



# Storm Water Management Program Plan

## Honolulu International Airport

### Section E: Pollution Prevention / Good Housekeeping



**PROTECT  
OUR WATER**  
MĀLAMA I KA WAI  
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

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TRANSPORTATION, AIRPORTS DIVISION  
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**TABLE OF CONTENTS**

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<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	ROLES AND RESPONSIBILITIES .....	1
1.2	DATABASE .....	2
<b>2.0</b>	<b>DEBRIS CONTROL BMP PROGRAM .....</b>	<b>3</b>
2.1	MS4 MAP.....	3
2.2	STORM DRAIN MARKINGS.....	3
2.2.1	<i>EID Labels .....</i>	<i>3</i>
2.2.2	<i>Public Placards.....</i>	<i>3</i>
2.2.3	<i>Storm Drain Marking Maintenance.....</i>	<i>3</i>
2.3	MS4 INSPECTION AND MAINTENANCE .....	4
2.3.1	<i>MS4 Inspection and Maintenance Logs.....</i>	<i>4</i>
2.4	STREET SWEEPING .....	4
2.4.1	<i>Street Sweeping Logs.....</i>	<i>5</i>
2.5	TRASH REDUCTION PLAN .....	5
<b>3.0</b>	<b>CHEMICAL APPLICATION BMP PROGRM .....</b>	<b>6</b>
3.1	CHEMICAL APPLICATION TRAINING .....	6
3.2	CHEMICAL APPLICATION BMPs .....	6
<b>4.0</b>	<b>MAINTENANCE ACTIVITIES BMP PROGRAM.....</b>	<b>7</b>
4.1	MAINTENANCE BMPs.....	7
4.2	MAINTENANCE ACTIVITIES TRAINING .....	7
<b>5.0</b>	<b>EROSION CONTROL BMP PROGRAM .....</b>	<b>8</b>
5.1	HNL EROSIONAL AREAS.....	8
5.1.1	<i>Temporary BMPs .....</i>	<i>8</i>
5.1.2	<i>Permanent BMPs.....</i>	<i>8</i>
5.1.3	<i>Long-Term Maintenance .....</i>	<i>8</i>
<b>6.0</b>	<b>EVALUATION METHODS.....</b>	<b>10</b>

**TABLES**

TABLE 1:	P2 PROGRAM ROLES AND RESPONSIBILITIES .....	1
TABLE 2:	HNL EROSIONAL AREAS .....	9
TABLE 3:	P2 PROGRAM MEASURABLE STANDARDS, MILESTONES, AND MONITORING .....	10
TABLE 4:	P2 PROGRAM GOALS AND EVALUATION METHODS.....	14

**SWMPP SECTION E ATTACHMENTS** (\*Note: Action Plan to Retrofit Structural BMPs in Section D)

- Attachment E.1: Maintenance Baseyard Storm Water Pollution Control Plan
- Attachment E.2: Chemical Applications BMP Plan
- Attachment E.3: Maintenance BMP Plan
- Attachment E.4: Action Plan for Erosional Outfalls
- Attachment E.5: Maintenance Plan for Vegetated Portions of the MS4
- Attachment E.6: Trash Reduction Plan (to be developed)

## 1.0 INTRODUCTION

The Pollution Prevention and Good Housekeeping Program (P2 Program) consists of four individual components that work together to reduce potential pollutants from all DOTA facilities, including the Maintenance Baseyard, roads, parking lots, wash racks, and the MS4.



### Debris Control BMPs Program

Goal: To remove trash and other debris from the MS4 structures and streets.



### Chemical Applications BMP Program

Goal: To properly manage pesticides used at the airport in a manner that is protective of the MS4 and water quality.



### Maintenance Activities BMP Program

Goal: To ensure that maintenance activities are accomplished in a manner most protective of the MS4 and water quality.



### Erosion Control BMPs Program

Goal: To remove sediment from the MS4 structures by stabilizing areas of erosion.

## 1.1 Roles and Responsibilities

Those parties with specific roles in regards to the P2 Program are included in Table 1.

**TABLE 1: P2 PROGRAM ROLES AND RESPONSIBILITIES**

Section	Title	Responsibilities
<b>AIR-EE</b>	Supervisor	<ul style="list-style-type: none"> <li>Provides Program Oversight</li> <li>Tracks and Analyzes Program Data</li> <li>Facilitates Training and Education</li> </ul>
<b>AIR-EE</b>	Environmental Engineer*	<ul style="list-style-type: none"> <li>Coordinates Erosion Control and Trash Reduction Projects</li> </ul>
<b>AIR-EE</b>	Environmental Health Specialists*	<ul style="list-style-type: none"> <li>Provides Contract Oversight for MS4 Maintenance</li> <li>Enters Maintenance Data in Database</li> </ul>
<b>AIR-E</b>	Engineering Program Manager	<ul style="list-style-type: none"> <li>Approves Erosion Control and Trash Reduction Projects</li> </ul>
<b>AIR-OM</b>	Maintenance Superintendent	<ul style="list-style-type: none"> <li>Requires Compliance with P2 Program</li> <li>Facilitates Training and Education</li> </ul>

Section	Title	Responsibilities
AIR-OMF	Baseyard Supervisor	<ul style="list-style-type: none"> <li>• Ensures Maintenance BMPs Implemented</li> <li>• Ensures Chemical Application BMP Implemented</li> <li>• Oversees Permanent BMP Maintenance (Evaporation Ponds)</li> <li>• Oversees Street Sweeping Operations</li> <li>• Facilitates Reporting of Data to AIR-EE</li> </ul>
AIR-OMF	Street Sweeper Operators	<ul style="list-style-type: none"> <li>• Participates in Training</li> <li>• Logs Street Sweeping Data and Submit to Supervisor</li> </ul>
AIR-OMF	Automotive Shop Personnel	<ul style="list-style-type: none"> <li>• Participates in Training</li> <li>• Implements Maintenance BMPs</li> </ul>
AIR-OMF	Landscape Personnel	<ul style="list-style-type: none"> <li>• Participates in Training</li> <li>• Logs Pesticide, Herbicide, Fertilizer Use and Submit to Supervisor</li> <li>• Conducts Vegetation Maintenance, Including Erosion Control and LID Purposes</li> </ul>
	Contractor	<ul style="list-style-type: none"> <li>• Performs MS4 Maintenance</li> <li>• Reports Data to AIR-EE</li> </ul>

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

## 1.2 Database

In 2007, the DOTA began using a comprehensive environmental Asset Management System (AMS) called Enviance in order to track the information from the pollution prevention and other SWMPP programs. This system or a similar database will be used by AIR-EE to track environmental data for all state airports, including HNL. At a minimum, the information tracked in the database as it relates to the P2 Program will include the following:

- Identify MS4 structures by asset number and GPS coordinates, including:
  - Permanent structural and vegetative BMPs.
  - Storm drain inlets and outfalls.
- Track data from maintenance and debris removal programs, including:
  - Street sweeping program.
  - Catch basin cleaning program.
  - Green waste and accumulated sedimentation removal.
  - Permanent BMP inspection and maintenance.

The Enviance system or similar may be expanded as the programs develop in order to prioritize the maintenance and debris removal efforts.

## **2.0 DEBRIS CONTROL BMP PROGRAM**

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The Debris Control BMP program is designed to remove and properly dispose of trash, sediment, and green waste that may accumulate on the roads, taxiways, runways, or within structures that are a part of the MS4. Removing these items prevents them from discharging to and impacting the receiving waters.

### **2.1 MS4 Map**

In 2007, the DOTA conducted a survey of all the storm drainage structures associated with the HNL Small MS4. These structures were identified by number, location description, and GPS coordinates in an inventory within the Enviance system. Additionally, an autocad map was generated that visually represents the location of each of the storm drainage nodes and connecting drainage lines and canals (Attachment B.1). The map and the database are updated as necessary and the most current version is maintained by the AIR-EE Supervisor. Additionally, in conformance with the NPDES MS4 permit, DOTA plans to create a Geographic Information System (GIS) layer that includes each drain inlet, outfall, and permanent BMP. The GIS map layer may be expanded to create a uniform mapping system with other government agencies.

### **2.2 Storm Drain Markings**

The DOTA has found that marking storm drains helps to increase awareness among airport users and also to assist responsible staff with conducting required SWMPP activities such as drain inspections, IDDE, or construction and tenant inspections. The DOTA uses two different types of markings for MS4 structures depending upon their location.

#### **2.2.1 EID Labels**

Where possible, the DOTA labels all storm drain inlets and manholes with the asset's individual EID number to aid contractors with MS4 inspection and maintenance data tracking. There may be MS4 structures where marking is infeasible, such as the movement area of the AOA, where a structure is surrounded by vegetation and the installation of a labeling device such as post or medallion may become a hazard to aircraft.

#### **2.2.2 Public Placards**

Areas of the airport that more visible to the public, such as Lagoon Drive, will be stenciled with the HDOT trigger fish and the message "Do Not Dump, Goes to Ocean" or similar educational design. The purpose of the placards is to raise public awareness about the direct connection that storm drains have to the receiving water and to ultimately change behavior to be more protective of the MS4 in preventing the discharge of potential pollutants.

#### **2.2.3 Storm Drain Marking Maintenance**

As a part of the inspection and maintenance activities, the contractor will note whether EID labels or public placards are no longer visible. When feasible, the contractor will reapply the EID labels by spray painting stenciled numbers for drains. Public placards will be reapplied as volunteer groups are available. Information about MS4 structure markings is included in the Enviance database or similar.

## **2.3 MS4 Inspection and Maintenance**

DOTA ensures that storm drainage structures (i.e. catch basins, inlets, curb gutters, open ditches, trenches, and evaporation ponds [retention basins]) are inspected every six (6) months to identify any maintenance or cleaning requirements. Maintenance will be conducted if any debris is noted during the inspections. Variations to this schedule may be necessary for drain inlets within the AOA movement area. Drainage structures in the movement area are classified as a low priority and have historically not required maintenance cleaning due to the fact that the only activities conducted in this area are aircraft taxiing, take-off, and landing, which generally do not create debris. Further, inspections within the AOA movement area are limited based on the availability of runway and taxiway closures; however, the DOTA will make efforts to conduct inspections every six (6) months and at a minimum annually. Areas determined through inspections to have a high priority (i.e. storm drain structures that visually appear to have accumulated more than 1/3 its approximate capacity annually) will be inspected more frequently, and as needed to keep the structure clean and functioning properly.

### **2.3.1 MS4 Inspection and Maintenance Logs**

The following information will be logged during the inspection of a storm drainage structure:

- Name of Inspector.
- Date.
- Environmental Identification Number (EID).
- Inspection Results (i.e. Clean or Needs Maintenance).
- Quantity and Type of Debris Removed (if maintenance is conducted).
- Labeled (i.e. Public Placard, EID Label, or Infeasible).

These logs will be provided by the contractor to AIR-EE and the data will be logged in Enviance or a similar system.

## **2.4 Street Sweeping**

Street and runway/taxiway sweeping is performed to remove litter, debris, and other pollutants from surface vehicle and aircraft travel ways before they are discharged to the MS4. Additionally, foreign object debris (FOD) can be hazardous to aircraft and it is every person's responsibility within the AOA to pick up FOD. The DOTA Maintenance Section (AIR-OMF) conducts sweeping operations at runways, taxiways, major streets, and streets in industrial and commercial areas based on the following frequency:

- Once per week.
- More frequently if:
  - A public complaint is received;
  - FAA requests the cleaning of an area due to FOD concerns;
  - AIR-EE inspectors request that an area be swept where there is a potential threat of discharge to State waters; and/or
  - Operators fill two sweeper trucks and there is additional debris remaining on the ground.

### 2.4.1 Street Sweeping Logs

The Street Sweeping and Inspection Log (Attachment E.3) or similar form shall be filled out by the sweeper operator for each swept area. Data recorded in the log includes:

- Date.
- Description of area swept.
- Type of debris (e.g. aggregate, asphalt, grass, dust, trash, leaves, dirt, glass).
- Estimated volume of debris.
- Disposal location.
- Washout location.

The sweeping debris is stored in designated bins, the dump truck bed, or in another contained area at the Maintenance Baseyard (2919 Aolele Street). When capacity is reached, the sweeping debris is taken to the landfill for proper disposal. Sweeper washout occurs in a confined area such as the wash rack or a designated bermed area where water can evaporate and solids are regularly removed for disposal. Sweeper logs are provided to AIR-EE for data entry in Enviance or a similar database.

