved. • Environmental values: Habitat; screening; and buffers. • Sudden exposure: Save vegetation that grows in direct sunlight and is able to withstand radiated heat from proposed structures and pavement. • Space needed: Sufficient space must be provided between the vegetation and any structures, electric and telephone lines, water and sewer lines, driveways and roadways.
☐	C2.3	Do not include plant species that compete with the existing vegetation in landscaping plans.
☐	C2.4	Minimize disturbed areas or phase work to preserve pre-existing vegetation whenever feasible and for as long as possible.
☐	C2.5	Inspect swales and natural drainage ways prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	C2.6	Preserve native topsoil where practicable.
METHODS FOR PROTECTING EXISTING VEGETATION AND TREES INCLUDE:		
☐	C2.7	Protect trees and their root systems during construction by prohibiting soil disturbance within a specified distance identified in the project plans, which also helps prevent soil erosion.

C.2 Preservation of Existing Vegetation
(continued)

Practice		
☐	C2.8	Clearly mark, flag or fence areas where vegetation is to be preserved and trees to remain.
☐	C2.9	Stake off root system limits (dripline of tree).
☐	C2.10	Tree wells and retaining walls (permanent) help preserve existing vegetation, but must be large enough to protect the root system.
☐	C2.11	When grading under trees is necessary, excavation and fill is to be limited to one foot within the tree driplines
☐	C2.12	Do not locate construction traffic route, spoil stockpile, etc., in areas where significant adverse impact on existing vegetation may occur.
☐	C2.13	Prepare landscaping plans that preserve as much existing vegetation as possible and ensures the required care for this vegetation to thrive during and after construction.
☐	C2.14	Define and protect with berms, fencing, signs, etc., a setback area from vegetation to be preserved. Setback distance is to be based on the location, species, size, and age of the vegetation to be preserved and on the potential impact of adjacent construction activities or permanent improvement. No disturbance of any kind is to be allowed within the setback area around the vegetation to be preserved.

Maintenance and Inspection		
☐	M2.1	Ensure that the limits of disturbance are clearly marked at all times. If damage to existing vegetation still occurs, consult with an arborist.
☐	M2.2	Provide training for personnel regarding which vegetation will be preserved and the methods of preservation.

2.3 C.3 Location of Potential Sources of Sediment

Description
Proper location of potential sources of sediment can reduce erosion and the discharge of sediment from construction sites.

Limitations

- Prevention of sediment-laden runoff must be supplemented with mulching, planting, and structural controls such as berms, silt fences, and silt basins.
- Contaminated soil may need to be managed separately.

Practice		
☐	C3.1	Lay out the work site so that haul roads and stockpiles are buffered with vegetated areas to remove suspended sediment and other pollutants from runoff prior to discharging off-site. Vegetation along the perimeter of the site, especially on the downhill side for sloped sites, provides an effective buffer against sediment leaving the construction site.
☐	C3.2	Locate stockpiles away from waterways or low spots.
☐	C3.3	Redirect offsite runoff, where possible, so that it flows through or around the work site without contacting areas where the surface has been disturbed.
☐	C3.4	Properly maintain vegetation at swales and natural drainage ways.
☐	C3.5	If available, use naturally level areas for parking and equipment staging during construction.

Maintenance and Inspection		
☐	M3.1	Verify that the work site lay out is in accordance with the project phasing plan. Update the layout per phase of work. An updated lay out plan should be submitted to the Construction Manager prior to the start of work for that phase.
☐	M3.2	Inspect swales and natural drainage ways prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M3.3	Educate personnel about proper locations of potential sources of sediment at the site.

2.4 C.4 Earth Dike

Description
The temporary earth dike is a temporary berm or ridge of compacted soil, used to divert runoff or channel water to a desired location.

Earth dikes are typically used to divert concentrated runoff through disturbed areas into another BMP (e.g., sediment basins), to divert runoff away from disturbed or unstable slopes, to divert runoff from offsite and undisturbed areas around disturbed areas, and as containment for construction materials and wastes.

Limitations
Temporary dikes shall not be used for drainage areas greater than 10 acres, or along slopes greater than 10 percent. For larger areas, more permanent drainage structures shall be built. Additional limitations include the following:

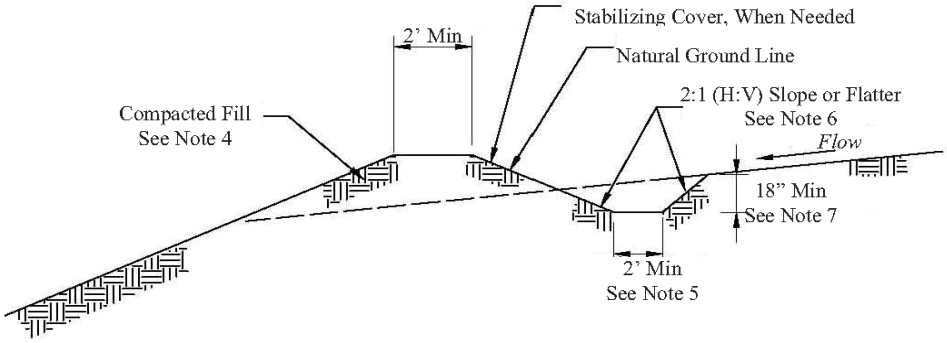
- Earth dikes may create more disturbed area.
- Earth dikes must be stabilized immediately, which adds cost and maintenance concerns.
- Diverted stormwater may cause downstream damage.
- Dikes are not to be constructed of soils that erode easily.
- Regarding the site to remove the dike may add additional cost.

Practice		
☐	C4.1	The locations and size of temporary earth dikes should be reviewed and approved by the Airport Manager to prevent possible hazards and adverse impacts to aircraft and airport operations.
☐	C4.2	Dikes are to be well-compacted during construction.
☐	C4.3	All dikes are to divert runoff to an off-site area or sediment trapping device.
☐	C4.4	Dikes should have 2:1 or flatter side slopes, 18 inches minimum height, and a minimum top width of 24 inches. Top width may be wider and side slopes may be flatter at crossing for construction traffic.
☐	C4.5	When used to divert runoff through a disturbed area, dikes are to direct sediment-laden runoff into a sediment-trapping device.
☐	C4.6	Dikes surfaces are to be stabilized with vegetation, chemicals, or physical devices within one (1) calendar day after construction of the dikes has been completed.
☐	C4.7	Dikes are to remain in place until the disturbed areas are permanently stabilized.
☐	C4.8	Dikes must be onsite and must safely convey anticipated flood flows.

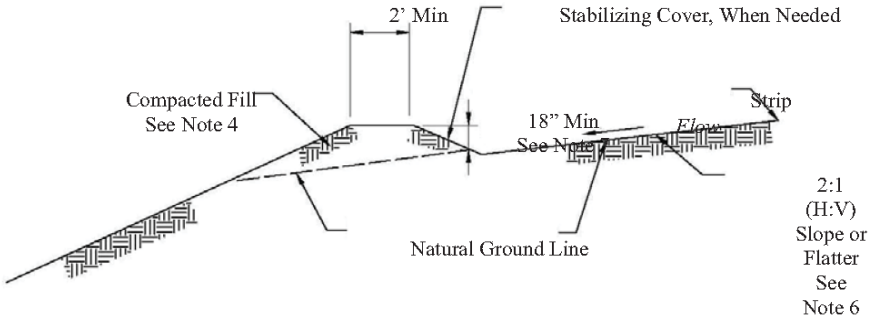
Note: Example schematics are included herein for reference.

Maintenance and Inspection		
☐	M4.1	Inspect dikes prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M4.2	Repair damage sustained to the dike within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M4.3	Provide training for personnel detailing the location and BMP requirements for any earth dikes the site.

C.4 Earth Dike
(continued)



Drainage Swale Section "A"



Earth Dike Section "B"

Notes:
1. Place drainage swales above or below, not on, a cut or fill slope.
2. Drainage or swales should be laid at a grade of at least 1 percent, but not more than 15 percent.
3. Remove all trees, stumps, obstructions, and other objectionable material from the swale.
4. Fill material along the path of the swale should be compacted to at least 90% compaction.
5. Swale top and bottom width should be at least 2 ft.
6. Side slopes should be 2:1 or flatter.
7. Depth of the swale should be at least 18 in.
8. Construct the drainage swale with a positive grade to a stabilized outlet.
9. Use a lined ditch for high flow velocities.
10. Temporary stabilization may be achieved using seed and mulching for slopes less than 5% and either rip-rap or sod for slopes in excess of 5%.
11. If rip-rap is used to stabilize the channel formed along the toe of the dike, the following typical specifications apply:

Channel Grade	Riprap Stabilization
0.5-1.0%	4 in. Rock
1.1-2.0%	6 in. Rock
2.1-4.0%	8 in. Rock
4.1-5.0%	8 in. – 12 in. Rock

Drainage Swale and Earth Dike

Source: City and County of Honolulu BMP Manual, November 2011.

2.5 C.5 Temporary Drains and Swales

Description
Temporary drains and swales are used to divert offsite runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff into sediment basins or traps.

Limitations
- Temporary drains and swales, or any other diversion of runoff, shall not adversely impact upstream or downstream properties.
- Temporary drains and swales must conform to local flood plain management requirements.
- A licensed, qualified engineer must design a permanent drainage channel.

Practice		
☐	C5.1	At a minimum, the drain/swale shall conform to predevelopment drainage patterns and capacities.
☐	C5.2	Construct the drain/swale with an uninterrupted, positive grade to a stabilized outlet.
☐	C5.3	Provide erosion protection or energy dissipation measures if the flow out of the drain or swale can reach an erosive velocity.
☐	C5.4	Size temporary drainage swales using local drainage design criteria.
☐	C5.5	Use a lined ditch for high-flow velocities.
☐	C5.6	Use velocity dissipation devices at the outlet to minimize erosive flow velocities.

Note: Refer to schematics provided in the earth dike BMP.

Maintenance and Inspection		
☐	M5.1	Inspect temporary drains and swales prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M5.2	Repair damage sustained to the swales within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M5.3	Ensure required personnel are trained on maintenance and operation of temporary drains and swales.

2.6 C.6 Dust Control

Description
Dust control measures are used to stabilize soil from wind erosion, and reduce dust generated by construction activities.

Limitations
- Watering prevents dust only for a short period and must be applied daily (or more often) to be effective.
- Excessive water usage for dust control may cause erosion.
- Oil is not to be used for dust control because the oil may migrate into a drainage way and/or seep into the soil.
- Certain dust suppression chemicals may make soil water repellant, increasing runoff. Chemical treatment of the soil shall not be allowed without the approval of the Engineer.

Practice		
☐	C6.1	Schedule construction activities to minimize exposed areas.
☐	C6.2	Stabilize exposed soils until permanent BMPs are installed. If stabilizing by water, water continuously throughout the workday, and avoid over saturation to prevent excessive runoff.
☐	C6.3	Identify and stabilize key access points prior to commencement of construction.
☐	C6.4	Minimize the impact of dust by anticipating the direction of prevailing winds.
☐	C6.5	Direct most construction traffic to stabilized roadways within the project site.
☐	C6.6	Comply with State of Hawaii, Department of Health (DOH) requirements for dust control.
☐	C6.7	Chemical treatment of the soil shall not be allowed without the approval of the Engineer.
☐	C6.8	If using water or chemical treatment, maintain daily records of the date and time of application and number of gallons or loads of product applied. Provide records upon request by the Engineer. When using water, only potable water shall be used. Oil is not to be used for dust control.
☐	C6.9	If dust screen or fence is used in conjunction with other dust control measures, the Airport Manager or Code 22 must approve the location. Screens located on or adjacent to the Airport Operations Area (AOA) fence line may not be allowed due to airport security concerns.
☐	C6.10	Dust screen and fence must be of proper size and height to contain airborne dust particles. It shall be of continuous length without gaps and firmly secured to posts and other supporting devices.
☐	C6.11	Locations for dust screen shall consider aircraft operations that can create localized high velocity wind gust.

Maintenance and Inspection		
☐	M6.1	Inspect all areas that have been sprayed to ensure coverage. Ensure that excessive runoff is not generated.
☐	M6.2	Reapply water when soil becomes dry.
☐	M6.3	Inspect dust screens regularly. Repair any damage, such as rips and tears, within two (2) calendar days. Remove any accumulated dust at base of screen.
☐	M6.4	Provide personnel responsible for dust control with adequate training.

2.7 C.7 Topsoil Management

Description
The salvaging, stockpiling and reapplication of topsoil or other selected material to be used as growth medium in the reclamation of surface disturbances.

Limitations
- Avoid installation and placement of topsoil during windy and rainy weather events.

Practice		
☐	C7.1	Conduct a site-specific survey of the project area as a part of baseline investigations. The soil survey will identify the soils suitable for salvaging and their depth prior to disturbance.
☐	C7.2	Salvage all suitable topsoil and suitable material to be utilized in reclamation of the surface disturbance wherever feasible and stockpile for reapplication.
☐	C7.3	If conditions permit, apply topsoil or growth medium directly to disturbed areas.
☐	C7.4	Soil replacement depths are determined by several factors including: • Pre-disturbance soil depths; • Vegetation types; and • The physical and chemical properties of the material being covered. Generally speaking, the poorer the physical and chemical properties of the spoil or waste material, the greater the required depth of replacement soil.
☐	C7.5	Conduct soil testing (nutrients, pH and toxicity factors) of the replacement soils and the materials to be covered prior to application of topsoil.
☐	C7.6	Dust control measures, perimeter sediment controls, and storm drain inlet protection measures must be in place prior to and during placement of topsoil.
☐	C7.7	Stabilize exposed topsoil areas within three (3) calendar days after installation is complete.
CONSIDERATIONS FOR DEVELOPING A TOPSOIL MANAGEMENT PLAN:		
☐	C7.8	The amount and quality of existing topsoil or growth medium.
☐	C7.9	The amount of surface disturbance (area), which will receive topsoil or growth medium and the required depth of application.
☐	C7.10	Methodology to be utilized for topsoil or growth medium salvage.
☐	C7.11	Storage location, the duration of storage of salvaged soils, and the protection of stockpiled soils to prevent erosion.
☐	C7.12	The feasibility of direct replacement of the salvaged soils.
☐	C7.13	Availability of additional growth media to supplement topsoil replacement.

C.7 Topsoil Management
(continued)

Maintenance and Inspection		
☐	M7.1	Review and update the topsoil management plan at the beginning of each workweek until all grading operations are completed.
☐	M7.3	Conduct periodic maintenance of topsoil stockpiles to prevent erosion. Cover the topsoil stockpiles with plastic or another substrate, or re-vegetated, to protect from wind, rain, and erosion.
☐	M7.2	Regularly inspect, maintain, and immediately repair dust control, perimeter sediment controls, and storm drain inlet protection measures until planting is fully established.

2.8 C.8 Geotextiles and Mats

Description
Coverings made of natural or synthetic material are used to temporarily or permanently stabilize soil.

Limitations

- Matting is more costly than other BMP practices; therefore, it may be used in areas where other BMPs are ineffective (e.g., channels, steep slopes).
- Matting is not suitable for rocky sites or areas that will have vegetation that requires mowing (i.e., the matting and staple anchors can get caught in the mower).
- May delay seed germination due to reduction in soil temperature.
- Installation requires an experienced maintenance engineer to ensure soil stabilization and erosion protection.

Practice		
☐	C8.1	Applicable use for temporary stabilization of highly erosive soils such as channels, streams, and steep slopes.
☐	C8.2	Apply jute or straw matting to disturbed soils and where existing vegetation has been removed.
☐	C8.3	The following are examples of synthetic soil covers that may be used for either temporary or post-construction stabilization, both with and without vegetation: • Excelsior matting • Glass fiber matting • Mulch netting
☐	C8.4	When used on slopes, anchor geotextile or matting to the top of the slope in a 6-inch-deep trench and backfill, or per manufacturer's recommended procedures, whichever is more stringent.
☐	C8.5	Overlap the edges of the blankets approximately 2 to 3 inches and staple every 3 feet, or per manufacturer's recommended procedures, whichever is more stringent. Ensure close and continuous contact with the soil.

Maintenance and Inspection		
☐	M8.1	Inspect matting prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M8.2	Repair damage sustained to the matting within seven (7) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M8.3	If washout or breakage occurs, reconstruct the slope or channel within seven (7) calendar days after the incident and immediately reinstall the matting.
☐	M8.4	Train required personnel about proper installation and maintenance of geotextile mats as well as the importance of preventing sediment discharge.

2.9 C.9 Grass and Planting

Description
Grasses and planting of trees, shrubs, vines, and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

Limitations
- Permanent and temporary vegetation may not be appropriate in dry periods without irrigation.
- Fertilizer requirements may have potential to create stormwater pollution if improperly applied.
- FAA regulations may prohibit the implementation of vegetation due to concerns over creating bird habitats and possible bird strikes with aircraft in movement areas of the airport. Consult with the DOTA Environmental Section (AIR-EE) for exemptions in these cases.
- Per FAA Regulations, seeds are not to be scattered or applied through hydroseeding.
- If vegetation is necessary, consult with the AIR-EE for recommended grasses and plants that are non-seeding.
- Fertilizers and soil conditioners shall not be applied during or prior to inclement weather or rain events.
- Do not over-apply fertilizers, herbicides, or pesticides. Over-application is expensive and environmentally harmful.
- Do not apply to stormwater conveyance channels with flowing water or within 6-feet of a water body.
- Excessive irrigation may cause erosion.

Practice		
GRASSES:		
☐	C9.1	Ground preparation: fertilize and mechanically stabilize the soil.
☐	C9.2	Tolerant of short-term temperature extremes and waterlogged soil conditions.
☐	C9.3	Appropriate soil conditions: shallow soil base, good drainage, slope of 2:1 or flatter.
☐	C9.4	Use grass plugs, sod or other methods that do not attract birds and other wildlife.
☐	C9.5	Mow, irrigate, and fertilize to promote vigorous grass growth.
TREES AND SHRUBS:		
☐	C9.6	Selection Criteria: vigor, species, size, shape, and wildlife food source.
☐	C9.7	Other Factors: wind/exposure and irrigation needs.
VINES AND GROUND COVERS:		
☐	C9.8	Ground preparation: lime and fertilizer preparation.
☐	C9.9	Appropriate soil conditions: drainage, acidity, and slopes.
☐	C9.10	Generally, avoid species requiring irrigation.
FERTILIZIERS AND SOIL CONDITIONERS:		
☐	C9.11	Prepare only the amount needed for fertilizer, herbicide, or pesticide application. Follow the recommended usage instructions.

C.9 Grass and Planting
(continued)

Practice		
FERTILIZIERS AND SOIL CONDITIONERS:		
☐	C9.12	Except on steep slopes, if possible, till fertilizer into the soil rather than surface spreading or spraying it. Apply surface dressings in several smaller applications, as opposed to one large application to allow time for infiltration and to avoid excess material being carried offsite by runoff.
☐	C9.13	Choose plants that minimize or eliminate the use of fertilizers or pesticides to sustain growth.
☐	C9.14	Follow federal, state, and local laws regarding fertilizer application.
☐	C9.15	Provide cover and dunnage when storing fertilizer to prevent contact with rainwater and runoff.
☐	C9.16	Store all hazardous pesticides with secondary containment and under cover. Review the Safety Data Sheet (SDS) to identify the chemical composition and hazard category.
IRRIGATION SYSTEMS:		
☐	C9.17	Where possible, group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with no or low irrigation requirements. Native plant species are preferred.
☐	C9.18	Design timing and application methods of irrigation water to eliminate the runoff of excess irrigation water into the stormwater drainage system.
☐	C9.19	Employ rain-triggered shutoff devices to prevent irrigation during and after precipitation.
☐	C9.20	Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.

Maintenance and Inspection		
☐	M9.1	Inspect planted areas for failures and re-fertilize. Re-plant areas of failed plant establishment or unhealthy plant growth.
☐	M9.2	Inspect immediately after any rainfall event to ensure plants were not displaced and soil has not eroded.
☐	M9.3	Maintain a log of fertilizer, herbicide, and pesticide applications.
☐	M9.4	Clean any spills from fertilizer, herbicide, and pesticide mixing or application.
☐	M9.5	Inspect fertilizer, herbicide, and pesticide storage areas regularly.
☐	M9.6	Repair broken sprinkler heads and lines immediately.

3.0 SEDIMENT CONTROL BMPS

3.1 C.10 Sand Bag Barrier

Description
Stacking sand bags along a level contour creates a barrier that detains sediment-laden water, ponding water upstream of the barrier and promoting sedimentation.

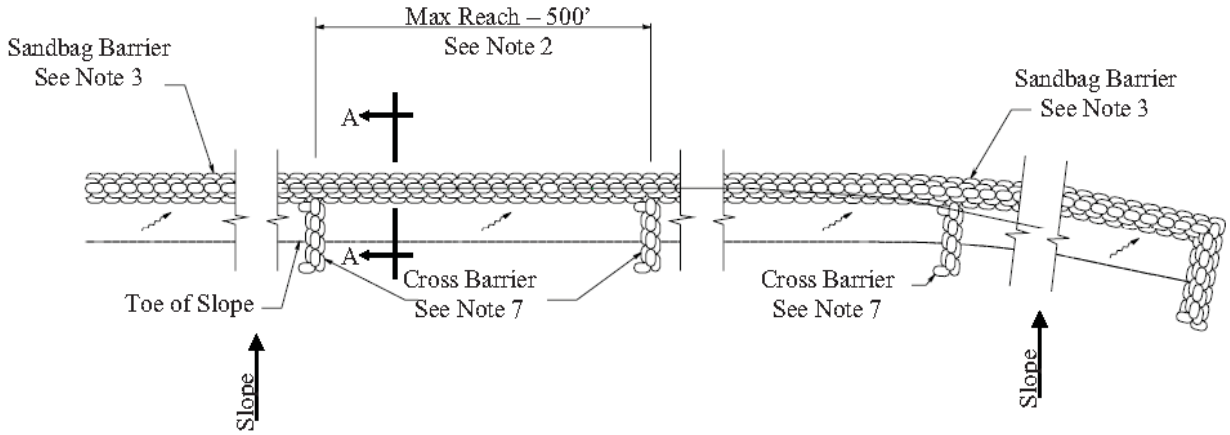
Limitations
- Do not install sand bag barrier at locations that could compromise traffic safety.
- Sand bags are more expensive than other barriers, but also more durable.
- Do not use burlap for sand bags.

Practice		
☐	C10.1	Sand bag barriers may be used in drainage areas up to 5 acres.
☐	C10.2	Install along a level contour.
☐	C10.3	Base of sand bag barrier shall be at least 48 inches wide.
☐	C10.4	Height of sand bag barrier shall be at least 18 inches.
☐	C10.5	Four-inch Polyvinyl Chloride (PVC) pipe may be installed between the top layers of sand bags to drain large flood flows.
☐	C10.6	Provide area behind barrier for runoff to pond and sediment to settle; size barrier according to sediment trap BMP criteria.
☐	C10.7	Place below the toe of a slope.
☐	C10.8	Use sand bags large enough and sturdy enough to withstand major flooding.

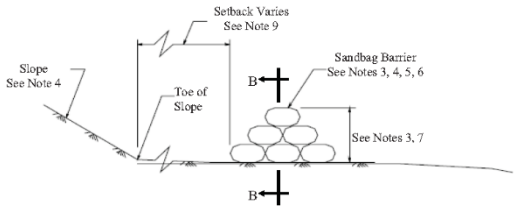
Note: Example schematics are included herein for reference.

Maintenance and Inspection		
☐	M10.1	Inspect sand bags prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M10.2	Repair damage sustained to the sand bags within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M10.3	Remove sediment when accumulation reaches one-third the barrier height.
☐	M10.4	Provide education for required personnel about proper sand bag placement and maintenance. Train on the importance of preventing sediment discharge.

C.10 Sand Bag Barrier
(continued)

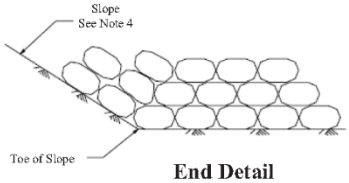


Detail "A"
Not to Scale



Section A-A
Not to Scale

Section B-B
See Note 5
Not to Scale



End Detail
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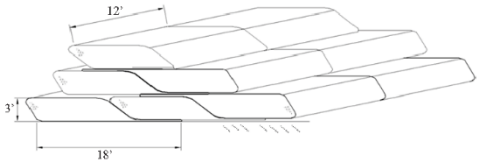


Stacked Sandbags
See Note 3
Not to Scale

Overlapping Sandbags
Not to Scale

Notes:
1. Drainage area should not exceed 5 acres.
2. Construct the length of each reach so that the change in base elevation along the reach does not exceed ½ the height of the linear barrier. In no case shall the reach length exceed 500'.
3. Stack sandbags at least three bags high with proper side slopes using a pyramid approach.
4. Locate sandbag barriers on a level contour.
   a. Slopes between 20:1 and 2:1 (H:V): Sandbags should be placed at a maximum interval of 50 ft. (a closer spacing is more effective), with the first row near the slope toe.
   b. Slopes 2:1 (H:V) or steeper: Sandbags should be placed at a maximum interval of 25 ft. (a closer spacing is more effective), with the first row placed near the slope toe.
5. Overlap butt joints of row beneath with each successive row.
6. The end of the barrier shall be turned up slope.
7. Cross barriers shall be a min of ½ and a max of 2/3 of the height of the linear barrier.
8. Sandbag material must conform to ASTM designation D3786 and ASTM designation D4355.
9. Dimensions may vary to fit field condition.
10. For Sandbag and Fill Material Specifications see SE-8 Sandbag Barrier, Materials.

Sandbag Barrier

3.2 C.11 Compost Filter Berm or Sock

Description
A compost filter berm is a dike or compost product that is placed perpendicular to sheet flow runoff to retain sediment onsite. These are generally placed along the perimeter of a site and work to retain large volumes of water, and retain larger amounts of pollutants as water passes through the berm. The berm may either be vegetated or unvegetated.

Limitations
- Only applicable where flow does not exceed 1 cubic foot per second (cfs).
- Compost quality shall comply with all local, state, and federal requirements.
- Do not overlap berms by placing on top of each other.

Practice		
☐	C11.1	Select the appropriately sized berm based on rainfall amount and slope.
☐	C11.2	Fill a mesh tube with composted material and tie knots at both ends of the sock. Ensure that the berm is at least 10 inches in diameter.
☐	C11.3	Install berm per manufacturers' recommended procedures and instructions.
☐	C11.4	Place perpendicular to flow along the base or slopes or site perimeter. Ensure that the berm has good contact with the ground.
☐	C11.5	When encountering a difference in elevation or "step" along the ground, such as curbs or wall, turn the end of the berm towards the flow along the face of the curb or wall. Extend the berm a minimum of 3-feet against the face of the curb or wall. Similarly, if the berm continues on the top of the curb or wall, turn the berm towards the flow for a minimum of 3-feet. Do not "bridge" the elevation difference, unless allowed per the manufacturer's recommended procedures and uses.
☐	C11.6	Overlap the berms a minimum of 6 inches and place them side-by-side.
☐	C11.7	Place stakes on the downstream side of berms that are located on slopes.
☐	C11.8	Berms and socks shall be accessible and visible for inspection and monitoring. No materials and equipment shall be stored on top of or immediately abutting the berm or sock.
☐	C11.9	When complete, compost may be added to the site as a soil amendment with approval from the Airport Manager or AIR-EE.

Maintenance and Inspection		
☐	M11.1	Inspect berms prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M11.2	Repair damage sustained to the berms, such as ripped mesh, within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M11.3	Remove sediment when accumulation reaches one-third the barrier height.
☐	M11.4	Provide education for required personnel about proper berm installation and maintenance. Train on the importance of preventing sediment discharge.

3.3 C.12 Storm Drain Inlet Protection

Description
Devices of various designs which detain sediment-laden runoff and allow the sediment to settle out of the water prior to discharge into a storm drain inlet or catch basin.