### 2.5 Trash Reduction Plan

By April 14, 2017, DOTA will develop a trash reduction plan to assess the issue, identify and implement control measures, and monitor these activities to reduce trash loads to the MS4. The plan will include the following information:

- Quantitative estimate of the baseline load of debris.
- Short-term and long-term control measures to reduce debris.
- Short-term plan with compliance deadlines to reduce the baseline load by 50%.
- Long-term plan with compliance deadlines to reduce the baseline load to zero (0).
- Location targets for trash reduction.
- Education activities.
- Integration of control measures, education, and monitoring to measure progress.
- Implementation schedule.
- Monitoring plan to measure process.
- Reporting of results in the NPDES Annual Report.

#### DEFINITION:

**Trash** – Improperly discarded waste material that is illegally disposed of in the storm drain system. This does NOT include natural vegetation deposition other than that generated from landscaping activities. Examples:

- Convenience food packaging.
- Beverage containers.
- Other Packaging (aluminum, steel, glass, paper, plastic, synthetic materials).

### 3.0 CHEMICAL APPLICATION BMP PROGRAM

Construction and maintenance of landscaped areas within HNL requires physical care such as mowing and pruning, irrigation, along with application of chemicals to provide nutrients and to control weeds. Landscaping practices are essential in the reduction of soil erosion from the flow of storm water runoff. The Chemical Application BMP Program (Chemical Program) is designed to reduce the contribution of pollutants from the use of herbicides and fertilizers from entering the HNL Small MS4. The Chemical Program includes the BMPs and training used in the application, storage, and disposal of these chemicals. Currently, the DOTA does not utilize pesticides such as insecticides or poisons.

#### 3.1 Chemical Application Training

DOTA personnel assigned with conducting chemical application operations must be aware of the implications that the activity may have on the MS4 and subsequent receiving waters before they conduct the operation. DOTA's public education program is fully described in SWMPP Section A, which includes annual Maintenance Baseyard personnel training on a variety of topics, including chemical applications. DOTA facilitates additional training for Maintenance Baseyard personnel on herbicide applications by the State Department of Agriculture, Pesticide Program, Education Unit.

#### 3.2 Chemical Application BMPs

The chemical program includes BMPs (Attachment E.2) designed to reduce the contribution of pollutants associated with the application, storage, and disposal of herbicides and fertilizers to the MS4. In general, the BMPs include the following topics:

- General vegetation management – non-chemical solutions for management, use of native vegetation, and educational activities.
- Herbicide applications – NPDES permit requirements, proper handling and application of herbicides, and collection and disposal of unused chemicals.
- Fertilizer management – proper fertilizer application and irrigation to enhance growth of target vegetation while minimizing release of nutrients to storm water runoff.

Maintenance landscape personnel (AIR-OMF) will implement these BMPs during chemical applications and record application amounts on the attached forms or a similar version (Attachment E.2). Completed forms will be collected by baseyard administrative staff and delivered to AIR-EE after June 30 each year for evaluation in the annual report.

#### DEFINITIONS:

**Pesticides** - Chemicals used to kill pest animals or plants, including herbicides, fungicides, rodenticides, or insecticides.

**Herbicide** - Chemicals used to control unwanted vegetation.

**Insecticides / Poisons** - Chemicals used to control insects or pests, usually to control disease vectors such as mosquitoes or rats.

**Fertilizer** - Chemical or natural substance added to the soil to promote vegetation growth.

## **4.0 MAINTENANCE ACTIVITIES BMP PROGRAM**

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The DOTA operates the Maintenance Baseyard at HNL and a Storm Water Pollution Control Plan (SWPCP) (Attachment E.1) for that facility has been developed in accordance with HAR 11-55, Appendix B.

### **4.1 Maintenance BMPs**

Maintenance activities conducted by the DOTA throughout the airport have the potential to contribute pollutants to the MS4; therefore, specific maintenance BMPs have been developed as a part of this program and are also reflected in the Baseyard SWPCP. In general, the BMPs include the following topics:

- Street sweeping.
- Storm drain and oil water separator inspection and maintenance.
- Road and paving repairs.
- Construction maintenance such as saw cutting, concrete work, curb and gutter replacement, and buried utility repair.
- Painting.
- Debris and trash removal.
- Spill prevention and response.

### **4.2 Maintenance Activities Training**

DOTA's public education program is fully described in SWMPP Section A, which includes annual Maintenance Baseyard personnel training on a variety of topics, including such as potential pollutants, BMPs, and permit requirements.

## 5.0 EROSION CONTROL BMP PROGRAM

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Sedimentation can have a significant affect on water quality and down stream ecosystems. This erosion control BMP program is designed to identify areas that have erosion and implement controls to prevent the sediment from impacting the MS4 and receiving waters.

### 5.1 HNL Erosional Areas

The DOTA has conducted field investigations of HNL in order to identify areas of the airport that have significant potential for water quality impacts due to erosion. Areas were selected where evidence of erosional rilling or gullyng was observed or if downstream areas had evidence of sediment transport and/or accumulation (Table 2). In addition to Table 2, DOTA conducted a survey of the MS4 outfalls and identified two erosional outfalls (Attachment E.4.) The DOTA will implement permanent BMPs, such as planting vegetation, paving, or installing geotextile mats, to stabilize the erosional areas. Temporary BMPs such as silt fence, sand bags, or drain inlet protection may be used where necessary to control erosion and sedimentation until a permanent BMP may be installed.

#### DEFINITIONS:

**Erosion** - Movement of soil particles from their original location by wind or water. May be visible as rilling or gullyng.

**Sedimentation** – Deposition of soil particles by wind or water in a different location.

#### 5.1.1 Temporary BMPs

Although none of the identified areas appeared to be contributing significant amounts of sediment to the MS4 or receiving waters, the DOTA will install and maintain temporary BMPs for erosional sites until a permanent solution may be implemented. Temporary BMPs and maintenance requirements are included in Attachment C.7.

#### 5.1.2 Permanent BMPs

Permanent solutions to the erosional areas may include seeding and planting, diverting runoff, or paving. These projects will be evaluated to determine the most feasible solution and the proper permits including NPDES and/or 401 Water Quality Certifications will be obtained where necessary.

#### 5.1.3 Long-Term Maintenance

Dependent upon the type of permanent solution implemented for the erosional areas, various long-term maintenance activities may be required. These maintenance requirements will be identified as a part of the project design process. Specifically for vegetated areas, the DOTA has developed a maintenance plan that will ensure that vegetation installed to address erosion will be properly maintained (Attachment E.5).

**TABLE 2: HNL EROSIONAL AREAS**

<b>Erosional Area/ID</b>	<b>Location Description</b>	<b>Longitude / Latitude</b>	<b>Approximate Size (acres)</b>	<b>Receiving Water</b>	<b>Implementation Year (Permanent)</b>
<b>A1-1</b>	Temporary vehicle storage lots south of Kalewa Street.	21°19'34.88" N 157°54'04.12" W	6.5	Keehi Lagoon	2016
<b>E-1</b>	Area along north side of Aolele Street canal between Paiea Street and the highway on-ramp.	21°20'01.0" N 157°54'49.6" W	<0.5	Aolele Canal	2017
<b>D10-1</b>	Walls of Access A Canal from Aolewa Place to the diamond head hardstands.	21°19'49.03" N 157°54'49.17" W	<0.5	Access A Canal	2018
<b>D10-2</b>	Slight slope between Access A Canal and the diamond head hardstands.	21°19'48.74" N 157°54'45.39" W	<0.5	Access A Canal	2018
<b>D14-2</b>	Slight slope south of Kaloaloe Canal and immediately west of AOA perimeter road.	21°19'50.80" N 157°54'11.24" W	<0.5	Kaloaloe Canal	2019
<b>D14-1</b>	Unstabilized slope south of Kaloaloe Canal, between the AOA perimeter road and Lagoon Drive.	21°19'49.70" N 157°54'09.77" W	<0.5	Kaloaloe Canal	2020
<b>E-3</b>	Outfalls 4555 and 4556 from Ualena Street to Aolele Street canal.	21°19'58.8" N 157°54'35.5" W	<0.5	Aolele Canal	2020
<b>D10-3</b>	Walls of Kaloaloe Canal south of DOTA Maintenance Baseyard.	21°19'51.02" N 157°54'24.70" W	<0.5	Kaloaloe Canal	2021
<b>E-2</b>	Walls of Aolele Street canal from the highway on-ramp to the Aolele Street bridge.	21°19'58.3" N 157°54'33.8" W	<0.5	Aolele Canal	2021

## 6.0 EVALUATION METHODS

The P2 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 P2 Program metrics will be included in the annual report to the DOH and EPA.

**TABLE 3: P2 PROGRAM MEASURABLE STANDARDS, MILESTONES, AND MONITORING**

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 1.2	Database	Track assets and maintenance in Enviance or similar system, including: <ul style="list-style-type: none"> <li>MS4 structures and permanent BMPs by EID number and latitude / longitude.</li> <li>Catch basin cleaning data.</li> <li>Street sweeping data.</li> <li>Green waste and accumulated soil removal.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>All MS4 assets and maintenance data tracked.</li> </ul>	Annual
			Tabulation: <ul style="list-style-type: none"> <li># of MS4 assets by type (inlet, manhole, trench drain, outfall, OWS, permanent BMP).</li> </ul>	Annual
Section E, 1.2 & Section B, Attach B.1	MS4 Maps	Map drain inlets, outfalls, and permanent BMPs on GIS.	Confirmation: <ul style="list-style-type: none"> <li>GIS layer created.</li> </ul>	Initially and Update As Needed
Section E, 2.3	MS4 Inspection and Maintenance	Conduct MS4 inspections and maintenance, where necessary. <ul style="list-style-type: none"> <li>Inspect 100% of the accessible MS4 catch basins, inlets, curb gutters, open ditches, trenches, and evaporation ponds twice per year.</li> <li>Conduct maintenance on all MS4 structures with accumulated debris.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>MS4 inspections and maintenance conducted.</li> </ul>	Annual
			Tabulation: <ul style="list-style-type: none"> <li># of MS4 inspections conducted.</li> </ul>	Annual

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 2.4	Street Sweeping	Conduct street sweeping operations. <ul style="list-style-type: none"> <li>Establish thresholds for requiring sweeping activities.</li> <li>Sweep all designated runways, taxiways, major streets, and streets in industrial and commercial areas twice per month.</li> <li>Review sweeping schedule annually.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>Sweeping thresholds established.</li> </ul>	Initial
			Tabulation: <ul style="list-style-type: none"> <li>Total cubic feet of debris removed by sweeping.</li> </ul>	Annual
			Confirmation: <ul style="list-style-type: none"> <li>Sweeping schedule reviewed.</li> </ul>	Annual
Section E, 2.2	Drain Placards	Implement storm drain marking program. <ul style="list-style-type: none"> <li>Establish the purpose of drain marking and procedures for tracking placement.</li> <li>Establish procedures for inspection and maintenance of markings.</li> <li>Install public placards at 100% of designated drains.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>Drain marking purpose and procedure established.</li> </ul>	Initial
			Tabulation: <ul style="list-style-type: none"> <li>% of designated drains with public placards.</li> </ul>	4/14/19
Section D, Attach D.3	Retrofit Action Plan	Develop a plan to implement retrofits. <ul style="list-style-type: none"> <li>Submit Retrofit Action Plan within one year of the effective date of the permit.</li> <li>Complete at least ten (10) retrofit projects at a rate of 2 per year for 5 years.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>Retrofit Action Plan submitted to DOH.</li> </ul>	4/14/15
			Tabulation: <ul style="list-style-type: none"> <li># of retrofit projects completed.</li> </ul>	Annual
Section E, 2.5	Trash Reduction Plan	Develop a plan for reducing trash within the MS4. <ul style="list-style-type: none"> <li>Submit Trash Reduction Plan.</li> <li>Establish baseline trash load discharging from the MS4.</li> <li>Reduce trash by 50% compared to baseline in the short-term.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>Trash Reduction Plan submitted to DOH.</li> </ul>	4/14/17
			Tabulation: <ul style="list-style-type: none"> <li>Baseline Establishment: lbs of trash discharging from MS4 by type.</li> </ul>	6/30/18