Limitations
- Inlet protection must not create a potential hazard to traffic and pedestrians.
- Drainage area shall not exceed 1 acre.
- Runoff may bypass protected inlets on slopes.
- Ponding will occur at a protected inlet, with possible short-term flooding.
- Straw bales are NOT effective for inlet protection.

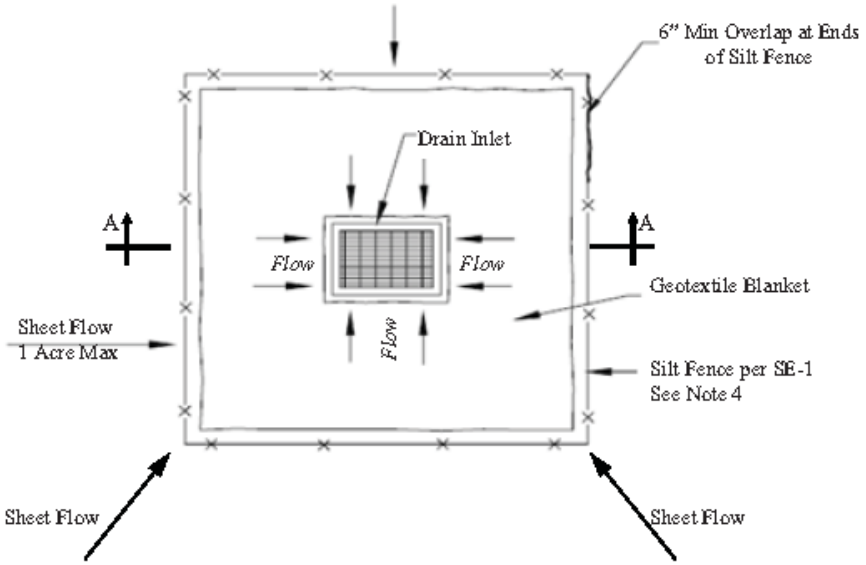
Practice		
☐	C12.1	Protect every storm drain inlet potentially receiving sediment-laden runoff, either by covering the inlet or promoting sedimentation upstream of the inlet.
☐	C12.2	Five types of inlet protection are presented below; however, other effective methods and proprietary devices exist and may be selected: • Filter Fabric Fence: Appropriate for drainage basins less than one acre with less than a 5 percent slope. • Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs. • Gravel and Wire Mesh Filter: Used on curb or drop inlets where construction equipment may drive over the inlet. • Sand Bag Barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. • Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment. Use only for drainage areas smaller than one acre unless a sediment trap first intercepts the runoff.
☐	C12.3	Select the appropriate type of inlet protection as identified in C12.2 above and design as referred to or as described herein. • Filter Fabric: Must be of sufficient strength and permeability to allow stormwater to pass through and retain sediment. Must be anchored such that the fabric will not fall into the drain when the grate is removed for maintenance.
☐	C12.4	Install inlet protection per manufacturers' recommended procedures and instructions.
☐	C12.5	Provide area around the inlet for water to pond without flooding structures and property.
☐	C12.6	Remove inlet protection as directed by Airport Manager, Code 22 or other DOTA entity in anticipation of rain events or if they are creating an immediate safety impact to traffic or pedestrians at the Airport. Restore inlet protection devices immediately upon termination of rain event or notice from Airport.

Note: Example schematics for inlet protection are included herein for reference.

C.12 Storm Drain Inlet Protection
(continued)

Maintenance and Inspection		
☐	M12.1	Inspect inlet protection devices prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek. During extended rainfall events inspect inlet protection devices daily.
☐	M12.2	Repair damage sustained to the inlet protection devices within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M12.3	Remove sediment after each rainfall event or once the containment device is ½ full of sediment.
☐	M12.4	Where there is evidence of sediment accumulation adjacent to the inlet protection measure or along the runoff flow pattern toward the inlet, such as a concrete gutter or swale, remove the deposited sediment by the end of the same day in which it is found or by the end of the following work day if removal by the same day is not feasible.
☐	M12.5	Report any inlet protection failures and pollutant discharges (including sediment) into the storm drains to AIR-EE.
☐	M12.6	Train required personnel about storm drain protection from sediment discharge and construction site contaminants.

C.12 Storm Drain Inlet Protection
(continued)



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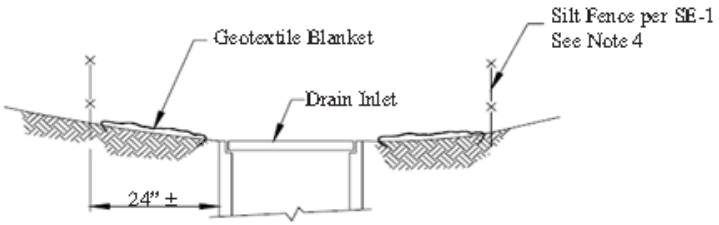
Not to Scale



Section A-A
Not to Scale

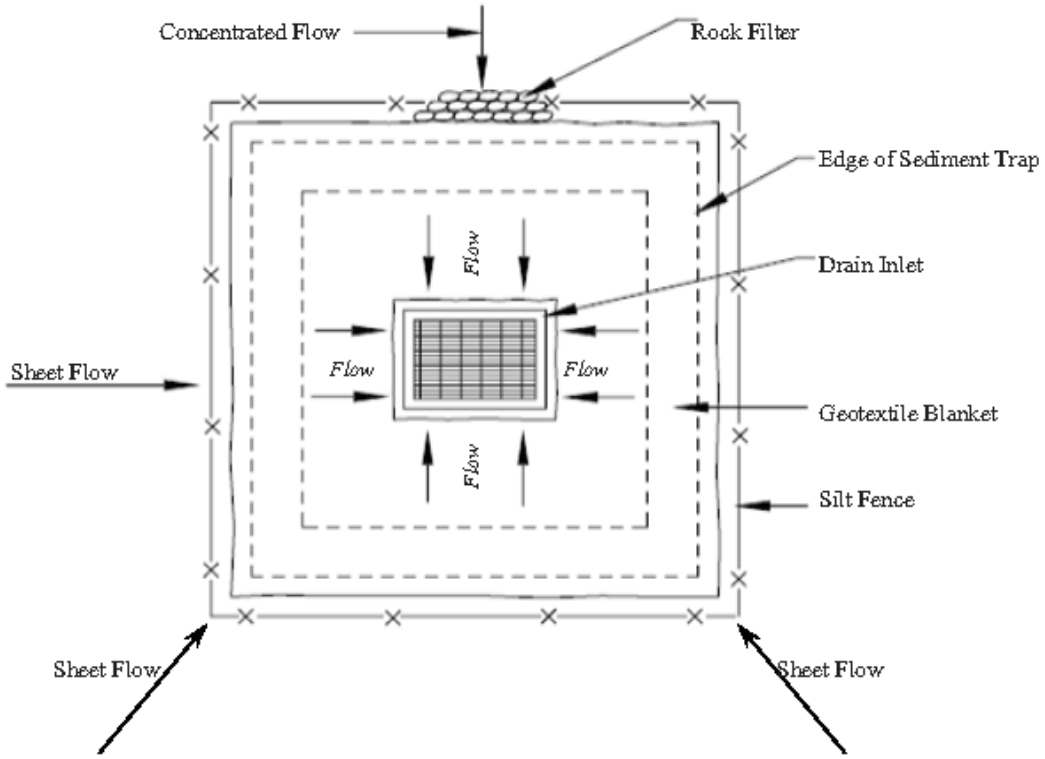
Notes:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable in concentrated flows.
4. Refer to BMP SE-1, Silt Fence for construction.

DI Protection Type 1, Filter Fabric Fence

Source: City and County of Honolulu BMP Manual, November 2011.

C.12 Storm Drain Inlet Protection
(continued)



Detail "B"
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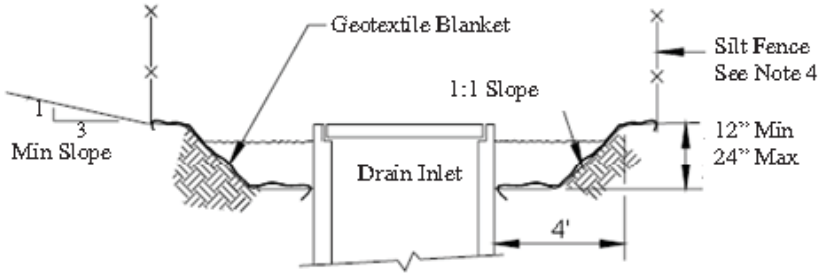
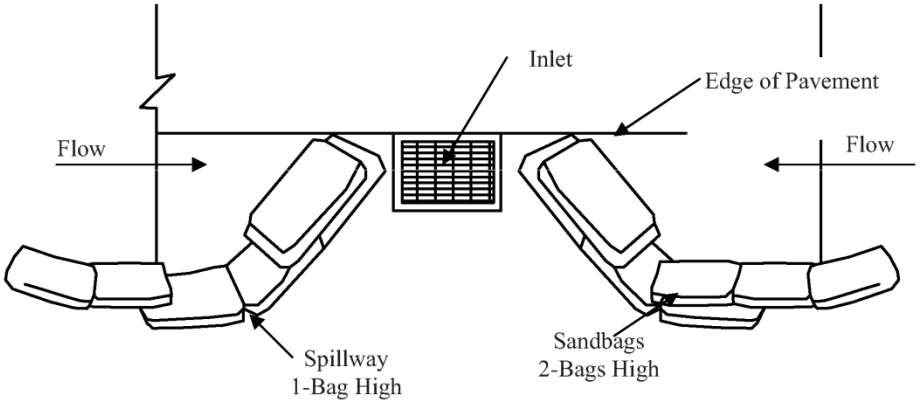


Notes:
1. For use in cleared and grubbed and in graded areas.
2. For concentrated flows, shape basin in 2:1 (L:W) ratio with length oriented towards direction of flow.
3. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd^3/acre of drainage area.
4. Refer to BMP SE-1, Silt Fence for construction.

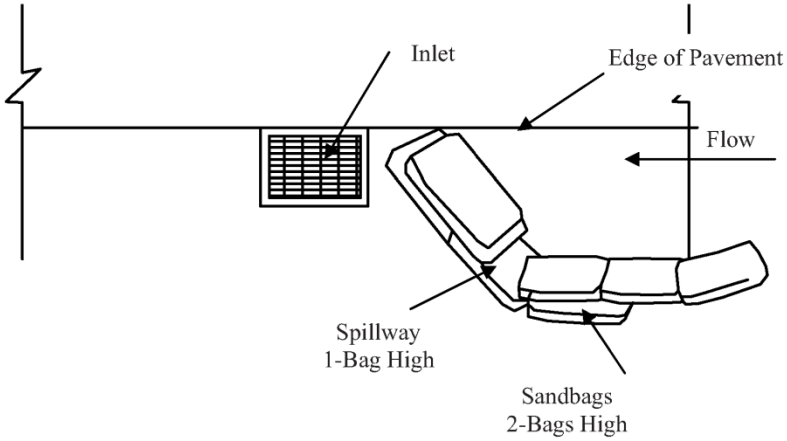
DI Protection Type 2, Excavated Drop Inlet Sediment Trap

Source: City and County of Honolulu BMP Manual, November 2011.

C.12 Storm Drain Inlet Protection
(continued)



Typical Protection for Inlet on Sump, Detail "C"
Not to Scale

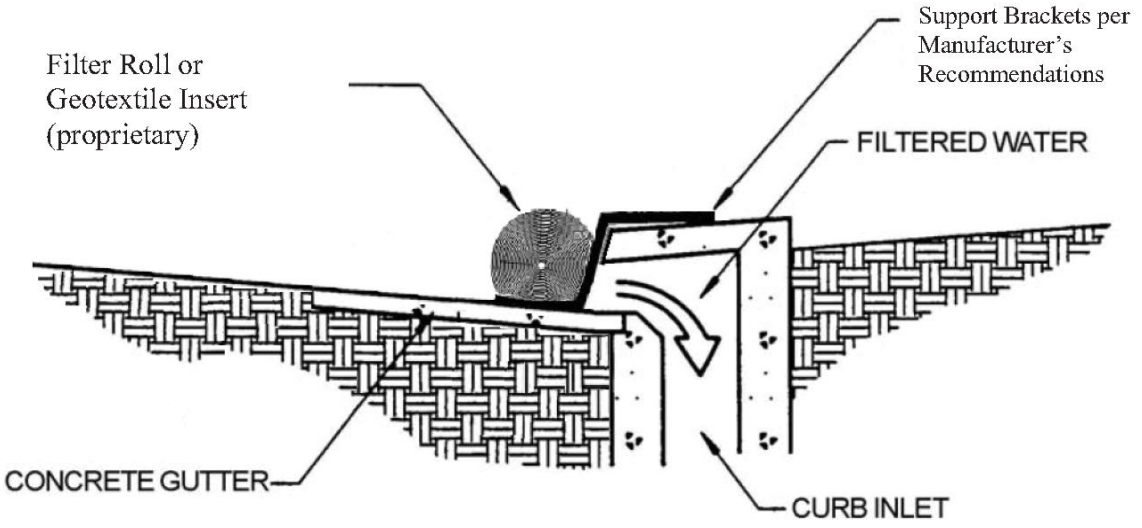


Typical Protection for Inlet on Grade, Detail "D"
Not to Scale

Notes:
1. Intended for short-term use. Not suitable for roads open to traffic.
2. Used to inhibit non-storm water flow.
3. Bags **should** be removed after adjacent operation is completed.
4. Not applicable in areas with high silts and clays without filter fabric.
5. Use sand bag made of geotextile fabric (not burlap) and fill with 0.75 in. rock or 0.25 in. pea gravel.
6. Construct on gently sloping street.
7. Leave room upstream of barrier for water to pond and sediment to settle.
8. Place several layers of sand bags - overlapping the bags and packing them tightly together.
9. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.
10. Do not use sandbags for roadways subject to traffic.
11. For traffic area, insert geotextile filter inserts instead of sandbags.

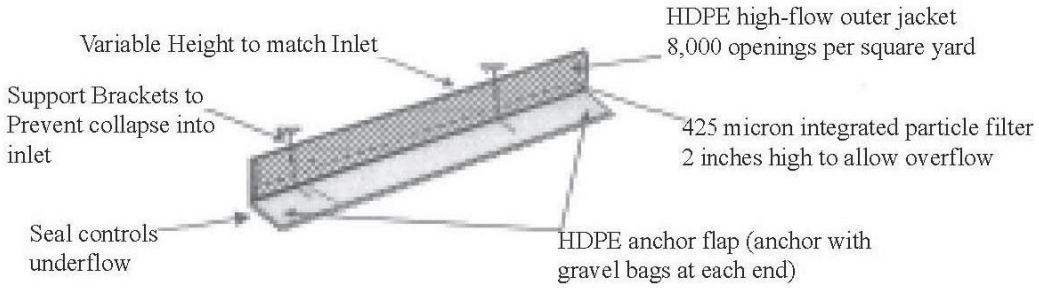
DI Protection Type 3, Gravel Bag

Source: City and County of Honolulu BMP Manual, November 2011.



Detail "F"
Not to Scale and May Use Various Types of Geotextile Inserts

DI Protection Type 5, Filter Roll or Geotextile Insert with Supports for Curb Inlet



Detail "G"
Not to Scale and May Use Various Types and Styles of Geotextile Inserts

DI Protection Type 5, Geotextile Insert with Supports for Curb Inlet

Source: City and County of Honolulu BMP Manual, November 2011.

3.4 C.13 Sediment Trap

Description
A sediment trap is a small, excavated or bermed area where runoff from small drainage areas is detained and sediment can settle.

Limitations
- Only use for drainage areas up to 5 acres.
- Sediment traps only remove coarse sediment (medium silt size and larger) unless sized like a sediment basin.

Practice		
☐	C13.1	The locations and size of temporary sediment trap should be reviewed and approved by the Airport Manager to prevent possible hazards and adverse impacts to aircraft and airport operations. The trap may create wetlands that may attract wildlife that is hazardous to aircraft.
☐	C13.2	Sediment traps are applicable for any disturbed area less than 5 acres.
☐	C13.3	Install along the perimeter of the site at locations where sediment-laden runoff is discharged off-site.
☐	C13.4	Install around and/or up slope from the storm drain inlet protection measures.
☐	C13.5	Install at any point within the site where sediment-laden runoff can enter stabilized or natural areas or waterways.
☐	C13.6	Build outside the area to be graded before clearing, grubbing, and grading begin.
☐	C13.7	Locate where the trap is easily cleared of sediment.
☐	C13.8	Trap size depends on the type of soil, size of the drainage area, and desired sediment removal efficiency.
☐	C13.9	The larger the trap, the less frequently sediment must be removed.
☐	C13.10	The outlet or spillway of the trap must be stabilized with rock, vegetation, or another suitable material.
☐	C13.11	A stable emergency spillway must be installed to safely convey major floods.
☐	C13.12	Provide fencing to prevent unauthorized entry.
☐	C13.13	Design freeboard to accommodate the rainfall in accordance with local regulations. Incorporate a minimum of 1-foot into the sediment trap design. DOTA Engineer may require additional freeboard depending on site conditions.
☐	C13.14	Stabilize the bermed and exposed sloped surfaces of the sediment trap with vegetation, chemicals, or physical devices within one (1) calendar day after construction of the berm has been completed.

Maintenance and Inspection		
☐	M13.1	Inspect sediment trap and fencing prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek. During extended rainfall events inspect daily.
☐	M13.2	Dewater sediment trap if infiltration has not completed within 72 hours.
☐	M13.3	Remove sediment when accumulation reaches one-third the sediment trap height and manage according to applicable federal, state, and local regulations.
☐	M13.4	Provide education for required personnel about proper sediment trap installation and maintenance. Train on the importance of preventing sediment discharge.

3.5 C.14 Silt Fence

Description
A silt fence is made of a semi-impermeable fabric that has been entrenched, attached to supporting poles, and sometimes backed by a wire fence for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.

Limitations

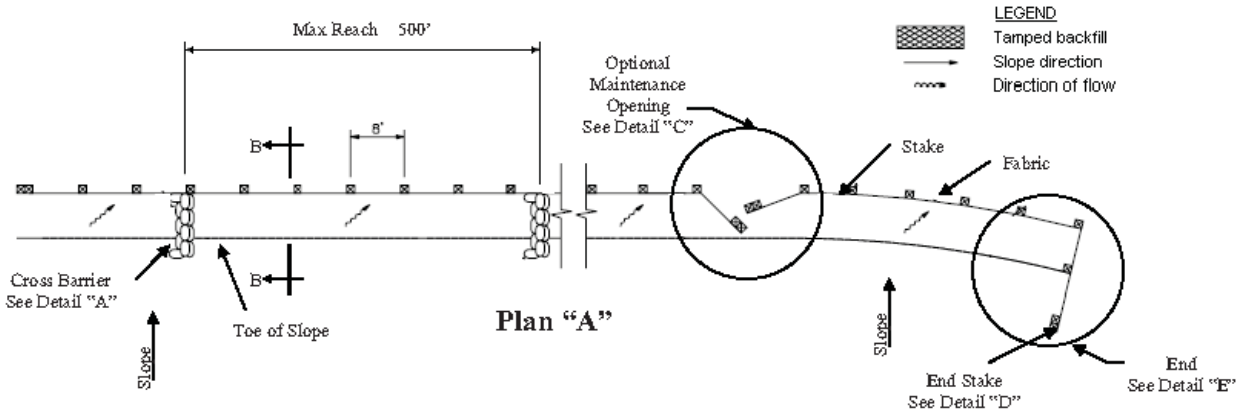
- Do not place fence on a slope, or across any contour line.
- Do not use in streams, channels or anywhere flow has concentrated.
- Do not use in locations where ponded water may cause flooding.
- No more than 1 acre, 100 feet, or 0.5 cfs of concentrated flow should drain to any point along the silt fence.

Practice		
☐	C14.1	Use principally in areas where sheet flow occurs.
☐	C14.2	Install along a level contour so water does not pond more than 1.5 feet at any point.
☐	C14.3	Turn ends of the fence uphill.
☐	C14.4	Provide area behind the fence for runoff to pond and sediment to settle (approx. 1200 square feet per acre draining to the silt fence).
☐	C14.5	Select a fabric that retains 85 percent of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.
☐	C14.6	Install appropriately by stretching silt fence tightly between posts spaced a maximum of 6 feet apart; key into the ground a minimum of 12 inches; overlap section a minimum of 6 inches or wrap sections to create a strong bond.
☐	C14.7	Reinforce the perimeter silt fence with chain link fence or concrete barriers, if needed.

Note: Example schematics are included herein for reference.

Maintenance and Inspection		
☐	M14.1	Inspect silt fence and posts prior to an anticipated rainfall event, after the rainfall event, and regularly at the end of each workweek.
☐	M14.2	Repair damage sustained to the silt fence or posts within two (2) calendar days after the incident or before the next anticipated rainfall event, whichever comes first.
☐	M14.3	Remove sediment when accumulation reaches one-third the fence height.
☐	M14.4	Provide education for required personnel about proper silt fence installation and maintenance. Train on the importance of preventing sediment discharge.

C.14 Silt Fence
(continued)



Notes:

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 500'.
2. Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
3. Sandbag rows and layers shall be offset to eliminate gaps.
4. Setback dimension may vary to fit field condition. Typical 3' setback from top of slope.
5. Stakes shall be spaced at 8' maximum and shall be positioned on downstream side of fence, or as specified by the engineer.
6. Stake dimensions are nominal. Material as specified by engineer.
7. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples or wire.
8. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
9. For end stake, fence fabric shall be folded around two stakes one full turn and secured with 4 stables or wire.
10. Minimum 4 staples or wire per stake. Dimensions shown are typical.
11. Joining sections shall not be placed at sump locations.
12. Maintenance openings shall be constructed in a manner to ensure sediment remains behind silt fence.
13. The last 8' of fence shall be turned up slope to reduce breakthrough of sediment.

Silt Fence

Source: City and County of Honolulu BMP Manual, November 2011.

4.0 TRACKING CONTROL BMPS

4.1 C.15 Stabilized Construction Entrance/Exit

Description

A stabilized construction entrance/exit is a pad of aggregate underlain with filter cloth located where vehicles and/or equipment leave or enter a construction site to or from a paved surface. The purpose of a stabilized construction entrance/exit is to reduce the amount of sediment tracked offsite. The effectiveness of a stabilized construction entrance/exit is greatly increased if a wash rack is included for removing caked-on sediment from vehicles and equipment before they leave the site.

Limitations

- Periodic replenishment of surface aggregate is required.
- Additional street sweeping of adjacent roadways or other paved areas may also be required during the work. Ensure that storm drains and waterways are protected from discharges of street sweeping wastes.
- A wash rack and sediment trap can significantly increase the cost of a stabilized construction entrance.
- The effectiveness of a stabilized construction entrance is limited by the type and moisture content of construction site soils, whether or not a wash rack is included, and by the level of care taken to remove sediment from vehicles and equipment if a wash rack is used.

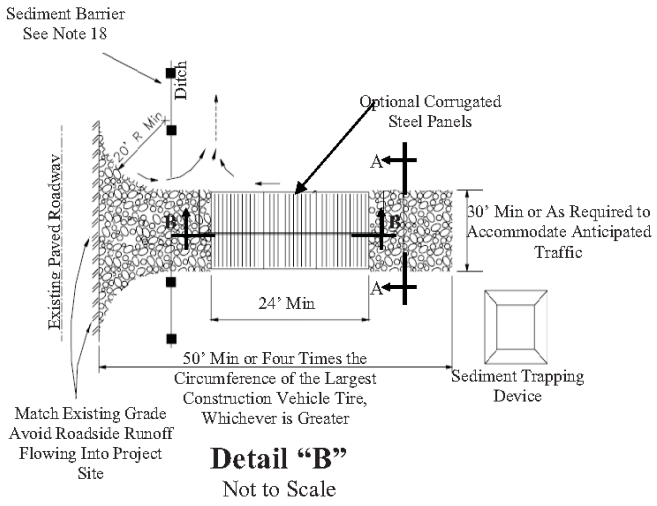
Practice		
☐	C15.1	Construct stabilized construction entrances/exits on level ground where possible.
☐	C15.2	Grade the entrance/exit to prevent runoff from leaving the construction site.
☐	C15.3	Aggregate shall be 3- to 6-inch-diameter coarse aggregate.
☐	C15.4	Minimum depth of aggregate is to be 12 inches or as recommended by the soils engineer.
☐	C15.5	Stabilized construction entrances/exits are to be a minimum of 50-feet-long and 30-feet-wide.
☐	C15.6	Provide ample turning radii as part of the stabilized entrance/exit.
☐	C15.7	If a wash rack is provided, washing is to be done on paved or crushed stone pad that drains into a properly constructed sediment trap. Refer to C.13 Sediment Trap for the design, installation and maintenance of the sediment trap.
☐	C15.8	Include additional BMPs that remove sediment prior to exit when the minimum dimensions cannot be met.
☐	C15.9	The pavement shall not be cleaned by washing down the street.
☐	C15.10	Restrict vehicle use to properly designated exit points.
☐	C15.11	Provide drain inlet protection devices and/or perimeter sediment controls, as applicable.
☐	C15.12	Construct stabilized construction entrance/exits at all points that exit onto paved roads, other paved areas, and sidewalks.

Note: Example schematics are included herein for reference.

C.15 Stabilized Construction Entrance/Exit
(continued)

Maintenance and Inspection		
☐	M15.1	Inspect the stabilized construction entrance/exit and wash rack ditches at the end of each workweek. If the stabilized construction entrance/exit is clogged with sediment remove the aggregate and separate and dispose of the sediment. Reconstruct or repair the stabilized construction entrance within two (2) calendar days.
☐	M15.2	Inspect roadways and ensure that any tracking is swept and disposed properly. Ensure storm drains and waterways are protected from tracking discharges.
☐	M15.3	Remove sediment tracked onto the roads, paved areas, and sidewalk, at a minimum, by the end of the day in which the track-out occurs.
☐	M15.4	If tracking is excessive or sediment is being transported farther along the pavement or sidewalk by other vehicles traveling outside of the construction site, then, conduct sweeping immediately.
☐	M15.5	However, if sweeping is ineffective or it is necessary to wash the streets, wash water must be contained either by construction of a sump, diverting the water to an acceptable disposal area away from drainage facilities, or vacuuming the wash water.
☐	M15.6	Provide education for required personnel about proper stabilized construction entrance installation, use, and maintenance. Train on the importance of preventing sediment tracking.

C.15 Stabilized Construction Entrance/Exit
(continued)



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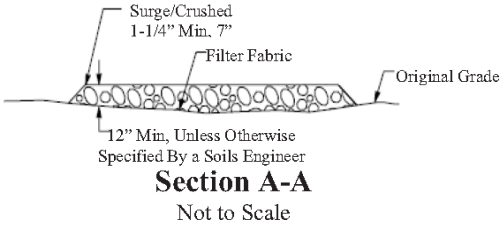

Section A-A
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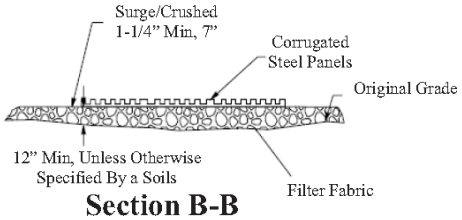

Section B-B
Not to Scale

Notes:
1. Construct on level ground where possible.
2. Select 3 to 6 in. diameter stones.
3. Use minimum depth of stones of 12 in. or as recommended by soils engineer.
4. Construct length of 50 ft. minimum, and 30 ft. minimum width.
5. Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
6. Provide ample turning radii as part of the entrance.
7. Limit the points of entrance/exit to the construction site.
8. Limit speed of vehicles to control dust.
9. Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
10. Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
11. Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.
12. Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
13. Place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but not exceeding 6 in. should be used.
14. Designate combination or single purpose entrances and exits to the construction site.
15. Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
16. Implement SE-7, Street Sweeping and Vacuuming, as needed.
17. All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.
18. Construct sediment Barrier and channel runoff to sediment trapping device as appropriate.

Source: City and County of Honolulu BMP Manual, November 2011.