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 2.5	<i>CONTINUED</i> - Trash Reduction Plan	<i>CONTINUED</i> - Develop a plan for reducing trash within the MS4. <ul style="list-style-type: none"> <li>Reduce trash to zero in the long-term.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li>% of trash removed from MS4 discharge as compared to baseline.</li> </ul>	Annual After 6/30/18
Section E, 3.1 & Section A, 2.1.4	Chemical BMP Training	Provide annual training to personnel applying fertilizers, pesticides, and herbicides.	Tabulation: <ul style="list-style-type: none"> <li># of parties trained on chemical applications.</li> </ul>	Annual
Section E, 3.2	Chemical Application BMPs	Develop and implement chemical application BMPs.	Confirmation: <ul style="list-style-type: none"> <li>Chemical application BMPs developed.</li> </ul>	Initial
Section E, 5.1	Erosional Areas	Identify, stabilize, and maintain areas exhibiting signs of erosion. <ul style="list-style-type: none"> <li>Submit a list of erosional areas.</li> <li>Submit an Action Plan for Erosional Outfalls.</li> <li>Submit 401 WQC applications within one year of the effective permit date.</li> <li>Develop a maintenance plan for vegetated areas associated with erosion control and LID.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>List of erosional areas submitted to DOH.</li> </ul>	4/14/15
			Confirmation: <ul style="list-style-type: none"> <li>Action Plan for Erosional Outfalls submitted to DOH.</li> </ul>	4/14/15
			Confirmation: <ul style="list-style-type: none"> <li>401 WQC applications submitted, where required.</li> </ul>	4/14/15
			Confirmation: <ul style="list-style-type: none"> <li>Vegetation Maintenance Plan developed.</li> </ul>	Initial

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 5.1	<i>CONTINUED</i> - Erosional Areas	<i>CONTINUED</i> - Identify, stabilize, and maintain areas exhibiting signs of erosion. <ul style="list-style-type: none"> <li>• Install temporary BMPs or permanent solutions on 100% of identified sites within 18 months of effective permit date.</li> <li>• Complete 100% of permanent solutions within the timeframe covering the 2nd year after the effective permit date to the 5th year.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li>• % of erosional areas/outfalls with temporary or permanent BMPs.</li> </ul>	10/14/15
			Tabulation: <ul style="list-style-type: none"> <li>• % of erosional areas/outfalls with permanent solutions.</li> </ul>	Annual After 10/14/15
Section E, 4.1	Maintenance BMP Training	Provide annual training to personnel conducting maintenance activities.	Tabulation: <ul style="list-style-type: none"> <li>• # of parties trained on maintenance BMPs.</li> </ul>	Annual
Section E, 4.2	Maintenance BMPs	Develop and implement maintenance BMPs.	Confirmation: <ul style="list-style-type: none"> <li>• Maintenance BMPs developed.</li> </ul>	Initial

In Table 4, the DOTA has set goals for the P2 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.

**TABLE 4: P2 PROGRAM GOALS AND EVALUATION METHODS**

SWMPP Reference	Activity	Goals	Evaluation Method	Outcome Category	Timeframe
Section E, 2.2	Drain Placards	Mark storm drains to reduce trash and debris illegally deposited. <ul style="list-style-type: none"> <li>Install / replace public placards at 10 MS4 structures.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li># of public placards installed.</li> </ul>	1-2	Annual
Section E, 2.3	MS4 Inspection and Maintenance	Conduct MS4 inspections twice per year and maintain as necessary. <ul style="list-style-type: none"> <li>Prioritize MS4 structures.</li> <li>Track pounds of debris removed from inlets, catch basins, trenches, CDS units.</li> <li>Track gallons of free product removed from OWS.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li># of MS4 structures per priority ranking (i.e. low, medium, high).</li> </ul>	1	Annual
			Tabulation: <ul style="list-style-type: none"> <li>lbs of debris removed from MS4 maintenance.</li> </ul>	1, 4	Annual
			Tabulation: <ul style="list-style-type: none"> <li>Gallons of free product removed from OWS.</li> </ul>	1, 4	Annual
Section E, 2.3	Surface Water Inspection and Maintenance	Conduct inspection and cleaning of surface waters (MS4 canals and shoreline). <ul style="list-style-type: none"> <li>Track pounds of debris removed by type.</li> <li>Track number of sorbent booms used on surface waters.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li>Lbs of debris removed by type (i.e. trash, green waste).</li> </ul>	1, 4	Annual
			Tabulation: <ul style="list-style-type: none"> <li># of sorbent booms installed in the surface waters.</li> </ul>	1, 4	Annual

SWMPP Reference	Activity	Goals	Evaluation Method	Outcome Category	Timeframe
Section E, 3.2	Chemical Application BMPs	Develop and implement chemical application BMPs. <ul style="list-style-type: none"> <li>2% reduction in the amount of herbicides used over the permit term.</li> </ul>	Tabulation: <ul style="list-style-type: none"> <li>% reduction in herbicides application.</li> </ul>	1-4	3/13/19
Section E, 4.1	Maintenance BMP Training	Conduct training for maintenance personnel on BMPs. <ul style="list-style-type: none"> <li>Conduct one BMP related drill at the baseyard.</li> <li>Baseyard personnel respond to and properly contain a spill at the baseyard within 15 minutes.</li> </ul>	Confirmation: <ul style="list-style-type: none"> <li>Drill conducted.</li> </ul>	1-3	Annual
			Tabulation: <ul style="list-style-type: none"> <li>Time baseyard personnel took to respond to spill in a drill scenario.</li> </ul>	1-4	Annual
Section H	Storm Water Monitoring	Collect and analyze storm water samples to determine concentrations of pollutants in the runoff. <ul style="list-style-type: none"> <li>5% reduction in TSS over the permit term. The reduction may be indicative of DOTA's debris removal efforts (e.g. sweeping, drain cleaning, etc.).</li> </ul>	Monitoring*: <ul style="list-style-type: none"> <li>Baseline Establishment: TSS concentration in storm water samples.</li> </ul>	5, 6	6/30/16
			Monitoring*: <ul style="list-style-type: none"> <li>% reduction in TSS.</li> </ul>	5	3/13/19

\*The collection of storm water samples will be dependent upon several variables including the availability of a representative storm event, safety concerns, and personnel availability.

# ***Attachment E.1***

## *Maintenance Baseyard Storm Water Pollution Control Plan*

**STORM WATER POLLUTION CONTROL PLAN  
HONOLULU INTERNATIONAL AIRPORT  
NPDES PERMIT No. HI S000005**



**MAINTENANCE BASEYARD FACILITY  
2919 AOOLELE STREET  
HONOLULU, HAWAII 96819**



Prepared For:  
**DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION**  
Honolulu International Airport  
400 Rodgers Boulevard, Suite 700  
Honolulu, Hawaii 96819-1880

June 2014

Version 3.0



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	SWPCP IMPLEMENTATION .....	1
1.2	UPDATING THE SWPCP .....	1
<b>2.0</b>	<b>SITE DESCRIPTION .....</b>	<b>2</b>
2.1	MAINTENANCE BASEYARD (HNL.003.003.01.05).....	2
2.2	SITE ACTIVITIES.....	3
2.3	DRAINAGE SYSTEM DESCRIPTION.....	4
2.3.1	<i>Drainage Area 01 (Outfall 3917).....</i>	<i>4</i>
2.3.2	<i>Drainage Area 02 (Outfall 3909).....</i>	<i>4</i>
2.3.3	<i>Drainage Area 03 (Outfall 10203).....</i>	<i>5</i>
2.3.4	<i>Drainage Area 04 (Outfall 4576).....</i>	<i>5</i>
2.4	GROUNDWATER AND CLIMATE CONDITIONS .....	5
<b>3.0</b>	<b>POTENTIAL POLLUTANTS IN STORM WATER .....</b>	<b>6</b>
3.1	RECENT ANALYTICAL DATA ON QUALITY OF STORM WATER RUNOFF FROM FACILITY.....	6
3.2	HNL BASEYARD RECENT SPILL OF POLLUTANTS .....	6
<b>4.0</b>	<b>NON-STORM WATER CONTROL.....</b>	<b>7</b>
<b>5.0</b>	<b>BEST MANAGEMENT PRACTICES .....</b>	<b>8</b>
5.1	GOOD HOUSEKEEPING .....	8
5.2	PREVENTATIVE PRACTICES .....	8
5.3	SPILL CONTAINMENT AND REMEDIATION .....	8
<b>6.0</b>	<b>STORM WATER MONITORING PROGRAM.....</b>	<b>10</b>
6.1	STORM WATER MONITORING LOCATION .....	10
6.2	MONITORING PARAMETERS .....	10
6.3	MONITORING PROCEDURES.....	12
6.3.1	<i>Gather Necessary Sampling Equipment.....</i>	<i>12</i>
6.3.2	<i>Monitor the Weather .....</i>	<i>13</i>
6.3.3	<i>Take Field Measurements .....</i>	<i>13</i>
6.3.4	<i>Collect the Grab Sample and Measure the Flow Rate.....</i>	<i>13</i>
6.3.5	<i>Collect Composite Sample, if possible .....</i>	<i>14</i>
6.3.6	<i>Record Final Observations and Label Samples .....</i>	<i>14</i>
6.3.7	<i>Fill Out Chain of Custody (COC) .....</i>	<i>14</i>
6.3.8	<i>Deliver Samples to Laboratory .....</i>	<i>14</i>
6.3.9	<i>Data Review and Validation .....</i>	<i>15</i>
6.4	REPORTING REQUIREMENTS .....	15
<b>7.0</b>	<b>PROCEDURES FOR IMPLEMENTATION.....</b>	<b>16</b>
7.1	EMPLOYEE AND TENANT TRAINING .....	16
7.2	PROTOCOL FOR SITE INSPECTIONS .....	16
7.3	REVISIONS TO SWPCP.....	16
7.4	DOCUMENTATION PROCEDURES .....	17
<b>8.0</b>	<b>REFERENCES .....</b>	<b>18</b>

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## LIST OF TABLES

TABLE 1: LIST OF POTENTIAL POLLUTANTS BY SOURCE .....	6
TABLE 2: EMERGENCY CONTACT INFORMATION.....	9
TABLE 3: HNL 003 MONITORING PARAMETERS .....	10
TABLE 4: SUMMARY OF MAINTENANCE PERSONNEL TRAINING PROGRAM .....	16

## LIST OF FIGURES

FIGURE 1: LOCATION MAP
FIGURE 2: SITE MAP
FIGURE 3: FLOW CHART

## APPENDICES

APPENDIX A: PHOTOGRAPHIC DOCUMENTATION
APPENDIX B: BEST MANAGEMENT PRACTICES
APPENDIX C: STORM WATER DISCHARGE MONITORING REPORT 2013
APPENDIX D: INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## LIST OF ACRONYMS

ARFF	Aircraft Rescue and Fire Fighting
AST	Aboveground Storage Tank
BMP	Best Management Practice
CFR	Code of Federal Regulations
CWB	Department of Health, Clean Water Branch
DOH	State of Hawaii, Department of Health
DOTA	State of Hawaii, Department of Transportation, Airports Division
EC	Emergency Coordinator
EHS	Environmental Health Specialist
EID	Environmental Identification Number
GPS	Global Positioning System
GPD	Gallons Per Day
HAR	Hawaii Administrative Rules
HEER	Hazard Evaluation and Emergency Response
HNL	Honolulu International Airport
IWDP	Industrial Wastewater Discharge Permit
MS4	Municipal Separate Storm Sewer System
MSDS	Materials Safety Data Sheet
NPDES	National Pollutant Discharge Elimination System
OWS	Oil Water Separator
PMID	Property Management Identification Number
QA/QC	Quality Assurance / Quality Control
SWMPP	Storm Water Management Program Plan
SWPCP	Storm Water Pollution Control Plan
TMK	Tax Map Key
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

## **1.0 INTRODUCTION**

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Federal regulations administered by the State of Hawaii, Department of Health (DOH) through State of Hawaii, Department of Transportation, Airports Division (DOTA) National Pollutant Discharge Elimination System (NPDES) Individual Permit No. HI S000005 requires that the maintenance baseyard for the Honolulu International Airport (HNL) be provided with a Storm Water Pollution Control Plan (SWPCP) for storm water associated with industrial activities. The purpose of the regulations is to protect water quality by reducing the amount of pollutants in storm water runoff caused by covered industrial activities.

### **1.1 SWPCP Implementation**

The storm water management controls of this plan will become a DOTA procedure and an up-to-date copy of the SWPCP shall be maintained on site. DOTA management staff, maintenance personnel, contractor staff, and Aircraft Rescue and Fire Fighting (ARFF) personnel will be knowledgeable of the plan and follow the guidelines set forth in the SWPCP as well as HNL Airport responsibilities as described in Hawaii Administrative Rules (HAR) Title 19 and pertinent state and federal regulations. Implementation of the SWPCP is the responsibility of the Airfield and Grounds Maintenance Unit Supervisor. Enforcement of the permit conditions and this SWPCP are the responsibility of the DOTA Environmental Section. The NPDES Inspection and Enforcement Manual developed by DOTA will be used as a guide to inspection and enforcement actions conducted by DOTA personnel.