4.2 C.16 Construction Road Stabilization

Description

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading and frequently maintained to prevent erosion and control dust. Efficient construction road stabilization not only reduces onsite erosion but can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

Limitations

- The roadway slope should not exceed 15 percent.
- The roadway must be removed or paved when construction is complete.
- Certain chemical stabilization methods may cause stormwater or soil pollution and should not be used (refer to C.6 Dust Control BMPs).
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.

Practice		
☐	C16.1	Road should follow topographic contours to reduce erosion of the roadway.
☐	C16.2	Gravel roads should be a minimum 4-inch-thick, 2-3 inch-coarse aggregate base applied immediately after grading, or as recommended by soils engineer.
☐	C16.3	Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust (refer to C.6 Dust Control BMPs).
☐	C16.4	When evidence of erosion is noted, apply additional aggregate on gravel roads.
☐	C16.5	Water dirt construction roads three or more times per day during the dry season.

Maintenance and Inspection		
☐	M16.1	Inspect the stabilized construction roads at the end of each workweek and repair as needed before the start of the next workday.
☐	M16.2	Provide education for required personnel about proper construction road installation and maintenance. Train on the importance of preventing sediment discharge.

5.0 SITE ACTIVITIES POTENTIAL POLLUTANT CONTROL BMPS

5.1 C.17 Dewatering Operations

Description
Prevent or reduce the discharge of pollutants to stormwater from dewatering operations by using sediment controls and by testing the groundwater for pollution.

There are two general classes of pollutants that may result from dewatering operations: sediment, and toxics and petroleum products. High sediment content in dewatering discharges is common because of the nature of the operation. On the other hand, toxics and petroleum products are not commonly found in dewatering discharges unless the surrounding area has been used for light or heavy industrial activities, or the area has a history of groundwater contamination. Petroleum contamination may be identified through discoloration, odors, or sheen on the groundwater. The presence of contaminated groundwater may indicate contaminated soil as well.

Limitations
None.

Practice		
☐	C17.1	Use sediment controls to remove sediment from water generated by dewatering (refer to C.13 Sediment Trap)
☐	C17.2	Use filtration to remove sediment from a sediment trap. Filtration can be achieved by either of the following methods: • Use a sump pit and a perforated or slit standpipe with holes and wrapped in filter fabric. The standpipe is surrounded by stones, which filter the water as it collects in the pit before being pumped out. Wrapping the standpipe in filter fabric may require an increased suction inlet area to avoid clogging and unacceptable pump operation. • Use a floating suction hose to allow cleaner surface water to be pumped out.
☐	C17.3	A weir tank may be used to filter the water through using multiple compartments to allow pollutants to settle out.
☐	C17.4	A gravity filter bag is a square or rectangular bag of geotextile fabric that will remove sediment from the water prior to discharge. Refer to manufacturer's instructions regarding flow rate and frequency of maintenance.
☐	C17.5	In areas suspected of having groundwater pollution, sample the groundwater near the excavation site and have the water tested for known or suspected pollutants. The testing laboratory shall use methods listed in 40 CFR Part 136, and have a quality assurance/quality control measures program. Check with the DOH for testing requirements and disposal options.
☐	C17.6	Notify the DOTA Engineer and AIR-EE when contaminated media is identified.
☐	C17.7	Notify the DOH Clean Water Branch (CWB) (808) 586-7309 at least 90 days prior to dewatering from known areas of contamination.
☐	C17.8	If discharge to a sanitary sewer is considered, check with the DOH and with the owner of the wastewater system for additional testing requirements and disposal options. With permits from the DOH and the owner of the wastewater system, it may be possible to treat pumped groundwater and discharge the treated effluent to the sanitary sewer.

C.17 Dewatering Operations
(continued)

Practice		
☐	C17.9	If the contractor elects to discharge dewatering effluent into State waters or existing drainage systems, the contractor shall prepare and obtain DOTA acceptance of a NOI/NPDES Permit Form G application for dewatering to DOTA and then to DOH CWB at least 30 calendar days prior to the start of Dewatering Activities. Follow all regulations on the Dewatering Permit as required by DOH CWB.
☐	C17.10	Submit and obtain a Permit to Discharge into the State Airport Drainage System Relating to Construction Projects from the DOTA, at least 30 calendar days prior to the start of Dewatering Activities.

Maintenance and Inspection		
☐	M17.1	Follow the maintenance and inspection guidelines for the temporary BMPs that have been chosen for the dewatering operations.
☐	M17.2	Check filtering devices frequently to ensure they are unclogged and operating correctly. Adjustments may be needed depending on the amount of sediment in the water being pumped.
☐	M17.3	Systems should be filled in or otherwise removed when permanent dewatering controls are in place and connected to an approved treatment and receiving system.
☐	M17.4	Provide education for required personnel about proper dewatering operations.
☐	M17.5	Report any overflows, upsets or discharges to the storm drain system to DOH and AIR-EE.

5.2 C.18 Paving Operations and Waste Management

Description
Prevent or reduce the discharge of pollutants from paving operations by using measures to prevent stormwater pollution, properly disposing of wastes, and providing employee training.

Limitations
None.

Practice		
☐	C18.1	Avoid paving during wet weather.
☐	C18.2	Use asphalt emulsions as prime coat where possible.
☐	C18.3	Store materials away from drainage courses to minimize contact with stormwater runoff.
☐	C18.4	Protect drainage course, particularly in sloped areas, by employing BMPs to divert runoff or trap/filter sediment. This includes, but not limited to, prior to application of tack coat, seal coat, slurry seal, and fog seal.
☐	C18.5	Leaks and spills from paving equipment can contain toxic levels of heavy metal, oil, and grease. Place drip pans or absorbent materials under paving equipment when not in use.
☐	C18.6	Clean up spills promptly with absorbent materials.
☐	C18.7	Block/protect catch basins and cover manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
☐	C18.8	Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry. Slurry residue may be placed in a temporary pit (as described in the C.32 Concrete Operation and Waste Management BMP to promote evaporation). Dispose solid waste in accordance with the C.29 Solid Waste Management - Hazardous Waste and C.30 Solid Waste Management - Debris BMPs.
☐	C18.9	When removing existing asphalt pavement, properly dispose of removed material.
☐	C18.10	When stockpiling new asphalt pavement material or removed existing asphalt pavement, follow requirements for C.28 Protection of Stockpiles, as applicable.
☐	C18.11	If paving involves Portland Cement Concrete, refer to C.32 Concrete Operation and Waste Management BMPs.
☐	C18.12	If paving involves asphaltic concrete, follow these steps: • Sweep excess sand or gravel placed over new asphalt to prevent it from washing into storm drains, channels, or surface waters. Properly dispose of these wastes by referring to the Solid Waste Management BMP in this manual. • Old asphalt must be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible. • If paving involves an onsite mixing plant, follow the stormwater permitting requirements for industrial activities.

Maintenance and Inspection		
☐	M18.1	Inspect and maintain paving equipment daily to minimize leaks and drips. Follow requirements for C.20 Vehicle and Equipment Cleaning, C.21 Vehicle and Equipment Refueling, and C.22 Vehicle and Equipment Operation and Maintenance, as applicable.
☐	M18.2	Inspect drip pans daily. Clean, remove and properly dispose of the contents and rain accumulation.
☐	M18.3	Inspect drain inlet protection devices and maintain as necessary.

5.3 C.19 Structure Construction and Painting

Description
Prevent or reduce the discharge of pollutants to stormwater from structure repair/ construction and painting by enclosing, covering or providing secondary containment around material storage areas, using good housekeeping practices, using less hazardous alternative products, and training employees.

Limitations
- Less hazardous alternative products may not be available, suitable, or effective in every case.

Practice		
☐	C19.1	Keep the work site clean and orderly.
☐	C19.2	Buy recycled or less hazardous products to the maximum extent practicable.
☐	C19.3	Conduct painting operations consistent with the state and federal safety (Occupational Safety and Health Administration) and air quality regulations.
☐	C19.4	Properly store paints, epoxy compounds, solvents, and other liquid chemicals in water-tight containers with closed lids or covers. All liquids, except for water, must be stored under cover and in proper secondary containment. Containers must be well-labeled. It is recommended to store materials in their original containers.
☐	C19.5	Properly store powder chemicals and materials, such as cement, in sealed container or bags that are well-labeled. Cover and immediately repair or replace damaged containers. It is recommended to store materials in their original containers.
☐	C19.6	Properly store and dispose waste materials generated from the activity. Refer to C.29 Solid Waste Management – Hazardous Waste, C.30 Solid Waste Management - Debris, and C.32 Concrete Operation and Waste Management BMPs.
☐	C19.7	Enclose or cover painting operations to avoid drift.
☐	C19.8	Use application equipment that minimizes overspray.
☐	C19.9	Clean up spills immediately. Keep ample supply of cleanup material onsite at designated locations. Do not clean surfaces or spill by hosing the area down. Eliminate the source of the spill to prevent discharge or a furtherance of an ongoing discharge.
☐	C19.10	Use a drop cloth to collect residue from scraping or sand blasting operations and dispose of the residue properly.
☐	C19.11	Paint chips containing lead or tributyltin are considered a hazardous waste. Refer to C.29 Solid Waste Management - Hazardous Waste BMPs.
☐	C19.12	Remove as much paint from the brushes on painted surface. Clean painting equipment in a sink that is connected to the sanitary sewer, if possible. If not, direct all wash water into a leak-proof container or leak-pit pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation. Properly dispose of wash water.
☐	C19.13	Designate and locate onsite wash area a minimum of 50 feet away, or as far as practicable, from storm drain inlets, open drainage facilities, or water bodies.
☐	C19.14	Mix paints in a covered, contained area whenever possible, in case of a spill.
☐	C19.15	Recycle/dispose according to applicable laws and regulations residual paints, solvent, lumber and other materials to the maximum extent practicable.
☐	C19.16	Dispose containers only after all of the product has been used.
☐	C19.17	Make sure that nearby storm drains are well marked to minimize the chance of inadvertent disposal of residual paints and other liquids.

C.19 Structure Construction and Painting
(continued)

Practice		
☐	C19.18	Ensure that employees doing the work are properly trained.
☐	C19.19	Dispose of sand blasted material properly. Chips and dust from marine paints or paints containing lead are to be disposed of as hazardous waste. Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up and disposed of as trash.
☐	C19.20	Retain a complete set of SDS onsite at a designed location for easy access.

Maintenance and Inspection		
☐	M19.1	At the beginning and ending of each workday inspect and make sure materials are properly stored or covered.
☐	M19.2	Inspect the storm drain system in the immediate work area upon completion of the daily activity, and remove any dirt or debris collected.
☐	M19.3	Inspect and clean work areas at the end of each working day.

5.4 C.20 Vehicle and Equipment Cleaning

Description
Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning by using offsite facilities, washing in designated and contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees.

Limitations
- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades.

Practice		
☐	C20.1	Use offsite vehicle wash racks or commercial washing facilities as much as possible. These facilities are more adequately equipped to handle and dispose of the wash waters properly. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute stormwater.
☐	C20.2	If washing must occur onsite, use designated, bermed and lined wash areas to prevent wash water contact with stormwater, streams, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent proper disposal offsite. The Airport Manager and AIR-EE shall approve the location of wash area.
☐	C20.3	Use as little water as possible to avoid having to install erosion and sediment controls for the wash area.
☐	C20.4	Use phosphate-free, biodegradable soaps.
☐	C20.5	Prior to cleaning, check for leaks on the equipment and repair immediately. Repair all known leaks before cleaning.
☐	C20.6	Educate employees on pollution prevention measures.
☐	C20.7	Avoid steam cleaning in uncontained areas. Steam cleaning can generate significant pollutant concentrations.
☐	C20.8	Washing of personal vehicles at DOTA property is prohibited.

Maintenance and Inspection		
☐	M20.1	Inspect onsite wash areas at the end of each workweek.
☐	M20.2	Monitor employees and subcontractors throughout the duration of the construction project to ensure good housekeeping practices are implemented.

5.5 C.21 Vehicle and Equipment Refueling

Description
Prevent fuel spills and leaks, and reduce their impacts to stormwater by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees.

Limitations
None.

Practice		
☐	C21.1	Use offsite fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute stormwater. For fueling a large number of vehicles or pieces of equipment, consider using an offsite fueling station. These businesses are better equipped to handle fuel and spills properly.
☐	C21.2	If fueling must occur onsite, use designated area located way from drainage courses to prevent stormwater contamination. The Airport Manager and AIR-EE shall approve the location of fueling area and associated Spill Prevention, Control, and Countermeasure (SPCC) Plan (if applicable).
☐	C21.3	Prepare and maintain an SPCC Plan onsite if the total oil capacity is greater than 1,320 gallons for all above-ground storage tanks (ASTs), with individual capacities equal to or greater than 55 gallons.
☐	C21.4	Discourage "topping-off" of fuel tanks.
☐	C21.5	Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Clean up spills immediately.
☐	C21.6	Place a stockpile of spill cleanup materials where it will be readily accessible.
☐	C21.7	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove and dispose of the absorbent materials promptly and properly.
☐	C21.8	Comply with all federal and state requirements regarding ASTs, including the requirement for secondary containment.
☐	C21.9	Avoid mobile fueling of construction equipment at the site. If possible, transport the equipment to designated fueling areas.
☐	C21.10	Train employees in proper fueling and cleanup procedures.
☐	C21.11	Store gasoline, diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in watertight containers, covered, and provide secondary containment. Containers are to be well-labeled. Dispose of containers only after all the product has been used. Dispose or recycle according to federal, state, and local requirements.

C.21 Vehicle and Equipment Refueling
(continued)

Maintenance and Inspection		
☐	M21.1	Inspect fueling areas and facilities at the end of each workday.
☐	M21.2	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
☐	M21.3	Inspect vehicles and equipment for leaks at the beginning and end of each day. Repair leaks immediately.
☐	M21.4	If a spill occurs, clean it up immediately and properly dispose of the contaminated soil and cleanup materials.
☐	M21.5	Report all spills in accordance with the SPCC Plan or C.35 Spill Response Practices, whichever is stricter.

5.6 C.22 Vehicle and Equipment Operation and Maintenance

Description
Outdoor vehicle or equipment maintenance is a potentially significant source of water pollution. Activities that can contaminate stormwater include vehicle and equipment repair and service, including changing and filling of fluids, and outdoor equipment storage and parking, which can result in dripping of fluids.