### **1.2 Updating the SWPCP**

The SWPCP will be reviewed **every five years** or as needed to identify necessary changes. Updates may be required due to current BMP failures, spill events, changes in baseyard activities, changes in baseyard features, or other necessary changes. The Airports Deputy Director or designee will be responsible for approving revisions to the SWPCP. In the event the plan is modified, a copy of the updated SWPCP will be provided to the baseyard and the Environmental Section. Additionally, DOTA shall document and report the SWPCP changes to the DOH, Clean Water Branch (CWB), within thirty days of when the changes arise.

## 2.0 SITE DESCRIPTION

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The Honolulu International Airport (HNL) facility is owned by the State of Hawaii, Department of Transportation, Airports Division (DOTA) and is operated within the Oahu District based at HNL (836-6411). The airport consists of 4,520 acres of land on the southern portion of the island of Oahu (Figure 1). Additionally, Hickam Air Force Base is located west of the airport, Keehi Lagoon and Sand Island to the east, Nimitz Highway to the north, and the Pacific Ocean to the south.

HNL is the busiest airport in the State of Hawaii and consists of four active runways and associated taxiways, three terminals, air carrier facilities, general aviation facilities, and two aircraft rescue and firefighting (ARFF) stations. The terminals and ARFF Station 1 are located north of Runway 8L-26R and ARFF Station 2 is located to the north of Runway 8R-26L. The airport is in operation seven days a week and security is provided by a private contractor. Additionally, the ARFF service is available 24 hours per day. The Maintenance Baseyard supports all the operations at the airport, which may include vehicle maintenance, fueling, and washing; paving and striping; vegetation management; building maintenance; and debris control.

### 2.1 Maintenance Baseyard (HNL.003.003.01.05)

The Maintenance Baseyard facility is located east of the terminals at 2919 Aolele Street, between the confluence of Kaloaloe Canal and another unnamed drainage ditch (Figure 2). The Maintenance Baseyard includes a maintenance shop, fueling area, paint shop, vehicle and material storage, landscaping nursery, and offices which are used to ensure the airport remains operational. A six foot high chain link fence surrounds the Maintenance Baseyard and 24 hour security is provided by a private contractor.

The maintenance shop is located on the northeastern portion of the Maintenance Baseyard and personnel utilize batteries, solvents, oils, and other lubricants in the maintenance of equipment. The new oil is stored in approximately five 55-gallon drums, placed within spill containment pallets. The solvent is used in a contained parts washer. Additionally, a 100-gallon underground oil-water separator (OWS) (EID 03907) is connected to the maintenance shop floor drains to contain any spills that may extend beyond the secondary containment. The OWS is permitted by the City and County of Honolulu to discharge to the sanitary sewer.

Used oil is stored in a 55-gallon drum within a spill pallet located in the maintenance shop until it can be deposited via forklift into the 280-gallon used oil AST (EID 09372), which is disposed of by contractors as needed. There are three storm drain inlets in the fueling area which are equipped with Safe Drain installations, preventing any oil product or storm water pollutant from entering the MS4. The used oil AST is a *Lube Cube* manufactured by Containment Solutions with integral secondary containment. It is equipped with a visual leak detection gauge for the interstitial space and a liquid level gauge for the primary tank. The fill port is located in a locked containment sump that has a capacity of 7 gallons. Spill kits are maintained in the area to respond to any further spills that may occur.

The fueling area is located near the entrance of the Maintenance Baseyard and includes two dispensers under a canopy designed to protect the fueling area from direct rainfall. The

dispensers are fueled from three underground storage tanks (UST); one 23,000-gallon diesel UST (EID 03123) and two 23,000-gallon gasoline USTs (EIDs 03121 and 03122). All USTs are double-walled and monitored through a Veeder-Root system. Additionally, there is an emergency shut-off valve located near the fueling area that is tested by maintenance personnel and a spill kit is maintained in the area.

The Paint Shop is located north of the main office and includes a paint booth (EID 03684), which is utilized for spray painting operations. Paints and supplies are stored within secondary containment in the Paint Shop. The landscape nursery is located north of the paint shop and includes plants and fertilizers in a covered area.

Materials are stored throughout the baseyard. Aggregate piles are stored within concrete masonry unit walls on the western portion of the baseyard with berms along the front of the units.

## **2.2 Site Activities**

The activities conducted at the Subject Property include

- Vehicle and Equipment Maintenance and Storage;
- Vehicle and Equipment Washing;
- Vehicle and Equipment Fueling;
- Painting;
- Carpentry;
- Vegetation Management;
- Material Storage; and
- Waste Disposal.

The vehicle and equipment maintenance activities at the site include minor engine services, draining fluids, parts washing, changing fluids, tire change, and battery replacement. A parts washer is located in the western portion of the maintenance shop and collects spent solvent in a 55-gallon drum on secondary containment. This area also includes 55-gallon drums of new oil, used oil, transmission oil, and other maintenance materials in portable over-pack containers or spill pallets. Immediately outside of the western maintenance shop, is a parking area designated for vehicles that require maintenance. The area has been painted with a material that will prevent petroleum leaks from infiltrating into the asphalt and soil. Additionally, the facility uses drip pans to collect the oil leaks from vehicles and equipment.

The interior of the eastern portion of the maintenance shop includes an OWS 03907 that has 100-gallon capacity and discharges to the City and County of Honolulu sanitary sewer. This discharge is permitted under Industrial Wastewater Discharge Permit (IWDP) No. 20120341. Periodically, vehicles are also washed in this portion of the maintenance shop and the wash water is directed to the OWS. Vehicle fueling is conducted through dispensers located under a canopy that bring fuel from the three USTs at the site. The three storm drains located around the fueling area have been fitted with safe drains. These drains may be closed during fueling operations so that spills are not discharged to the HNL Small Municipal Separate Storm Sewer System (MS4).

Painting activities are conducted in the paint shop. This area includes a paint booth (EID 03684) and an indoor storage area for all the painting supplies. Runway stripes may be tested on the paved outside of the Paint Shop. The carpentry shop is also located inside a building and includes several types of vacuum equipment to keep wood shavings from impacting the storm water runoff.

The northern portion of the Maintenance Baseyard includes a landscaping nursery where plants are raised for the airport. Chemicals used in this area may include fertilizers and pesticides. Further pesticides are stored in a shed for use around the airport property. All usage of landscaping chemicals is recorded in accordance with the requirements of the NPDES permit. Lawn mowers and handheld vegetation management equipment are utilized around the airport property.

Materials necessary for operations at the Maintenance Baseyard and throughout the airport are stored in properly undercover and on secondary containment when necessary. These materials include new parts, light bulbs, and chemicals available at the Warehouse; maintenance materials in the maintenance shop; herbicides and pesticides in the landscaping area; paints and solvents in the paint shop; and aggregate piles in concrete masonry unit containment.

Wastes are also stored at the Maintenance Baseyard; these include general rubbish in designated bins, green waste and street sweeping debris, used oil stored in a 280-gallon AST (EID 09372), and hazardous waste from painting operations and tenant activities. All wastes are properly sorted and labeled and disposed according to the Waste Management Best Management Practice (BMP) (Appendix B).

## **2.3 Drainage System Description**

The HNL Baseyard has four different drainage areas and each include an outfall to the drainage canal system (Figure 2). This drainage canal (Kaloaloa Canal) drains into Keehi Lagoon through an outfall at the coordinates 21°19'40"N, 157°53'56"W in the NAD83 map datum. There is no offsite runoff which enters HNL Baseyard.

### **2.3.1 Drainage Area 01 (Outfall 3917)**

Storm water runoff drains through a swale located northeast of the Maintenance Baseyard and flows into drainage inlet 3919, which discharges into a drainage ditch (Base Outfall 01 – EID 3917) north of the HNL Baseyard. The storm water runoff in this drainage area flows from a parking area north of the HNL Baseyard fence and the HNL Baseyard interior road surrounding the Landscaping Nursery and the back-side of Paint Shop. All industrial activities in this drainage area are performed undercover and protected from contact with storm water runoff.

### **2.3.2 Drainage Area 02 (Outfall 3909)**

Storm water runoff drains through a swale located northeast of the HNL Baseyard, into drainage inlet 3908, which discharges into the drainage ditch (Base Outfall 02 – EID 3909) to the north of the HNL Baseyard. The storm water runoff in this drainage area flows from the HNL employee parking area north of the HNL Baseyard fence and the HNL Baseyard interior road between the Paint Shop and Carpenters Shop, and the northern end of the Equipment Wash Area. All industrial activities in this drainage area are performed undercover and protected from contact with storm water runoff.

### **2.3.3 Drainage Area 03 (Outfall 10203)**

Storm water runoff through Drain Inlets 5496 and 5498 is collected from the west end of the HNL Baseyard and flows to the Kaloaloe Canal (Base Outfall 03 – EID 10203) to the south of the facility. Dumpsters for green waste, street sweepings, and other solid wastes collected from HNL runways, taxiways, and roadways are kept in this area until DOTA’s dumpster contractor removes dumpsters.

### **2.3.4 Drainage Area 04 (Outfall 4576)**

Storm water runoff through Drain Inlets 5499 through 5504 is collected from the HNL Baseyard entrance and maintenance vehicle parking areas south of the HNL Baseyard Main Office. The fueling area and maintenance shop are also located within this drainage area. The discharge from this Area is directed south to the Kaloaloe Canal (Base Outfall 04 – EID 4576). DOTA conducts storm water monitoring at this location (HNL Small MS4 Monitoring Point HNL 003).

## **2.4 Groundwater and Climate Conditions**

The climate in this area of southern Oahu, near the Subject Property, is marked by seasonal variation in rainfall and small variations in temperature. The average annual rainfall reported by the U.S. Department of Agriculture is between 20 inches and 35 inches, most of which occurs between November and April.

According to Mink and Lau’s 1990 publication “Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii,” the Subject Property is located above an upper and lower aquifer within the Moanalua Aquifer System, which is part of the Honolulu Aquifer Sector. The upper aquifer is a basal, unconfined, sedimentary aquifer, characterized as moderately saline with high vulnerability to contamination. This aquifer is neither used as a drinking water source or considered ecologically important. The lower aquifer is a basal, confined aquifer in horizontally extensive lavas, characterized as an irreplaceable, currently used drinking water source with fresh salinity (less than 250 mg/l Cl<sup>-</sup> per liter of water) and a low vulnerability to contamination.

### 3.0 POTENTIAL POLLUTANTS IN STORM WATER

The table below lists some of the possible pollutants present at the Maintenance Baseyard by their source. The predominant activities conducted on the site include vehicle and equipment maintenance, storage, fueling, washing; painting; carpentry; vegetation management; material management; and waste management. Significant spills of these materials are reported to the Baseyard Supervisor as well as the DOTA Environmental Health Specialist (EHS) for containment/evaluation.

**TABLE 1: LIST OF POTENTIAL POLLUTANTS BY SOURCE**

POTENTIAL POLLUTANT	SOURCE(S)
Diesel / Gasoline	Fueling Area / Three 2,300-gallon USTs (EID 03121, 03122, 03123) / Small Equipment Fueling
Lubricants / Oils	Vehicle and Equipment Maintenance / Leaking Vehicles and Equipment / Storage / 280-gallon AST (EID 09372)
Volatile Organic Compounds (VOCs)	Solvent Storage / Parts Washer / Degreasing (Brake Pad Cleaner) / Painting Operations
Heavy Metals	Battery Storage / Engine Repair / Salvage Vehicles
Pesticides / Herbicides / Fertilizers	Chemical Storage / Vegetation Management
Surfactants	Janitorial Cleaning / Vehicle and Equipment Washing
Debris	Washing Activities / Carpentry / Street Sweeping / Aggregate Stockpiles / General Rubbish
Hazardous Waste	Hazardous Waste Storage

#### 3.1 Recent Analytical Data on Quality of Storm Water Runoff from Facility

The most recent analytical sampling of storm water runoff from the Maintenance Baseyard occurred on January 16, 2013. The Discharge Monitoring Report (DMR) and laboratory results are included in Appendix C. There were no exceedances observed in the data obtained.

#### 3.2 HNL Baseyard Recent Spill of Pollutants

There have been no reportable spills of pollutants at the HNL Baseyard during the last five years which have left the property boundary. Any spills that may occur in the future will be reported to the DOTA Environmental Section for record keeping purposes and necessary regulatory agencies in accordance with the Spill Response BMP in Appendix B.

#### **4.0 NON-STORM WATER CONTROL**

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The only source of non-storm water discharge from the Maintenance Baseyard is sinks and vehicle washing activities. The sinks are connected to the sanitary sewer and the vehicle washing is conducted in the covered maintenance shop that includes an OWS (EID 03907). The IWDP for the OWS connection is located in Appendix D. The following procedures will be used to prevent the wash water from entering State waters.

- Vehicles will be washed only in the maintenance shop where waters can be directed to the OWS (EID 03907) through floor drains. The OWS removes petroleum products from the wash water before discharging to the City and County of Honolulu sanitary sewer.
- Vehicles will be allowed to dry as much as possible before leaving the maintenance shop.
- The maintenance shop floor and floor drains will be cleaned regularly to remove detergent, oil, and dirt residue.
- The OWS will be inspected at least once per year and cleaned as necessary by a contractor.

## **5.0 BEST MANAGEMENT PRACTICES**

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By using proper management techniques and practices, it is possible to improve control of the identified potential sources of pollutants and reduce the number of spills/releases to the storm water system. BMPs and evaluation checklists are in Appendix B. The BMPs have been adapted from the City & County of Honolulu, Department of Environmental Services, “*Best Management Practices Manual for Construction Sites in Honolulu*,” and the Honolulu International Airport, “*Storm Water Management Program Plan*.”

### **5.1 Good Housekeeping**

Good housekeeping practices are developed to maintain a clean, safe and orderly working environment. A clean and orderly work area reduces the possibility of accidental spills caused by mishandling of equipment and should reduce safety hazards to personnel. Various maintenance materials such as petroleum products are stored at the Maintenance Baseyard. The implemented BMPs will reduce the potential for the contamination from those products to storm water by minimizing exposure of such materials to storm water. Additionally, a BMP has been developed to ensure that waste generated is properly managed.

### **5.2 Preventative Practices**

Preventive practices are developed to reduce the occurrence of spillage and/or leakage from aircraft and equipment. Preventive maintenance involves examination of mechanical equipment and systems to uncover conditions that could cause equipment breakdowns, and correction of those conditions by adjustment, repair, or replacement of worn parts before the equipment or systems fail. The Maintenance Baseyard personnel conducts checks on their vehicles, AST, USTs, and OWS to ensure that there are no leaks and that they are functioning properly.

### **5.3 Spill Containment and Remediation**

Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and do not threaten ground or surface waters will be cleaned up using absorbent materials or other acceptable practices, without disrupting facility operations. Frequent inspections of the facility will identify any small spills, and will be addressed immediately.

Any spill, leak or release of hazardous substances greater than their reportable quantity as defined in HAR Chapter 11-45-1-6, any spill, leak or release of petroleum products greater than 25 gallons (for petroleum products), any spill, leak or release of petroleum products less than 25 gallons that is not remedied or contained within 72 hours, or any sheen observed on surface waters must be reported to the Airport Emergency Services (836-6670). Several agencies must be informed of the spill, including, DOH Hazard Evaluation and Emergency Response (HEER) office, DOH Clean Water Branch (CWB), National Response Center, and U.S. Coast Guard. In the event of a large or uncontrolled release, the Baseyard Supervisor shall act as the Emergency Coordinator (EC).

**TABLE 2: EMERGENCY CONTACT INFORMATION**

<b>CONTACT</b>	<b>TELEPHONE NUMBER</b>
<p><b>Airport Emergency Services</b> The Airport Emergency Services should be notified of all spills or releases that occur on the Subject Property.</p>	(808) 836-6670
<p><b>DOTA Environmental Health Specialist</b> DOTA's Environmental Health Specialist should be notified of all spills or releases that occur on the Subject Property to assist in spill response as well as for record keeping purposes.</p>	(808) 838-8002
<p><b>Maintenance Baseyard Supervisor</b> The Maintenance Baseyard Supervisor should be notified immediately of all spills, leaks, and releases that occur on the Subject Property.</p>	(808) 836-6497
<p><b>Airport Duty Manager</b> The Airport Duty Manager should be notified immediately of all spills, leaks, and releases that occur on the Subject Property so that they can assist in response and notify other entities, if required.</p>	(808) 836-6434
<p><b>National Response Center (NRC)</b> The EC should call the NRC to report any spill of oil or hazardous materials of a reportable quantity. The NRC will notify the appropriate Federal On-Scene Coordinator (EPA) and various state agencies.</p>	(800) 424-8802
<p><b>U.S. Coast Guard Marine Safety Office (Oahu)</b> The U.S. Coast Guard should be notified of any quantity spill that reaches the ocean.</p>	(808) 522-8260
<p><b>Oahu Civil Defense</b> The EC should notify the Oahu Civil Defense of any reportable quantity spill.</p>	(808) 733-4300
<p><b>DOH HEER Office (Oahu)</b> The EC should notify the HEER office of any chemical spill of a reportable quantity.</p>	(808) 586-4249 (808) 247-2191 (after hours)
<p><b>DOH CWB (Oahu)</b> The EC should notify the CWB of any spills of any chemical of a reportable quantity immediately by telephone. A written notification must also be submitted no later than thirty (30) days after the initial discovery of a release.</p>	(808) 586-4309

## 6.0 STORM WATER MONITORING Program

DOTA conducts a Storm Water Monitoring Program as one component of the HNL Small MS4 Storm Water Management Program Plan (SWMPP). This Monitoring Program is required by the HNL Small MS4 Permit No. HI S000005 and procedures are located in the SWMPP Section H, Part 3. The focus of this program is to monitor storm water and non-storm water runoff from the HNL Small MS4 including storm water discharges to State Waters.

### 6.1 Storm Water Monitoring Location

Monitoring location, HNL 003, is located at outfall 4576, which discharges storm water from the Baseyard to the Kaloaloa Canal. The Global Positioning System (GPS) coordinates for the monitoring location are 21°19'52.9"N, 157°54'21.3"W. The runoff could contain contaminants from vehicle and equipment maintenance, fueling, and washing activities, such as sediments/solids, detergent, fuel, material storage and other petroleum products.

### 6.2 Monitoring Parameters

The following parameters will be analyzed for samples collected from HNL 003.

**TABLE 3: HNL 003 MONITORING PARAMETERS**

PARAMETER	SAMPLE TYPE <sup>2</sup>	TEST METHOD	EFFLUENT LIMITATION <sup>1</sup>
Flow (gallon)	Calculate/ Estimate	rain gauge	Report <sup>4</sup>
Biochemical Oxygen Demand (mg/l)	Composite <sup>3</sup>	E405.1	Report <sup>4</sup>
Chemical Oxygen Demand (mg/l)	Composite <sup>3</sup>	E410.4	Report <sup>4</sup>
Total Suspended Solids (1 mg/l)	Composite <sup>3</sup>	E160.2	20mg/l* 10mg/l**
Total Phosphorus (mg/l)	Composite <sup>3</sup>	E365.4	50mg/l* 30mg/l**
Total Nitrogen (mg/l)	Composite <sup>3</sup>	SM4500-N	250mg/l* 180mg/l**
Nitrate + Nitrite (mg/l)	Composite <sup>3</sup>	E353.2	70mg/l* 30mg/l**
Oil and Grease (mg/l)	Grab	E1664A	15mg/l
pH (unit)	Grab	E150.1	5.5-8.0 ±0.5 from ambient
Ammonia Nitrogen (1 µg/l)	Composite <sup>3</sup>	E350.3	Report <sup>4</sup>

PARAMETER	SAMPLE TYPE <sup>2</sup>	TEST METHOD	EFFLUENT LIMITATION <sup>1</sup>
Turbidity (0.1 NTU)	Grab	E180.1	5 NTU* 2 NTU**
Dissolved Oxygen (0.1 mg/l)	Grab	E360.1	Report <sup>4</sup>
Oxygen Saturation (1%)	Grab	SM4500-O <sup>2</sup>	≥80%
Temperature (0.1 °C)	Grab	E170.1	±1 °C from ambient
Salinity (0.1 ppt) / Conductivity (1µmhos/cm)	Grab	E120.1	≤300µmhos/cm
Aluminum (µg/l)	Composite <sup>3</sup>	E6010	750 µg/l
Cadmium (µg/l)	Composite <sup>3</sup>	E6010	3+ µg/l
Chromium (VI) (µg/l)	Composite <sup>3</sup>	E6010	16 µg/l
Copper (µg/l)	Composite <sup>3</sup>	E6010	6+ µg/l
Lead (µg/l)	Composite <sup>3</sup>	E6010	29+ µg/l
Nickel (µg/l)	Composite <sup>3</sup>	E6010	5+ µg/l
Silver (µg/l)	Composite <sup>3</sup>	E6010	1+ µg/l
Zinc (µg/l)	Composite <sup>3</sup>	E6010	22+ µg/l
Benzene (µg/l)	Composite <sup>3</sup>	E8020	1800 µg/l

NOTES:

mg/l = milligrams per liter = 1000 micrograms per liter (µg/l)

+ = The value listed is the minimum standard. Depending upon the receiving water CaCO<sub>3</sub> hardness, higher standards may be calculated using the respective formula in the U.S. Environmental Protection Agency publication Quality Criteria for Water (EPA 440/5-86-001, Revised May 1, 1987).

\*Wet Season: November 1 through April 30

\*\*Dry Season: May 1 through October 31

<sup>1</sup> Pollutant concentration levels shall not exceed the storm water discharge limits or be outside the ranges indicated in the table. Actual or measured levels which exceed those storm water discharge limits or are outside those ranges shall be reported to the CWB required in HAR, Chapter 11-55, Appendix B, Section 10(c).

<sup>2</sup>The Permittee shall collect samples for analysis from a discharge resulting from a representative storm. A representative storm means a rainfall that accumulates more than 0.1 inch of rain and occurs at least 72 hours after the previous measurable (greater than 0.1 inch) rainfall event.

“Grab sample” means a sample collected during the first 15 minutes of the discharge.

“Composite sample” means a combination of at least two (2) sample aliquots, collected at periodic intervals. The composite shall be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to the total flow of storm water discharge flow since the collection of the previous aliquot. The Permittee may collect aliquots manually or automatically.

Samples for analysis shall be collected during the first 15 minutes of the discharge and at 15-minute intervals thereafter for the duration of the discharge, as applicable. If the discharge lasts for over an hour, sample collection may cease.

<sup>3</sup> If the duration of the discharge event is less than 30 minutes, the sample collected during the first 15 minutes of the discharge shall be analyzed as a grab sample and reported toward the fulfillment of this composite sample specification. If the duration of the discharge event is greater than 30 minutes, the Permittee shall analyze two (2) or more sample aliquots as a composite sample.

<sup>4</sup> Effluent limitations are the acute water quality standards established in HAR, Chapter 11-54, Section 11-54-4. For pollutants which do not have established acute water quality standards, **any detection concentration greater than 0.01 mg/l shall be reported.**

## 6.3 Monitoring Procedures

In accordance with the provisions of DOTA’s HNL Small MS4 permit, samples of storm water runoff shall be monitored according to the Monitoring Plan detailed in the SWMPP Section H, Section 3.0. An automatic sampler may also be used to collect the storm water sample.

### 6.3.1 Gather Necessary Sampling Equipment

Contact a laboratory and request that they provide a storm water sampling kit for the constituents listed in Table 3, excluding those that will be measured in the field (typically pH, temperature, and dissolved oxygen). Inform the laboratory of the constituents that will be monitored as a grab sample and those that will be monitored as a composite sample.

HAR 11-55 defines a grab sample as a sample collected within the first 15 minutes of discharge. Therefore, only one sample container should be required for each of these constituents. However, the laboratory should provide four separate containers for each of the constituents listed as requiring a composite sample. The composite sample will be collected at 15 minute intervals for one hour or until the rainfall ceases. The laboratory will combine the composite sample containers into one container based on the amount collected once they are received.

Once the sample containers have been received from the laboratory, store them and all other sampling items in a central location so that they are easy to grab when a sampling event occurs. The following is a list of suggested sampling materials:

- Sample bottles, sample cooler with frozen media such as ice.
- Storm water scoop to aid in collecting sample. Note: May **not** be used to collect the oil and grease sample.
- pH, temperature, and dissolved oxygen meter. Note: This should be calibrated within 24 hours of collecting the sample.