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment operation and maintenance by using offsite facilities, performing work in designated areas only, providing cover for materials stored outside, checking for leaks and spills, containing and cleaning up spills immediately, and training employees.

Limitations
None.

Practice		
☐	C22.1	Keep vehicles and equipment clean; don't allow excessive build-up of oil and grease.
☐	C22.2	Use offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Maintaining vehicles and equipment outdoors or in areas where vehicle or equipment fluids may spill or leak onto the ground can pollute stormwater.
☐	C22.3	If maintenance must occur onsite, use designated areas, located away from drainage courses, to prevent the contamination of stormwater runoff. Berm or protect maintenance areas to prevent runoff from entering the area. The Airport Manager and AIR-EE shall approve the location of the maintenance area, including a plan on how the area will be cleaned up and the materials disposed.
☐	C22.4	Always use secondary containment, such as an anchored drip pan or drop cloth, to capture spills or leaks when removing or changing fluids.
☐	C22.5	Place a stock of spill cleanup materials where it will be readily accessible.
☐	C22.6	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
☐	C22.7	Inspect onsite vehicles and equipment daily for leaks, and repair immediately.
☐	C22.8	Inspect incoming vehicles and equipment (including delivery trucks, and employees' vehicles) regularly for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
☐	C22.9	Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
☐	C22.10	Dispose of all wastes from vehicle maintenance activities properly. Recycle waste materials to the extent practicable.
☐	C22.11	Train employees on proper maintenance and spill cleanup. Ensure employees are knowledgeable to the locations of the spill kits and SDS.
☐	C22.12	Place drip pans or similar containment device under vehicles or equipment when not in use or operating in a stationary position, such as light plants and trailer-mounted generators, to capture/absorb any potential leaks and prevent spills.
☐	C22.13	Do not allow accumulation of contents and rainwater to overflow from drip pans or containment device.

C.22 Vehicle and Equipment Operation and Maintenance
(continued)

Practice		
☐	C22.14	If excess grease/oil is applied to equipment or evidence of a leak is observed on the equipment, prevent area from contact with rainwater or contain rainwater which contact grease/oil or leaked fluid with drip pans or similar containment device.
☐	C22.15	Do not clean surfaces or spills by hosing the area down.
☐	C22.16	Store diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in watertight containers, provide cover, and secondary containment. Do not remove original product labels. Have SDS located onsite and ensure employees are knowledgeable of the location. Follow BMPs in C.26 Material Delivery and Storage for storage of other materials.
☐	C22.17	Oil filter disposed in trash cans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Recycle oil filters if this service is available.
☐	C22.18	Dispose of containers only after all the product has been used. Deliver and store only sufficient quantity of products that is needed. Do not store excessive quantity of products.
☐	C22.19	Dispose of or recycle oil or oily wastes according to federal, state, and local requirements.
☐	C22.20	Comply with all federal and state requirements regarding AST, including the requirement for secondary containment if the facility operations qualify for an SPCC Plan. Maintain an SPCC Plan onsite.
☐	C22.21	Operation and use of equipment and vehicles that show excessive emissions of exhaust gases shall not be allowed until corrective repairs or adjustments are made.
☐	C22.22	Furnish construction equipment with suitable mufflers to maintain noise levels complying with applicable regulations.

Maintenance and Inspection		
☐	M22.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
☐	M22.2	Inspect vehicles and equipment for leaks at the beginning and end of each day. Repair leaks immediately or remove them from the project site.
☐	M22.3	Inspect drip pans or drop cloths daily. Clean, remove and properly dispose of the contents and any rainwater accumulation.
☐	M22.4	If a spill occurs, clean it up immediately and properly dispose of the contaminated soil and cleanup materials.
☐	M22.5	Report spills of a certain size (volume of greater than 25 gallons of oil not contained within 72 hours) per Hawaii Administrative Rules (HAR) 11-451 to DOH Hazard Evaluation and Emergency Response (HEER) and the National Response Center (NRC). Refer to C.35 Spill Response Practices.
☐	M22.6	Procure a spill response contractor for any large spills that cannot be contained.
☐	M22.7	Maintain waste fluid containers in leak proof condition in secondary containment and in a covered area.
☐	M22.8	Inspect equipment maintenance areas regularly.
☐	M22.9	Train employees on proper maintenance of the equipment and spill procedures.

5.7 C.23 Concrete Curing Water and Compounds Management

Description
Concrete curing is used in the construction of structure such as bridges, walls, columns, beams, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. Proper procedures reduce or eliminate the contamination of stormwater runoff during concrete curing.

Limitations
None.

Practice		
☐	C23.1	Use proper storage and handling techniques for concrete curing compounds. Refer to C.26 Material Delivery and Storage BMPs.
☐	C23.2	Protect drain inlets prior to the application of curing compounds.
☐	C23.3	Refer to C.34 Spill Prevention and Control BMPs.
☐	C23.4	Direct cure water away from inlets and watercourses to collection areas for infiltration or other means of removal in accordance with all applicable permits.
☐	C23.5	Collect cure water at the top of slopes and transport or dispose of water in a non-erodible manner. Refer to C.4 Earth Dike and C.5 Temporary Drains and Swales BMPs.
☐	C23.6	Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.
☐	C23.7	Avoid overspray of the curing compound. Apply curing compound per manufacturer's recommended application rate and coverage.
☐	C23.8	Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.
☐	C23.9	Avoid or minimize applying curing compound in windy conditions. Maintain proper distance between sprayer tip and concrete surface to minimize dissipation of the curing compound due to wind.

Maintenance and Inspection		
☐	M23.1	Inspect and verify that activity-based BMPs are in-place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
☐	M23.2	Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
☐	M23.3	Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
☐	M23.4	Inspect cure containers and spraying equipment for leaks.

5.8 C.24 Hydrotesting Effluent Management

Description

Construction of new water lines may require hydrotesting and water-flushing of the pipes to clear it of all debris, sediment, and other pollutant that may have entered the pipe during manufacture, transport, and installation. In addition, new potable water systems require chlorination of the pipes to eliminate harmful bacteria in the pipes. The chlorinated waters are also harmful to aquatic life and plants.

Proper procedures reduce or eliminate the contamination of surface waters during hydrotesting, flushing and chlorination.

Limitations

- High levels of chlorine in water used to disinfect water pipe can kill aquatic life and plants.
- Flushing waters can contain sediment, chemical and residual oils that enter the pipe prior to and during installation.
- The volume of water during flushing and chlorination is depended upon the diameter of the pipe, length of pipe, rate of discharge and time. This volume of water must be considered when determining the size of the collection area and discharge. Flooding caused by the release of the water shall be prevented.

Practice		
☐	C24.1	Direct chlorinated water away from inlets and watercourses to collection areas for infiltration or other means of removal in accordance with all applicable permits. Do not direct chlorinated water to vegetated areas.
☐	C24.2	Collect and dechlorinate-treat chlorinated waters prior to it reaching any surface water and drainage system.
☐	C24.3	Properly deliver and store chemicals. Refer to C.26 Material Delivery and Storage BMPs.
☐	C24.4	Properly handle chemicals per the manufacturer's procedures and precautions. Refer to C.27 Material Use BMPs.
☐	C24.5	Prior to flushing the water line, provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls, as applicable.
☐	C24.6	While flushing, treat, trap or collect sediment, particles, and any residual oils from the waters.
☐	C24.7	If the contractor elects to flush waterline or discharge effluent into State waters or drainage system, the contractor shall prepare and obtain DOTA's acceptance of a NOI/NPDES Permit Form F application and DOTA Discharge Permit for Construction Activities for DOTA submittal to DOH CWB at least 30 calendar days prior to the start of Hydrotesting Activities, if necessary. Site-specific BMPs must be included in the NOI/NPDES Permit Form F submittal. Refer to BMPs listed in C.17 Dewatering Operations.

Maintenance and Inspection		
☐	M24.1	Inspect stored material and chemicals for leaks and damage, daily.

5.9 C.25 Water-Jet Wash and Hydro-Demolition Water Management

Description
Prevent the discharge of contaminants released from concrete or impervious surfaces during cleaning and demolition into the drainage system and surface water.

Limitations

- Water-jet washing may reduce or eliminate the contamination of stormwater runoff during rain events when used to clean impervious surfaces, potentially containing residue oil, chemicals, and fines. Jetting transfers these contaminants to the jetting wash waters. Proper procedures during water-jet washing will prevent contaminants from entering the storm drainage system and surface waters.
- Hydro-demolition wastewater, similar to concrete wash water, may have a high pH and contain metals, chemicals and fines.

Practice		
☐	C25.1	For Water-Jet Wash Water used to clean vehicles and equipment, use off-site wash racks or commercial washing facilities, when practical.
☐	C25.2	Refer to C.20 Vehicle and Equipment Cleaning BMPs.
☐	C25.3	For Water-Jet wash water used to clean impervious surfaces and Hydro-demolition wastewater, the runoff shall not be allowed to flow into storm drainage structures or surface waters.
☐	C25.4	Prior to water-jetting and hydro-demolition, clean surfaces by other means, if practicable, such as sweep or vacuuming.
☐	C25.5	Prior to operation, check area for any spills. Clean spill prior to water-jetting.
☐	C25.6	Collect or contain wastewater and properly dispose or allow to evaporate. Properly dispose of all sediment and residual solids.
☐	C25.7	For Hydro-Demolition, properly collect, stockpile, and dispose of solid waste. Refer to C.28 Protection of Stockpiles, C.30 Solid Waste Management - Debris, and C.32 Concrete Operation and Waste Management BMPs.

Maintenance and Inspection		
☐	M25.1	Check storage and containment of wastewater collection facilities daily for leaks and damage. Repair immediately.

6.0 MATERIAL AND WASTE MANAGEMENT POLLUTION CONTROL BMPS

6.1 C.26 Material Delivery and Storage

Description
Prevent or reduce the discharge of pollutants to stormwater from material delivery and storage by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees.

Limitations
Storage sheds often must meet building and fire code requirements.

Practice		
☐	C26.1	Designate areas of the construction site for material delivery and storage. • Locate storage areas near construction entrances, and away from storm drains and waterways. • Avoid transporting potential pollutants near drainage paths or waterways. • Surround storage areas for potential pollutants with earth berms or other approved containment devices. • Store potential pollutants in a paved area, if available.
☐	C26.2	Store reactive, ignitable, or flammable liquids in compliance with the local fire codes. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. Refer to the Flammable and Combustible Liquid Code, National Fire Protection Association, NFPA 30.
☐	C26.3	Keep an accurate, up-to-date inventory of materials used at work sites. • Minimize onsite inventory. • Minimize storage of hazardous materials. • Store materials in covered area or under covering.
☐	C26.4	Handle hazardous materials as infrequently as possible.
☐	C26.5	Maintain SDS at the work site. Keep SDS at a designated location and ensure employees are knowledgeable of the location.
☐	C26.6	Do not store material directly on the ground. Place materials on a pallet or dunnage, and when possible, in secondary containment.
☐	C26.7	Store all liquid materials within secondary containment. Cover or store under cover.
☐	C26.8	Provide secondary containment with adequate containment volume able to capture 100 percent of the capacity of the single largest container, if stored indoors, or 100 percent of the capacity of the single largest container plus the freeboard from the precipitation of a 25-year storm event, if stored outdoors.
☐	C26.9	Ensure the secondary containment is free of accumulation of rainwater and spills, and covered or stored under cover. In the event of spills or leaks, accumulated rainwater and spill shall be collected and placed in appropriate containers. These liquids shall be considered hazardous waste unless testing determines them to be non-hazardous. Properly dispose or recycle all liquids according to federal, state, and local requirements.
☐	C26.10	Store bagged and boxed materials on pallets or dunnage. Provide protection from wind, rain, and runoff. Store under cover or covered.
☐	C26.11	Prevent contact with wind, rain, and runoff for powder-form materials such as cement. Check packaging and containers for damage, and immediately repair, replace, or remove from site.

C.26 Material Delivery and Storage
(continued)

Practice		
☐	C26.12	Store metal materials, such as reinforcing steel and dowels, on pallets or dunnage, and under cover, covered, or in containers to prevent contact with rain and runoff.
☐	C26.13	If drums must be stored in an uncovered area, store them at a slight angle to reduce ponding of rainwater on the lids and reduce corrosion. Additionally, place within secondary containment.
☐	C26.14	Keep chemicals in their original containers and well labeled. Labels shall be clearly and easily legible. Position container with label for easy access and viewing. Containers that are empty shall be labeled as "EMPTY." Containers with non-potable water shall be labeled as "Non-Potable Water."
☐	C26.15	Provide sufficient separation between stored materials to allow for spill monitoring, spill cleanup, and emergency response access.
☐	C26.16	Ensure that employees handling potential pollutants have received adequate training regarding the hazards and proper handling procedures for the materials.
☐	C26.17	Train employees in emergency spill cleanup procedures are to be present when dangerous materials or liquid chemicals are unloaded.
☐	C26.18	Ensure spill kits are to be readily available onsite at designated locations.
☐	C26.19	If significant residual materials remain on the ground after construction is complete, properly remove materials and any contaminated soil. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.
☐	C26.20	Materials are to be covered, enclosed, or in their sealed containers while being transported to and from the site, and on the site. Loads are to be properly secured to prevent tipping, shifting, or movement of the material during transport.
☐	C26.21	Do not store material immediately abutting or on top of BMP measures and devices which could affect or prevent the performance and inspection of the BMP measure or device.

Maintenance and Inspection		
☐	M26.1	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
☐	M26.2	Inspect perimeter controls at the end of each workday. Repair any damages immediately.
☐	M26.3	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.

6.2 C.27 Material Use

Description
Prevent or reduce the discharge of pollutants to stormwater from material use by using alternative products, minimizing hazardous material use onsite, and training employees in the proper handling and use of construction materials.

Limitations
- Alternative materials may not be available, suitable, or effective in every case.