- Disposable cups to hold the sample for field measurements (pH, temperature, and dissolved oxygen).
- Disposable nitrile gloves. Note: these should be worn when handling samples and containers and changed between sampling locations.
- Field notebook, sample labels, chain of custody form, and permanent marking pen. Note: it is suggested to use a rain resistant notebook.
- Personal Protective Equipment (PPE) such as AOA badge, safety vest, safety glasses, steel toed boots, hard hat, etc.

### **6.3.2 Monitor the Weather**

Storm water sampling should occur during representative storm events. As defined by HAR Chapter 11-55-01, a representative storm is defined as a rainfall that accumulates more than 0.1 inches of rain and occurs at least 72 hours after the previous measurable rainfall (greater than 0.1 inches).

Personnel will monitor the data recorded on the National Oceanic and Atmospheric Administration (NOAA) website (<http://www.prh.noaa.gov/data/HFO/RRAHFO>) for the Honolulu International Airport (HNL). Once personnel have determined that there has been no rain event over 0.1 inch the previous 72 hours, the weather forecast will be viewed in order to anticipate when a rain event may begin. Once a rain event begins that appears to be significant (i.e. may exceed the 0.1 inch requirement), personnel will mobilize to the site within 15 minutes or as soon as possible to collect a sample.

### **6.3.3 Take Field Measurements**

Once the sampler has reached the sampling location, the following observations should be recorded in the field notebook:

- Date and time of arrival onsite.
- Names of sampling personnel present.
- Time that rainfall began.
- Other observations about the discharge such as color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, or other obvious indicators of storm water pollution.

The sampling should commence when personnel don nitrile gloves and fill a disposable cup with storm water from the outfall. Personnel will insert the pH, temperature, and dissolved oxygen meter in the sample within 15 minutes and record the measurement in the field notebook for each once the reading has stabilized (i.e. stay on a consistent number for a period of time).

### **6.3.4 Collect the Grab Sample and Measure the Flow Rate**

Personnel will continue sampling by filling the container for the oil and grease sample by allowing storm water to follow directly into the bottle from the outfall. Typically, this container is a 1-liter amber glass bottle with hydrochloric acid (HCl) preservative. Note: Ensure that the bottle does not overflow or the preservative may be lost. Personnel will record the time it takes

to fill the bottle in seconds in the field notebook. This will be used to complete flow calculations at a later time. Once filled, the oil and grease sample will be securely capped and placed in cooler with frozen media. The remaining grab samples should be collected at this time (i.e. turbidity, oxygen saturation, salinity).

Then the remaining sample bottles will be filled either directly or by using a scoop, capped, and placed in the cooler with frozen media. These should be marked as “Composite Part 1.” The sampling time should be recorded in the field notebook.

**6.3.5 Collect Composite Sample, if possible**

If the rain event continues for 30 minutes, then personnel will collect Composite Part 2. This will be completed by filling the second set of containers for composite constituents. These will be securely capped, marked as “Composite Part 2,” and placed into the cooler with frozen media. This process will be repeated every 15 minutes for up to 1 hour as long as the rainfall continues and samples will be labeled as appropriate (i.e. “composite part 3” and “composite part 4”).

**6.3.6 Record Final Observations and Label Samples**

Once sample collection has been completed, personnel will record the time that sampling activities are completed and/or rainfall ceases. Then sample labels should be placed on the side of each container. An example label is presented below.

<b>Sample Label</b>		
Date: 1/1/14	Time: 0900	Collected By: J. Smith
Sampling Site: HNL 003		
Tests Required: See COC		
Sample Type: <input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Other_____		

**6.3.7 Fill Out Chain of Custody (COC)**

A chain of custody form shall be properly filled out and signed by each individual handling the samples to ensure sample integrity.

**6.3.8 Deliver Samples to Laboratory**

Each sample collected must be iced in the sample cooler immediately and until received by the laboratory. Samples will only be collected Monday through Thursday (not days before holidays) because contract laboratories may be closed on weekends and holidays. The testing laboratory shall be qualified to perform the EPA approved methods. The EPA methods for analyzing environmental samples contain explicit quality control requirements that must be met. These requirements include specific procedures and criteria for evaluating accuracy and precision, demonstrating the ability of the analyst to generate acceptable accuracy and precision, and demonstrating that extraneous interferences are under control. The laboratory will be required to

document strict adherence to the general laboratory Quality Assurance/Quality Control (QA/QC) requirements. The laboratory shall provide appropriate QA/QC documentation with the analytical results.

### **6.3.9 Data Review and Validation**

Upon receipt of the analytical results from the laboratory, personnel will perform additional data validation to determine whether analytical data is acceptable for use in the context of this site investigation. The evaluation will include an assessment of laboratory QC data and field notes. The field measured parameters will be validated by the calibration of the water quality meter prior to the start of sample collection.

### **6.4 Reporting Requirements**

Laboratory results obtained for the fiscal year (July 1 through June 30) will be recorded on a Discharge Monitoring Report (DMR) and every exceedence of the limits from Table 3 should be specifically noted with a plan for correction. Additionally, an oral report shall be made to the Department of Health, Clean Water Branch via telephone (808) 586-4309 during normal business hours, as soon as the results become available, detailing the suspected origin or cause of the non-compliance and measures which will be taken to prevent re-occurrence. For after business hours, the non-compliance may be reported to the Hawaii State Hospital Operator (808) 247-2191.

In addition to the DMR, the laboratory reporting sheets for the sample with Quality Assurance / Quality Control (QA/QC) data, flow calculations, the start and end time of the monitored storm event, and the duration between the last storm event of 0.1 inch or more shall be included in the submittal. Completed DMRs should be signed by the Director of Transportation and submitted no later than sixty days following the end of the fiscal year via the e-permitting portal or NetDMR, once available. If there was no discharge for that fiscal year, the DMR shall be completed indicating such and submitted with the Annual Monitoring Report by August 31st.

## 7.0 PROCEDURES FOR IMPLEMENTATION

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Procedures include the training of employees, protocol for inspections, and completion of documentation.

### 7.1 Employee and Tenant Training

HNL Baseyard maintenance personnel training programs are used to inform personnel, at all levels of responsibility, of the processes and materials with which they are working, the health and safety hazards, the practices for preventing spills, and the procedures for responding properly and rapidly to spills of toxic and hazardous materials. DOTA has developed and implemented annual mandatory environmental training. This employee training program is designed to ensure that the DOTA maintenance personnel understand pollution laws, regulation, and methods of compliance. The program focuses on permit conditions and the responsibilities of DOTA personnel. Included in the topics to be covered:

**TABLE 4: SUMMARY OF MAINTENANCE PERSONNEL TRAINING PROGRAM**

<b>Training Topic</b>	<b>Trainee</b>	<b>Responsibility</b>	<b>Frequency</b>
Potential Pollutants	Personnel	Maintenance Baseyard Supervisor	Annual
Best Management Practices	Personnel	Maintenance Baseyard Supervisor	Annual
Past Releases and Causes	Personnel	Maintenance Baseyard Supervisor	Annual
Spill Prevention and Response Plan	Personnel	Maintenance Baseyard Supervisor	Annual
Site Inspections	Personnel	DOTA Environmental Section	Annual

### 7.2 Protocol for Site Inspections

The HNL EHS will perform quarterly inspections during the term of the HNL Small MS4 permit to ensure that BMPs are in place and in proper working order. DOTA will submit a copy of each inspection to CWB within 30 days of each inspection. DOTA EHS personnel will inspect the facility in accordance with the latest version of the “NPDES Inspection and Enforcement Manual.”

### 7.3 Revisions to SWPCP

Plan reviews shall be performed as necessary to assess the effectiveness of the BMPs and to implement appropriate revisions due to:

- Evaluations as a result of a spill event;
- Changes in materials used on-site;
- Changes in the maintenance procedures; and/or
- Changes in management practices.

Revisions may also be made if BMPs in the SWPCP are not effective in reducing pollutants in storm water discharges and/or the facility is found to be in violation of the NPDES permit conditions. Plan review and revisions shall be completed within 30 days. All DOTA personnel at the HNL Baseyard with maintenance duties will be informed during staff meetings of any changes made to the SWPCP, and will be trained on new or modified procedures, if necessary.

#### **7.4 Documentation Procedures**

Records shall be kept that document all spills, leaks and other discharges, including hazardous substances in reportable quantities that occur at the facility.

Reports of all inspections performed at the site shall be retained at the facility. The inspector shall document all observations, particularly the effectiveness of site BMPs. Inspection records shall be analyzed quarterly (to correspond with quarterly facility inspections) to determine if BMPs are effective, and if not, what needs to be done to improve the methods used at the site.

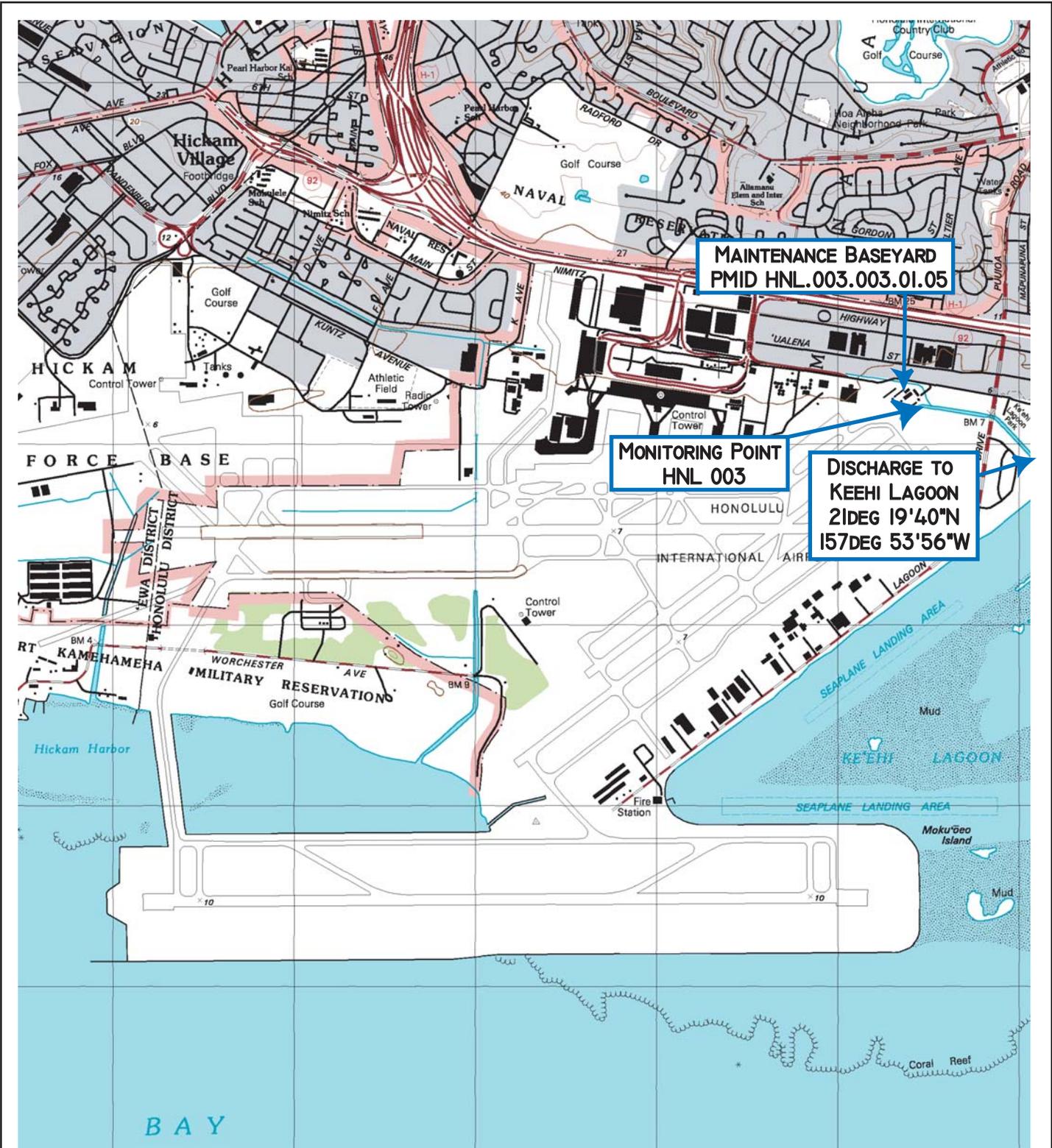
A copy of this SWPCP shall also be made available to personnel as a reference in the same location that Material Safety Data Sheets (MSDS) and other safety information are maintained and in the Airfield & Ground Maintenance Unit Supervisor's office at the HNL Baseyard.

## 8.0 REFERENCES

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- U.S. Department of Interior Geological Survey. 1999. *Pearl Harbor Quadrangle, 7.5 Minute Series (Topographic Map)*.

# *Figures*



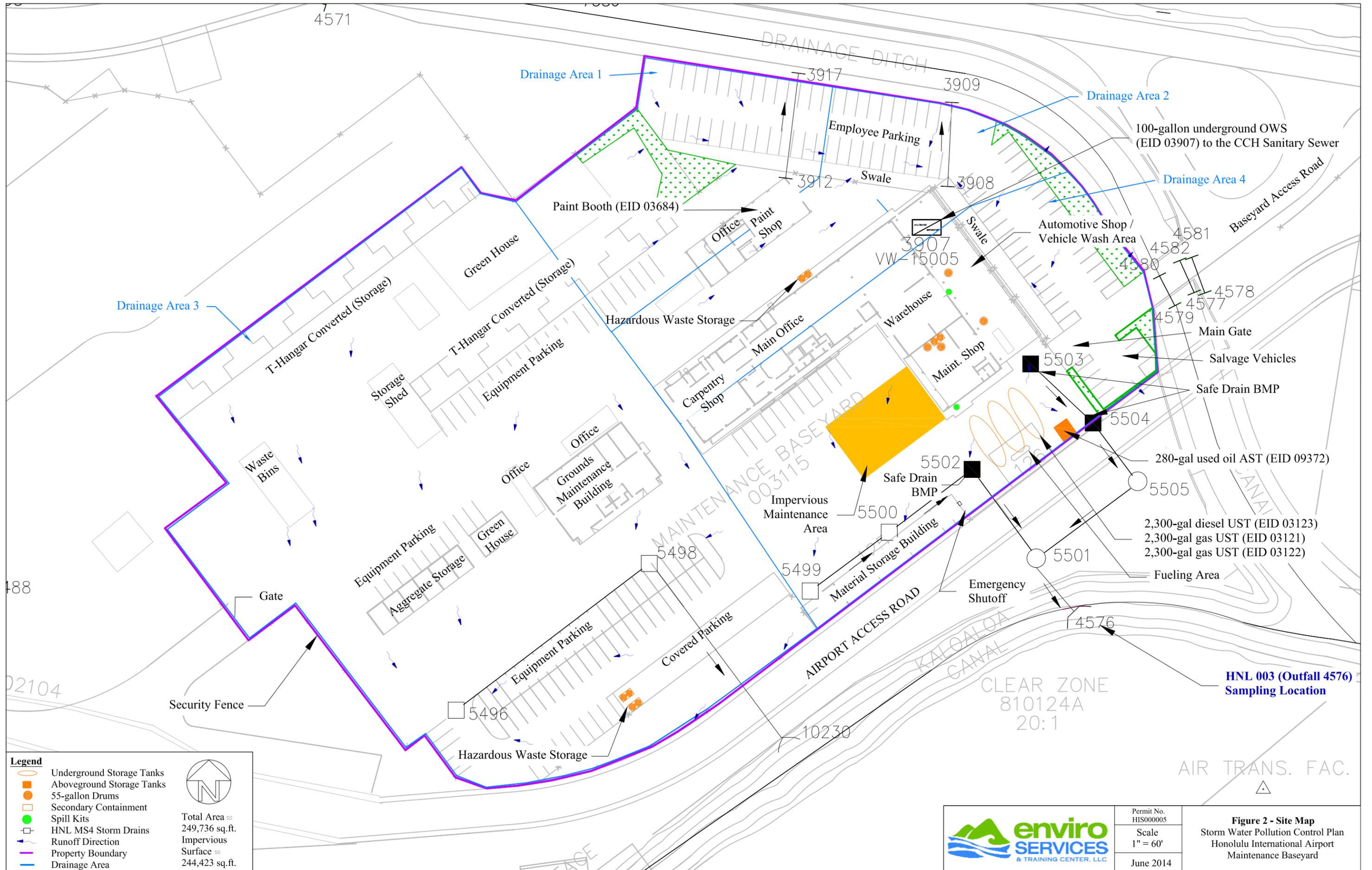
Source:  
 United States Geological Survey  
 Pearl Harbor Quadrangle  
 Island of Oahu, 7.5 Minute Series, 1999



Permit No.  
 HI S000005

June 2014

**Figure 1 - Site Location Map**  
 Storm Water Pollution Control Plan  
 Honolulu International Airport  
 Maintenance Baseyard



**Legend**

- Underground Storage Tanks
- Aboveground Storage Tanks
- 55-gallon Drums
- Secondary Containment
- Spill Kits
- HNL MS4 Storm Drains
- Runoff Direction
- Property Boundary
- Drainage Area

Total Area ≈ 249,736 sq.ft.  
Impervious Surface ≈ 244,423 sq.ft.



Permit No. HIS000005  
Scale 1" = 60'  
June 2014

**Figure 2 - Site Map**  
Storm Water Pollution Control Plan  
Honolulu International Airport  
Maintenance Baseyard

NORTHEAST PORTIONS OF MAINTENANCE BASEYARD  
 PARKING AREAS, VEHICLE WASHING,  
 MAINTENANCE SHOP, PAINT SHOP,  
 STORAGE SHEDS, AND GREEN HOUSE

SOUTH AND EAST PORTIONS OF MAINTENANCE BASEYARD  
 FUELING AREA, EQUIPMENT PARKING,  
 WAREHOUSE, CARPENTRY,  
 STORAGE SHEDS, AGGREGATE  
 STORAGE,  
 AND WASTE STORAGE

BEST MANAGEMENT PRACTICES  
 GOOD HOUSEKEEPING  
 PROPER MATERIAL STORAGE AND USE  
 PREVENTATIVE MAINTENANCE AND INSPECTIONS  
 VEHICLE WASH WATER CONTAINMENT  
 OIL WATER SEPARATOR MAINTENANCE  
 PROPER WASTE MANAGEMENT  
 SPILL PREVENTION AND CONTAINMENT  
 EMPLOYEE TRAINING

BEST MANAGEMENT PRACTICES  
 GOOD HOUSEKEEPING  
 PROPER MATERIAL STORAGE AND USE  
 PREVENTATIVE MAINTENANCE AND INSPECTIONS  
 FUELING PRACTICES AND SAFE DRAINS  
 PROPER WASTE MANAGEMENT  
 SPILL PREVENTION AND CONTAINMENT  
 EMPLOYEE TRAINING

Drainage Area 01  
 0.6 ac

Drainage Area 02  
 0.8 ac

Drainage Area 03  
 2.9 ac

Drainage Area 04  
 1.4 ac

SHEET FLOW  
 TO SWALE /  
 DI 3919

SHEET FLOW  
 TO SWALE /  
 DI 3908

SHEET FLOW  
 TO DRAIN  
 INLETS 5496  
 & 5498

SHEET FLOW  
 DRAIN INLETS  
 5499-5504

BASE OUTFALL 01  
 (OUTFALL 3917)

BASE OUTFALL 02  
 (OUTFALL 3909)

BASE OUTFALL 03  
 (OUTFALL 10230)

MONITORING  
 POINT  
 HNL 003

AOELE STREET  
 DRAINAGE DITCH

AOELE STREET  
 DRAINAGE DITCH

BASE OUTFALL 04  
 (OUTFALL 4576)

Flow Rate ≈  
 0.06 ft<sup>3</sup>/sec

Flow Rate ≈  
 0.08 ft<sup>3</sup>/sec

Flow Rate ≈  
 0.29 ft<sup>3</sup>/sec

Flow Rate ≈  
 0.14 ft<sup>3</sup>/sec

STATE RECEIVING WATER : KALOALOA CANAL

KEEHI LAGOON



Flow calculation:  
 $Q = CIA$ , where:  
 $Q$  = flow rate in cubic feet / sec  
 $C$  = runoff coefficient = 1  
 $I = 0.1'' / hr$   
 $A$  = area in acres

Permit No.  
 HIS000005  
 June 2014

Figure 3 - Storm Water Flow Chart  
 Storm Water Pollution Control Plan  
 Honolulu International Airport  
 Maintenance Baseyard  
 2919 Aolele Street  
 Honolulu, Hawaii 96819

# *Appendix A*

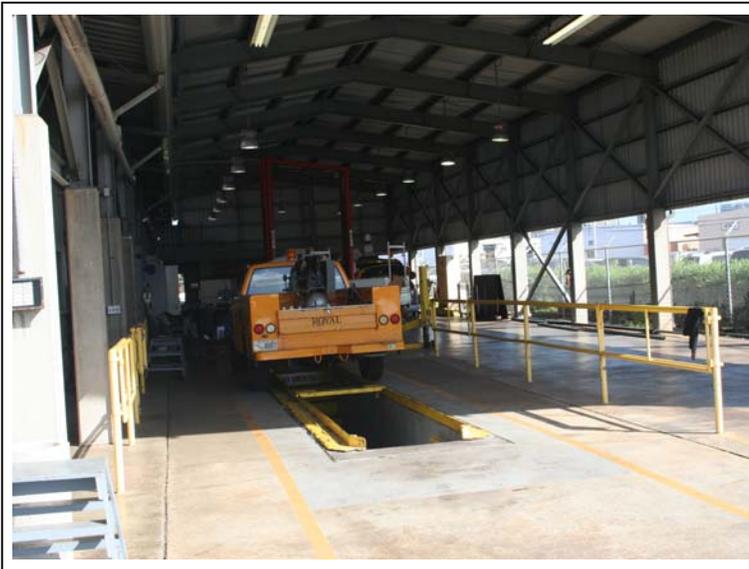
## *Photographic Documentation*



Photograph 1: Main Office at the Honolulu International Airport Baseyard.



Photograph 2: Exterior of Warehouse and maintenance shop.



Photograph 3: Interior of the maintenance bay and vehicle washing area inside of the maintenance shop.



Photograph 4: Floor drain in the maintenance shop to the oil water separator (03907)



Photograph 5: Lubricants stored on secondary containment in the maintenance shop.



Photograph 6: Parts washer on secondary containment in the maintenance shop.



Photograph 7: 55-gallon drums of used oil in mobile over-pack containers.



Photograph 8: 280-gallon used oil AST (EID 09372) near the fueling area.



Photograph 9: Spill materials located outside of the maintenance shop near the fueling area.



Photograph 10: Battery charging room within the maintenance shop.



Photograph 11: Spent battery storage area near the fueling area under cover.



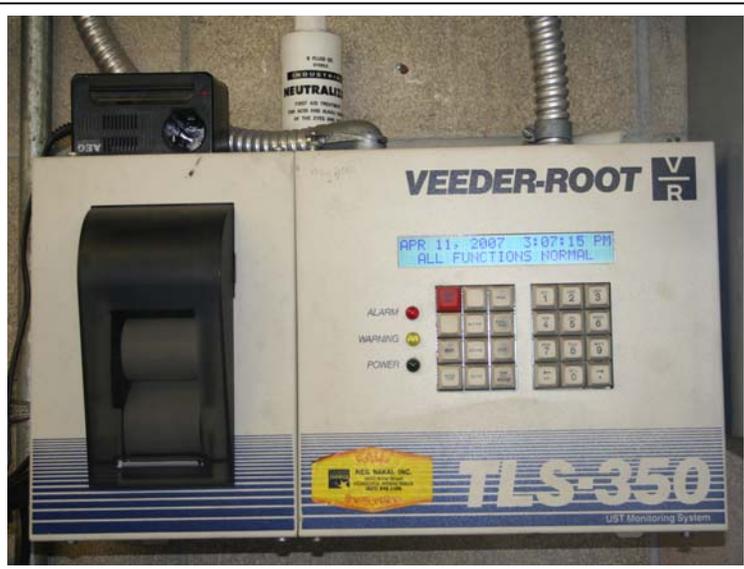
Photograph 12: Covered fueling Area.



Photograph 13: Safe drain located in the fueling area.



Photograph 14: Emergency shutoff for fueling area.



Photograph 15: Veeder-Root monitoring system for the underground storage tanks.



Photograph 16: Inside the Warehouse storage area.



Photograph 17: Flammable storage locker in the Warehouse area.



Photograph 18: Interior of the Carpentry Shop. Visible piping is a part of the sawdust vacuum system.



Photograph 19: Greenhouse area near the Carpentry Shop.



Photograph 20: Fertilizers stored in the shed near the fueling area.



Photograph 21: Small equipment and flammable storage lockers in the shed near the fueling area.



Photograph 22: Office trailers in the northern portion of the Maintenance Baseyard.



Photograph 23: Exterior of the Paint Shop.



Photograph 24: Paint storage area and testing area.