Practice		
☐	C27.1	Use less hazardous, alternative materials as much as possible.
☐	C27.2	Minimize use of hazardous materials onsite. Buy recycled or less hazardous products to the maximum extent practicable.
☐	C27.3	Use materials only where and when needed to complete the work.
☐	C27.4	Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals. Keep SDS at a designated location and ensure employees are knowledgeable of the location.
☐	C27.5	Train personnel applying pesticides on their usage. The State Department of Agriculture, Pesticides Branch, licenses pesticide dealers, certifies pesticide applicators, and conducts onsite inspections.
☐	C27.6	Do not over-apply fertilizers, herbicides, or pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmental harmful. Except on steep slopes, till fertilizer into the soil rather than surface spreading or spraying it. Apply surface dressings in several smaller applications, as opposed to one large application to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains.
☐	C27.7	Maintain a log of amount, type, and locations where fertilizers, herbicides, or pesticides were applied as well as the BMPs utilized (refer to SWMPP Section E for more detailed chemical usage BMPs). These logs must be available onsite for review by DOTA inspectors.
☐	C27.8	Train employees in proper material use.

Maintenance and Inspection		
☐	M27.1	Spot check employees monthly to ensure proper practices are being performed.
☐	M27.2	Ensure that the SDS are maintained for all chemicals used.

6.3 C.28 Protection of Stockpiles

Description
Stockpiles can be a significant source of erosion, sediment, and fugitive dust problems. Measures are to be taken to mitigate the potential for erosion of stockpiles.

Limitations

- Stockpiles are for temporary storage of material only. Provisions for permanent removal of stockpiled material must be in place.

Practice		
☐	C28.1	Locate stockpiles a minimum of 50 feet, or as far as practicable, from waterways, drainage facilities, concentrated runoff, and outside of any natural buffers identified on the Stormwater Pollution Prevention Plan (SWPPP).
☐	C28.2	Avoid sloping ground for locating stockpiles.
☐	C28.3	Minimize stockpile height.
☐	C28.4	Provide earth dikes or other physical diversion to protect stockpiles from runoff and run-on.
☐	C28.5	Provide silt fences or other sediment control measures at the toe of the stock pile to mitigate runoff during rain events.
☐	C28.6	Cover stockpiles with plastic, mulch, or provide other stabilization measures to protect from wind and prevent erosion during rain events.
☐	C28.7	Provide adequate setback distance from lot lines.
☐	C28.8	Provide sediment basins where required.
☐	C28. 9	Contain and securely protect stockpiles from the wind.
☐	C28.10	Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or State waters.
☐	C28.11	Provide drain inlet protection devices and/or perimeter sediment controls, as applicable.
☐	C28.12	All measures (i.e., cover, sediment control measures) shall be in-place immediately upon creation of the stockpile and at all times that the stockpile is inactive. Inactive is defined as all times other than when addition to or removal of material to the stockpile is actively occurring. All measures shall be in-place by the end of each day or work shift.
☐	C28.13	Physically separate the stockpiles and their stormwater controls from other stormwater controls that are implemented on the site.
☐	C28.14	Ensure stockpiles, at any time and manner, shall not endanger traffic or shall not in any other way be detrimental to the completed work, health, or the operation of the airport.

Maintenance and Inspection		
☐	M28.1	Maintain and inspect BMP measures according to the type(s) being used.

6.4 C.29 Solid Waste Management - Hazardous Waste

Description
Prevent or reduce the discharge of pollutants to stormwater and to the land from hazardous waste through proper material use, waste disposal, and training of employees.

Limitations
None.

Practice		
☐	C29.1	Determine if a material or item is a potentially hazardous waste: • Check label and shipping papers. • Look for words such as hazardous, danger, caustic, corrosive, flammable, carcinogenic, or toxic. • Check the SDS from the manufacturer of the product. The SDS shall kept be onsite at a designated location and readily available.
MATERIAL USE:		
☐	C29.2	Use the entire product before disposing of the container.
☐	C29.3	Do not remove the original product label; it contains important safety and disposal information.
☐	C29.4	Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Do not apply these chemicals during or just before a rain event. Personnel applying controlled pesticides must be certified in accordance with the federal and state regulations.
☐	C29.5	Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Discharge rinse from water-based paints to the sanitary sewer. Filter and re-use thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.
WASTE RECYCLING / DISPOSAL:		
☐	C29.6	Separate contaminated clean up materials from construction and demolition (C&D) wastes.
☐	C29.7	Select designated hazardous waste collection areas onsite.
☐	C29.8	Store hazardous materials and wastes in covered containers and protected from vandalism.
☐	C29.9	Place hazardous waste containers in secondary containment.
☐	C29.10	Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
☐	C29.11	Recycle any useful material such as used oil or e-waste.
☐	C29.12	Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
☐	C29.13	Arrange for regular waste collection before containers overflow.
☐	C29.14	Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of as required by regulations. A licensed hazardous waste transporter must dispose of hazardous waste that cannot be reused or recycled.

C.29 Solid Waste Management - Hazardous Waste
(continued)

Practice		
TRAINING:		
☐	C29.15	Train employees in proper hazardous waste management.
☐	C29.16	Place warning signs in areas recently treated with chemicals.
☐	C29.17	Keep spill cleanup materials where they are readily accessible.
☐	C29.18	Clean up any spilled material immediately.

Maintenance and Inspection		
☐	M29.1	Monitor onsite hazardous waste storage and disposal on a daily basis.
☐	M29.2	Keep storage areas clean and well organized. Provide ample cleanup supplies for the various materials being stored.
☐	M29.3	Inspect perimeter controls at the end of each workday. Repair any damages immediately.
☐	M29.4	Inspect storage areas prior to an anticipated rainfall event and after the rainfall event.
☐	M29.5	If a spill occurs, report the incident to the Construction Manager, clean it up immediately and properly dispose of the contaminated soil and cleanup materials according to the SDS and facility spill response plan. Report all spills to the Airport Manager.
☐	M29.6	Report spills of a certain size (volume of greater than 25 gallons of oil not contained within 72 hours) per HAR 11-451 to DOH HEER and the NRC. Refer to C.35 Spill Response Practices.
☐	M29.7	Procure a spill response contractor for any large spills that cannot be contained.
☐	M29.8	Provide two copies of the hazardous waste manifest to the Construction Manager.

6.5 C.30 Solid Waste Management - Debris

Description
Prevent or reduce discharge of pollutants to the land, groundwater, and in stormwater from solid waste or C&D waste by providing designated waste collection areas, separate containers for recyclable waste materials, timing collection of waste and recyclable materials with each stage of the work, and properly training employees.

Limitations
- All waste debris and trash that can enter the AOA are Foreign Object Debris (FOD) and do not belong in or near aircrafts. FOD can result in injure to airport and airline personnel, and damage aircrafts. FOD-prevention is a major priority for safe airport operation.

Practice		
☐	C30.1	Clean up materials contaminated with hazardous substances, friable asbestos, waste paint, solvents, sealers, adhesives, or similar materials are not acceptable at C&D disposal sites. Separate contaminated clean up materials from C&D Wastes.
☐	C30.2	Place inert fill material such that it will not be subject to erosion from runoff. [Inert Fill Material is defined as earth, soil, rock, or rock-like material will not decompose or produce leachate]. Refer to C.28 Protection of Stockpiles for additional requirements.
☐	C30.3	Recycle or reuse C&D waste whenever practical.
☐	C30.4	Select designated waste collection areas onsite.
☐	C30.5	Provide only watertight dumpsters. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
☐	C30.6	Locate containers in a covered area and/or in a secondary containment. Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out and to prevent scattering of wastes by wind.
☐	C30.7	Obtain additional containers and more frequent pickup during the demolition phase of a project.
☐	C30.8	Collect site trash daily, especially during rainy and windy conditions.
☐	C30.9	Dispose of trash into designated waste containers.
☐	C30.10	Ensure that toxic wastes (used oils, solvent, and paints) and chemicals (acids, pesticides, additives, curing compound) are not disposed of in dumpsters designed for refuse or construction debris.
☐	C30.11	Salvage or recycle any useful material. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Metal can be recycled.
☐	C30.12	Provide waste containers of sufficient size and number to contain C&D waste. Containers shall be of good integrity with no holes.
☐	C30.13	Schedule solid waste collection regularly. Empty waste containers weekly or when they are two-thirds full, whichever is sooner.
☐	C30.14	Do not allow containers to overflow. Clean up immediately if they do.
☐	C30.15	Do not hose out dumpsters on the construction site. Leave dumpster cleaning to trash hauling employees.

C.30 Solid Waste Management – Debris
(continued)

Practice		
☐	C30.16	Require haulers to cover truck beds and waste containers for dust suppression.
☐	C30.17	Require truck beds to maintain at least two feet of freeboard for dust suppression.
☐	C30.18	Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls, as applicable.
☐	C30.19	For C&D waste, site clearing debris, or dredged soils, submit a Solid Waste Disclosure Form to the DOH Solid Waste Section. Provide a copy of this form to the DOTA Engineer.

Maintenance and Inspection		
☐	M30.1	Inspect entire site for litter and debris on a daily basis.
☐	M30.2	Inspect the construction waste and recycling areas regularly.
☐	M30.3	Remove solid waste collected at the Erosion and sediment control devices promptly.
☐	M30.4	If a container does spill, clean up immediately.
☐	M30.5	Train employees in proper solid waste management.

6.6 C.31 Contaminated Soil Management

Description
Prevent or reduce the discharge of pollutants to stormwater and to the land from contaminated soil. Examine highly acidic or alkaline soils by conducting pre-construction surveys, inspect excavations regularly, and remediate contaminated soil promptly.

Limitations

- Contaminated soils must be disposed of at DOH-permitted facilities by DOH-approved transporter. Note: If transporting petroleum-contaminated soil (PCS) loads offsite to other than permitted remediation facilities, use transporters approved by the DOH Solid and Hazardous Waste Branch. DOH Solid and Hazardous Waste Branch must be notified 48 hours before any PCS loads are taken to DOH-permitted remediation facilities.
- The presence of contaminated soil may indicate contaminated groundwater as well. Refer to C.17 Dewatering Operations to address contaminated groundwater.
- Contamination may be identified through discoloration, odors, or sheen on the groundwater. Visual and/or olfactory observations should be verified through sampling of the potentially affected media.

Practice		
☐	C31.1	Conduct thorough site planning including pre-construction review of in-house records regarding previous work in the area.
☐	C31.2	Inspect soils for evidence of contamination, such as discoloration, odors, difference in soil properties, abandoned underground tanks or pipes, or buried debris etc.
☐	C31.3	Notify the DOH, Clean Water Branch (CWB) at (808) 586-4309 at least 90 days prior to disturbing contaminated soil or dewatering from known areas of contamination.
☐	C31.4	Notify the DOTA Engineer and AIR-EE when contaminated media is encountered.
☐	C31.5	Make notifications in accordance with the State Contingency Plan, if it is a reportable quantity a. DOH, Hazard Evaluation and Emergency Response (HEER) Office (586-4249). b. Local Emergency Planning Committee (LEPC) (723-8958). c. National Response Center (800) 424-8802. Prepare and submit any associated written documentation as required by these agencies and provide a copy to AIR-EE.
☐	C31.6	Prevent leaks and spills to the maximum extent practicable. Contaminated soil can be expensive to treat and/or dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
☐	C31.7	Test suspect soils at certified laboratories. Consult with a Certified Industrial Hygienist (CIH) for the proper handling and disposal of the contaminated soil, if applicable. Specific protection requirement shall be determined by the CIH.
☐	C31.8	If the soil is contaminated, dispose per all applicable regulations. Contaminated soils must be disposed of at DOH-permitted facility by DOH-approved transporter. Ensure that the final disposal location for contaminated soils is approved by the DOTA Engineer and documented.
☐	C31.9	Secure required DOH permits. Submit any associated written documentation required by these agencies to DOTA Engineer and AIR-EE.

C.31 Contaminated Soil Management
(continued)

Practice		
☐	C31.10	When temporarily storing contaminated soil onsite: a. Ensure stockpiles, at any time and manner, shall not endanger traffic or shall not in any other way be detrimental to the completed work, health, or the operation of the airport. b. Place contaminated soil and material on impermeable liner or device. c. Contain contaminated soil and material by surrounding with impermeable lined berms and cover exposed contaminated soil with plastic sheets. d. Provide physical diversion to protect stockpiles from concentrated runoff. e. Locate stockpiles a minimum of 50 feet or as far as practicable from concentrated runoff, drainage structures/facilities, or outside of any natural buffers identified on the SWPPP. f. Avoid sloping ground for locating stockpile and minimize stockpile height. g. Manage contaminated soil or materials properly to minimize exposure by workers. h. Contain any dewatering effluent or wastewater generated during decontamination of equipment and dispose properly. i. Ensure all control measures shall be in-place or restored by the end of each day. j. Refer to C.28 Protection of Stockpiles for additional requirements, as applicable.

Maintenance and Inspection		
☐	M31.1	Monitor onsite contaminated soil storage and disposal on a daily basis.
☐	M31.2	Inspect contaminated soil storage areas on a daily basis.

6.7 C.32 Concrete Operation and Waste Management

Description
Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees. Concrete waste includes, but not limited to, concrete, mortar, plaster, stucco, and grout.

Concrete washout water is a slurry containing toxic metals. It is also caustic and corrosive, having a high pH.

Limitations
- Offsite washout of concrete wastes may not always be possible.

Practice		
☐	C32.1	Store dry and wet material under cover, away from drainage area.
☐	C32.2	Avoid mixing excess amounts of fresh concrete or cement onsite.
☐	C32.3	Perform washout of concrete trucks offsite or in designated areas only. The Airport Manager and AIR-EE shall approve the location of wash area, including a plan on how the area will be cleaned up and the waste materials disposed.
☐	C32.4	Do not wash concrete trucks into storm drains, open ditches, streets, or streams.
☐	C32.5	Do not allow excess concrete to be dumped onsite, except in designated areas. AIR-EE and the Airport Manager shall approve the location of dump area, including a plan on how the area will be cleaned up and the waste materials disposed.
☐	C32.6	For onsite washout: • Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste; • Line the washout with a minimum of 10 mil polyethylene sheeting that is free of holes, tears, or other defects that compromise the impermeability of the material. The seams of multiple sheets should be thoroughly adhered such that liquid wastes are contained. • Washout wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly. • Provide a minimum freeboard of 4 inches at the washout facilities to account for rain events.
☐	C32.7	When sandblasting, avoid creating runoff by draining the water to a bermed or level area.
☐	C32.8	Do not sweep excess exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
☐	C32.9	Train employees in proper concrete waste management.
☐	C32.10	Collect wash water and all concrete waste/debris in a concrete washout system bin. Allow wash water to evaporate or properly disposed at an appropriate treatment facility. Allow concrete to harden, broken up, and, then, properly disposed.
☐	C32.11	Do not dump liquid wastes into storm drainage system or ground.
☐	C32.12	Follow requirements of C.28 Protection of Stockpiles when storing concrete solid waste onsite.

C.32 Concrete Operation and Waste Management
(continued)

Practice		
☐	C32.13	When heavy rains are forecasted, monitor the washout's liquid level. Cover the washout or pump out the liquid from the washout to avoid an overflow during the storm.
☐	C32.14	Dispose of liquid and solid concrete wastes in compliance with the federal, state, and local standards. Refer to C.30 Solid Waste Management - Debris, for additional requirement for disposal and transportation, as applicable.
☐	C32.15	If concrete involves an onsite batch plant, follow the stormwater permitting requirements for industrial activities. The Airport Manager must approve the location of the batch plant. Locate the batch plant away from drainage facilities and drain paths. Comply with applicable federal, state and local regulations.
☐	C32.16	When saw-cutting concrete, collect the sawcut slurry and remove from the site by vacuuming. Avoid saw-cutting during wet weather. Cover or barricade storm drains during saw-cutting to contain slurry. Slurry may be placed in a temporary pit or container, as described in this section, to promote evaporation.
☐	C32.17	Wastewater from mortar, plaster, stucco, and grout shall not be allowed to flow into drainage structures or surface waters. Direct all waters to a leak-proof pit or container, as described in this section.
☐	C32.18	Remove and properly dispose any significant residual material from concrete, mortar, plaster, stucco, and grout remaining on the ground after the completion of construction. If the residual materials contaminate the soil, then, the contaminated soil shall also be removed and properly disposed.

Maintenance and Inspection		
☐	M32.1	Inspect concrete washout facilities after heavy rains and at the end of each workweek. Repair any damages before the next time it is used.
☐	M32.2	Cleanout the facility or construct a new one when it reaches 75 percent capacity or 4 inches of freeboard.

6.8 C.33 Sanitary/Septic Waste Management

Description
Prevent or reduce the discharge of pollutants to stormwater from sanitary/septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Limitations
None.

Practice		
☐	C33.1	Locate sanitary facilities in a convenient location, away from drainage facilities, open ditches and water bodies.
☐	C33.2	Never discharge untreated wastewater to the ground.
☐	C33.3	If using an onsite disposal system, such as a septic system, comply with DOH requirements.
☐	C33.4	Temporary sanitary facilities that discharge to the sanitary sewer system are to be properly connected to avoid illicit discharges.
☐	C33.5	If discharging to the sanitary sewer, contact the local wastewater treatment plant for their requirements.
☐	C33.6	Provide sufficient number of sanitary facilities based upon size of labor work force and usage.
☐	C33.7	Arrange for regular waste collection by a licensed transporter before facilities overflow.
☐	C33.8	Ensure that the triturator training is completed prior to using DOTA triturator. Contact AIR-EE for information regarding the training.
☐	C33.9	Position sanitary facilities so they are secure and will not be tipped over or knocked down.
☐	C33.10	When servicing facility, prevent spill of cleaning solutions, cleaning wastewater, and sanitary waste.
☐	C33.11	Clean up spill immediately. For sanitary waste spill, disinfect area of spill after clean up. Do not over-apply disinfectant and prevent from discharging to drainage system, open ditches, and waters bodies.

Maintenance and Inspection		
☐	M33.1	Inspect sanitary/septic waste storage facility at the end of each workweek.
☐	M33.2	Monitor disposal operations for spills.
☐	M33.3	Maintain sanitary/septic facilities in good working order using a licensed service provider.

6.9 C.34 Spill Prevention and Control

Description
Prevent or reduce the discharge of pollutants to stormwater from leaks and spills by reducing the chance of spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spilled materials, and training employees.

Report all spills to the Airport Duty Manager (For HNL, Code 22) and AIR-EE. Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and which do not threaten ground or surface waters can be cleaned up using absorbent materials or other acceptable practices. Daily inspections of the facility will identify any small spills, which will be addressed immediately.

In the event of a large or uncontrolled release, the Construction Manager shall act as the Emergency Coordinator (EC) until the Airport Manager or his representative assumes the role of the EC.

If necessary, use a private spill cleanup company.

Limitations
None.

Practice		
☐	C34.1	Store hazardous materials and wastes in covered containers or in a covered area, within secondary containment and protected from vandalism.
☐	C34.2	Place a stockpile of spill cleanup materials where it will be readily accessible.
☐	C34.3	Train employees in spill prevention and cleanup.
☐	C34.4	Designate responsible individuals.
☐	C34.5	Review spill response requirements at each work site.
☐	C34.6	Clean up leaks and spills immediately.
☐	C34.7	On paved surfaces, clean up the spill with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous.
☐	C34.8	Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. Refer to C.30 Solid Waste Management -Debris for BMPs.
☐	C34.9	Report significant spills to the United States (U.S.) Coast Guard, DOH HEER Office, and City and County of agencies, such as the Fire Department; they can assist in cleanup.
☐	C34.10	Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the NRC at (800) 424-8802 (24 hours). Notify DOH CWB at (808) 586-4309 and AIR-EE at (808) 838-8656 if the spill reached storm drains.
☐	C34.11	If repair or maintenance must occur onsite, refer to C.22 Vehicle and Equipment Operation and Maintenance BMPs.
☐	C34.12	Place drip pans or absorbent materials under all equipment when not in use.
☐	C34.13	Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
☐	C34.14	Transfer used fluids to the proper waste or recycling drums promptly. Don't leave full drip pans or other open containers lying around.

C.34 Spill Prevention and Control
(continued)

Practice		
☐	C34.15	Oil filter disposed of in trash cans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Recycle oil filters if this service is available.
☐	C34.16	Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if all the acid appears to be drained out. If a battery is dropped, treat it as if it is cracked. Put it into the containment area until it is assured not to be leaking.
☐	C34.17	If fueling must occur onsite, refer to C.21 Vehicle and Equipment Refueling BMPs.

Maintenance and Inspection		
☐	M34.1	Ensure that the spill cleanup materials are fully stocked at the beginning of each workday.
☐	M34.2	Remove any products and fluid collected in drip pans or other secondary containment devices promptly.
☐	M34.3	Implement mandatory monthly Good Housekeeping/BMP refresher classes for employees.

6.10 C.35 Spill Response Practices

Description
Proper control and cleanup of spilled hazardous materials reduces the discharge of hazardous materials to MS4. This BMP covers hazardous material spills in the DOTA right-of-way by DOTA and contract personnel. The Maintenance Baseyard and tenant facility stormwater pollution control plans will also contain information about spills in their respective areas.

Report all spills to the Airport Duty Manager and AIR-EE. Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and which do not threaten ground or surface waters can be cleaned up using absorbent materials or other acceptable practices. Daily inspections of the facility will identify any small spills, which will be addressed immediately.

In the event of a large or uncontrolled release, the Construction Manager shall act as the EC until the Airport Manager or his representative assumes the role of EC.

Limitations
None.

Practice		
☐	C35.1	Stop work.
☐	C35.2	Shut down pumps and equipment and secure valves and work operations.
☐	C35.3	Shut down any nearby propane tanks.
☐	C35.4	Move away from the affected area.
☐	C35.5	Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
☐	C35.6	Keep non-essential employees away from the spill area.
☐	C35.7	Notify the EC.
☐	C35.8	The Emergency Coordinator shall evaluate the situation and decide whether to implement a "fight or flight" response by gathering the following information, if it can be done safely: • Your name, location, and how you may be reached. • Location of the release. • Type, quantity, and description of the release. • Hazards of the release. • Type of media affected (soil, asphalt, concrete, etc.). • Rate of the release. • Migratory direction of the release. • Potential for fire or explosion. • Potential for human exposure. • Potential for migration to surface water (ocean, storm drains, etc.).
☐	C35.9	Never subject yourself or other personnel to unreasonable risk of illness or injury.

C.35 Spill Response Practices
(continued)

Practice		
☐	C35.10	Remove all injured persons from the immediate area of danger and render first aid. If injuries are severe, call 911 for emergency medical assistance.
☐	C35.11	If the decision is to "fight," spill response personnel are to don the appropriate personal protective equipment (PPE).
☐	C35.12	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
☐	C35.13	Remove or isolate ignitable and incompatible materials from the area of the release.
☐	C35.14	Locate, stop, and contain the source of the release by: (1) closing, checking, repairing, plugging valves; and/or (2) plugging and patching holes.
☐	C35.15	Confine the release to prevent further migration by: 1) Diking and berming using sand, soil, or other inert material; 2) Sealing storm drains with plastic and sandbags; 3) Placing granular sorbent or absorbent pads and booms; 4) Diverting the chemicals from entering drains, manholes, streams, etc.; or 5) Implementing retention techniques.
☐	C35.16	Implement proper decontamination procedures on vehicles, affected media, PPE, and equipment. This may include placing absorbent material on oil stained pavement - later sweeping up, removing and disposing of affected media (soil or loose asphalt) that contains contaminant, and/or berming the spill area and scrubbing using detergents – disposing detergent and rinse in accordance with the procedures listed below.
☐	C35.17	All used decontamination solution, disposable PPE and affected media must be properly packaged in U.S. Department of Transportation (DOT) specified containers.
☐	C35.18	Labeling, transportation and subsequent disposal of hazardous materials/waste must be in accordance with applicable government regulations.
☐	C35.19	If needed, call the spill response contractor for cleanup and removal of accumulated product resulting from the release. The contractor will remove spilled product and properly dispose of the material in accordance with applicable state and federal regulations.
☐	C35.20	If the release is not readily and easily controlled, evacuation may be necessary.
☐	C35.21	If the EC decides on the "flight" option, the EC is to immediately alert and evacuate all personnel.
☐	C35.22	Call the necessary emergency service providers such as Code 22, 911 (medical facilities, County police, County fire), U.S. Coast Guard (842-2606), DOH HEER office (586-4249), NRC (800) 424-8802, Clean Islands Council (536-5814), and/or spill response contractors and vendors. Also notify the AIR-EE Supervisor (838-8656) in the event of large spills or spills that either enter the storm drain, canal, or ocean.
☐	C35.23	Immediately report spills of a certain size (volume of greater than 25 gallons of oil, or any volume not contained and remediated within 72 hours) per HAR 11-451 to DOH HEER and the NRC immediately. Comply with the DOH HEER requirements. A written report shall be provided to DOH HEER within 30 calendar days of a Reportable Quantity spill cleanup. Provide copies of the written report to DOTA Engineer and AIR-EE.

C.35 Spill Response Practices
(continued)

Practice		
☐	C35.24	Immediately report any spills reaching the storm drains to DOH CWB at (808) 586-4309. Comply with the DOH CWB requirements. A written report shall be provided to DOH CWB within 5 calendar days of a spill cleanup. Provide copies of the written report to DOTA Engineer and AIR-EE.
☐	C35.25	Maintenance personnel are to proceed along an evacuation route to the nearest unaffected area.

Maintenance and Inspection		
☐	M35.1	Implement spill response drills on a monthly basis specific to each employee's type of work and materials and equipment used.

6.11 C.36 Management of Materials Associated with Paint

Description
Prevent or reduce the discharge of pollutants to stormwater and to the land from materials associated with paint through proper material use, waste disposal, and training of employees.

Limitations
None.

Practice		
☐	C36.1	Use proper storage and handling techniques for paint, solvents, and epoxy materials and supplies. Refer to C.26, Material Delivery and Storage BMPs.
☐	C36.2	Store paint, solvents, and epoxy compounds in original water-tight containers over secondary containment and well-labeled. Retain a complete set of SDS onsite.
☐	C36.3	Mix and clean paints and instruments in a covered and contained area, over secondary containment, when possible to minimize adverse impacts from spill.
☐	C36.4	Painting areas should be contained so that drips are easily cleaned.
☐	C36.5	When applying paint by spray, avoid over-spraying of paint. Apply paint per manufacturer's recommended application rate and coverage. Avoid or minimize applying paint in windy conditions. Maintain proper distance between sprayer tip and surface to minimize dissipation of the paint due to wind. Apply paint with brush or roller, if possible.
☐	C36.6	Do not apply traffic paint or thermoplastic if rain is forecasted. Minimize excessive spreading or over-application of beads when applied manually to the surface of the thermoplastic.
☐	C36.7	When painting operation is completed, clean brushes and other instruments by "painting out" brushes as much as possible or scraping off the excess paint. Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream.
☐	C36.8	For water-based paints, wash brush and other instruments in a bucket and dispose of wash water into the sanitary sewer, where possible. If not, collect all wash water into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.
☐	C36.9	Designate and locate onsite wash area a minimum of 50 feet or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.
☐	C36.10	Do not dump liquid wastes into the storm drainage system.
☐	C36.11	Oil-based paints and residue are hazardous waste. Ensure collection, removal, disposal of hazardous waste complies with regulations.
☐	C36.12	Dispose containers only after all of the product has been used. Except for oil-based paints, all other paints can be disposed by drying, bagging, and placing with general rubbish.
☐	C36.13	Filter and re-use thinners and solvents.
☐	C36.14	Properly store and dispose waste materials generated from painting and structure repair and construction activities.
☐	C36.15	Immediately clean up spills and leaks. Keep an ample supply of spill cleanup materials where they are readily accessible. Do not clean surfaces or spills by hosing the area. Eliminate the source of the spill to prevent discharge or a furtherance of an ongoing discharge.

C.36 Spill Management of Materials Associated with Paint
(continued)

Practice		
☐	C36.16	Refer to C.34 Spill Prevention and Control BMPs.
☐	C36.17	Train employees in proper hazardous waste management and spill response.

Maintenance and Inspection		
☐	M36.1	Inspect containers, equipment, and containment facilities for leaks.