Photograph 25: Hazardous waste storage area for the Paint Shop near the main office.



Photograph 26: Hazardous waste storage area for other wastes in the covered parking area.



Photograph 27: Covered parking area.



Photograph 28: Employee parking area along the eastern canal.



Photograph 29: Waste bin storage area.



Photograph 30: Street sweeper waste disposal bin.



Photograph 31: Drainage ditch along the eastern boundary of the Maintenance Baseyard, adjacent to Aolele Street.



Photograph 32: Drainage canal along the eastern boundary of the Maintenance Baseyard. Bridge provides access to the main gate. Salvage vehicles are stored on the other side of the bridge.



Photograph 33: Kaloaloa Canal on the southern side of the Maintenance Baseyard. Monitoring Point HNL 003 identified by arrow.

# *Appendix B*

## *Best Management Practices*

**BEST MANAGEMENT PRACTICES  
FOR HONOLULU INTERNATIONAL AIRPORT  
MAINTENANCE BASEYARD**

**TABLE OF CONTENTS**

**GOOD HOUSEKEEPING PRACTICES.....1**

**STREET SWEEPING OPERATIONS.....2**

**VEHICLE AND EQUIPMENT MAINTENANCE AND REPAIR .....3**

**VEHICLE AND EQUIPMENT WASHING .....4**

**VEHICLE AND EQUIPMENT FUELING.....5**

**MATERIAL STORAGE.....6**

**MATERIAL HANDLING AND USE.....7**

**SOLID WASTE STORAGE AND DISPOSAL .....9**

**SPILL PREVENTION AND RESPONSE PRACTICES.....11**

**APPENDIX I - LIST OF APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS APPLYING  
TO ENVIRONMENTAL COMPLIANCE AT AIRPORTS**

**APPENDIX II – SUMMARY OF FEDERAL AND STATE REGULATIONS FOR SOLID WASTE  
MANAGEMENT**

## Best Management Practices Good Housekeeping Practices

### Description

Daily activities performed at the Maintenance Baseyard require the use of materials and products that may be potential contaminants in storm water. Good housekeeping practices are intended to maintain a clean, safe, and orderly working environment at the facility where these materials are used or stored. Implementing the good housekeeping BMPs will reduce the amount of pollutants entering the storm water system.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	1	Do not overfill trash dumpsters or leave trash outside of containers. Ensure that materials put into dumpsters will not leak out of dumpsters and commingle with storm water runoff. Use leak-proof dumpsters and keep covered when not in use.
<input type="checkbox"/>	2	Remove and properly dispose of debris from all areas daily.
<input type="checkbox"/>	3	Use appropriate clean up tools in the facility such as a broom for dry sweeping. Do not hose down facility floors with water or use a blower to remove clean up materials. Dry sweep or vacuum all areas to prevent tracking of materials.
<input type="checkbox"/>	4	Maintain ample spill clean-up supplies and keep them in proper physical condition.
<input type="checkbox"/>	5	Use absorbent materials to contain any non-hazardous spills. Promptly clean spills with rags or absorbent material, and properly dispose of cleaning materials. Put spent rags or absorbent material in a durable container until disposal can be facilitated. Disposal of hazardous spilled material should be in accordance with the Solid Waste Storage and Disposal BMP.
<input type="checkbox"/>	6	Inspect storm drain inlets regularly for illicit discharge such as sediment runoff or debris accumulation. Clean and remove debris as necessary.
<input type="checkbox"/>	7	Identify storm drains and waterways in each work area and prevent non-storm water discharges into the storm drainage system.
<input type="checkbox"/>	8	Perform daily facility inspections to ensure good housekeeping practices are being followed by facility personnel.
<input type="checkbox"/>	9	Conduct employee training on all best management practices annually and as required.

## **Best Management Practices Street Sweeping Operations**

### **Description**

Street, runway, and taxiway sweeping is performed to remove litter and debris from the vehicle and aircraft travelways in order to prevent discharge of potential pollutants into the storm water drainage system, improve safety, and improve aesthetics. DOTA HNL maintenance personnel and contractors perform street sweeping.

### **Limitations**

Applying BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

<b>Practice</b>		
<input type="checkbox"/>	1	DOTA maintenance personal will inspect and sweep applicable areas of HNL at least twice per month. When inspections or complaints indicate, sweep more frequently than twice per month.
<input type="checkbox"/>	2	Properly maintain sweepers. Adjust broom heights frequently to maximize efficiency of sweeping operations.
<input type="checkbox"/>	3	Properly transport, store, and dispose of sweeper wastes when sweeper is full and when day of sweeping completed. Empty sweepers in designated area to capture solid material and minimize wind blown materials.
<input type="checkbox"/>	4	Clean sweepers with clean water only in a contained area where water is properly treated and disposed of, such as the airport wash racks.
<input type="checkbox"/>	5	Keep logs of locations swept, tonnage of material swept, and disposal method of debris – include log with Annual Report (see attached sample log).

## Best Management Practices Vehicle and Equipment Maintenance and Repair

### Description

Routine maintenance of vehicles and equipment must be done to maintain their proper operation. The maintenance and repair activities conducted may include fluids removal, engine and parts cleaning, or tire repair and replacement. These activities represent a potentially significant source of contaminants due to the harmful materials and waste generated. This BMP is designed to prevent or reduce the impact of contaminants from maintenance and repair on the storm water system.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	1	Maintain vehicles and equipment used at the facility in good operating condition.
<input type="checkbox"/>	2	Perform vehicles and equipment maintenance and repair activities in designated areas. When possible indoor or covered areas away from storm water runoff or on the painted area outside the maintenance shop.
<input type="checkbox"/>	3	Inspect damaged vehicles and equipment for fluid leaks and repair as soon as possible. Use drip pans as necessary and empty when full.
<input type="checkbox"/>	4	Remove fluids and batteries from damaged equipment and equipment no longer in use before storage. Store under cover, if possible, until repair or disposal.
<input type="checkbox"/>	5	Transfer removed vehicle fluids to designated storage container as soon as possible.
<input type="checkbox"/>	6	Use drip pans, tarps, or any other drainage control whenever removing fluids to capture any releases of oil, fluids, and solvent.
<input type="checkbox"/>	7	When not in use, store drums/containers of liquid material or waste indoors or under cover and within secondary containment pallets.
<input type="checkbox"/>	8	Designate areas in service bays for parts cleaning. Allow parts to drain over solvent tank or drip pan. Do not wash or rinse parts outdoors and do not allow solvent to drip or spill onto the floor.
<input type="checkbox"/>	9	Use appropriate clean up materials in the facility. Do not hose down with water or use a blower to remove clean up materials. Dry sweep or vacuum all areas.
<input type="checkbox"/>	10	Maintain well stocked spill kits throughout the facility, especially in maintenance areas to protect discharge to receiving waters and storm drain inlets in the event of spill.
<input type="checkbox"/>	11	Conduct employee training annually and as required.

## Best Management Practice Vehicle and Equipment Washing

### Description

Periodic washing of vehicles and equipment may be performed at DOTA approved wash pads around the airport or within the maintenance shop that discharges to an OWS. Wash water may contain oils, greases, heavy metals, sediments, and other pollutants that can pose a threat to storm drain system and receiving water bodies. This BMP is intended to reduce the impact of these activities on storm water runoff.

### Limitations

None.

Practice		
<input type="checkbox"/>	1	Wash vehicles and equipment in designated washing areas using minimal water. Use DOTA approved biodegradable detergents.
<input type="checkbox"/>	2	Ensure the designated wash racks or wash areas of the facility are inside a building or on an impervious area where wash water can be contained and directed to an OWS that drains to the sewer system, wells, or retention pond. Obtain all applicable permits.
<input type="checkbox"/>	3	Follow posted directions for wash rack or wash area use.
<input type="checkbox"/>	4	See Solid Waste Storage and Disposal BMP for OWS maintenance.
<input type="checkbox"/>	5	Where applicable, sponge wash vehicles, or equipment with a bucket of water to eliminate excess wash water. Clean up any water on the ground or the floor using absorbent materials or a wet/dry vacuum immediately after washing.
<input type="checkbox"/>	6	Washing of personal vehicles are prohibited.
<input type="checkbox"/>	7	Conduct employee training annually and as required.

## Best Management Practice Vehicle and Equipment Fueling

### Description

During fueling of vehicles and equipment, there is the potential for leaked or spilled fuel to contaminate storm water. The procedures outlined in this BMP are intended to prevent fuel spills and leaks and reduce their impact on storm water.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	1	Perform fueling of aircraft, vehicles, and equipment in designated areas, away from storm drain inlets, drainage channels, or receiving waters.
<input type="checkbox"/>	2	Maintain an ample supply of spill cleanup materials and spill control equipment near fueling areas to protect discharge to storm drain inlets and receiving waters, in the event of a spill. Equip fuel trucks and mobile tanks with spill cleanup materials.
<input type="checkbox"/>	3	No topping off or no unattended fueling.
<input type="checkbox"/>	4	Post proper fueling and cleanup instructions in fueling areas.
<input type="checkbox"/>	5	Do not hose off fueling area. Use absorbents.
<input type="checkbox"/>	6	Inspect storage tanks, hoses and dispensing nozzles daily for cracks and leaks. If any defects are noticed, replace defective parts immediately or remove from service until repaired.
<input type="checkbox"/>	7	Ensure that safe drains in drain inlets 5502, 5503, and 5504 are closed during fueling operations.
<input type="checkbox"/>	8	Check for proper operation of automatic shut off controls on fuel dispensing nozzles. Repair as needed.
<input type="checkbox"/>	9	Test, monitor, and maintain fuel storage tanks as required by all applicable federal, state and local laws.
<input type="checkbox"/>	10	Use absorbents materials to contain any spills. Promptly clean spills with rags or absorbent material, and properly dispose of cleaning materials. Put spent rags or absorbent material in a durable container until disposal can be facilitated. For larger spills, contact spill response personnel immediately. See Spill Prevention and Response BMP.
<input type="checkbox"/>	11	Train oil and hazardous material handling personnel annually and as required.

## Best Management Practices Material Storage

### Description

A variety of products and materials that may adversely affect water quality are stored at the Maintenance Baseyard. This BMP is intended to reduce the potential for the contamination of storm water by minimizing exposure of such products and materials to storm water.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	1	Store materials in their original or appropriate containers as recommended by the manufacturer. Store small containers of flammable materials within flammable storage lockers.
<input type="checkbox"/>	2	Ensure that all containers are closed, secured to prevent movement, fastened, stored neatly, and properly labeled.
<input type="checkbox"/>	3	Maintain accurate inventory of stored supplies. Periodically review inventory and properly dispose of materials that are expired or no longer used. Only purchase and store required quantities of hazardous materials.
<input type="checkbox"/>	4	Store materials and containers indoors or in covered areas. Containers holding liquid materials should also be within secondary containment.
<input type="checkbox"/>	5	Identify, list and inventory all chemical substances present in the facility. Compile Material Safety Data Sheets (MSDS) for all chemical substances. Have MSDS data readily accessible for facility employees.
<input type="checkbox"/>	6	Cover containers and materials with a plastic wrap or tarp when storing them outdoors temporarily (24 hours or less). Do not store materials outdoors that may leach pollutants into the storm water or come in contact with storm water runoff.
<input type="checkbox"/>	7	Ensure that aggregate piles are contained by CMU walls, berms, or other device to prevent the material from being carried away in the storm water runoff.
<input type="checkbox"/>	8	Maintain an ample supply of spill clean-up materials near storage areas.
<input type="checkbox"/>	9	Use absorbent materials to contain any spills. Promptly clean spills with rags or absorbent material, and properly dispose of cleaning materials. Put spent rags or absorbent material in a durable container until disposal can be facilitated. For larger spills, contact spill response personnel immediately. See Spill Response BMP.
<input type="checkbox"/>	10	Sweep or vacuum up spilled materials immediately.
<input type="checkbox"/>	11	Inspect material storage and equipment parking areas daily. Look for leaking or corroded containers, chemical discoloration, or other changes in the containers or contents that may indicate a potentially hazardous condition or chemical deterioration.
<input type="checkbox"/>	12	Conduct employee training annually and as required.

## Best Management Practices Material Handling and Use

### Description

Prevent or reduce the discharge of pollutants to storm water from material handling by minimizing hazardous material use on site and training employees in the proper handling and use of materials. The loading and unloading of materials usually takes place outside; therefore, materials spilled, leaked, or lost during the process may collect in the soil or on other surfaces and have the potential to be carried away by storm water runoff. Additionally, paint, chemical, and carpentry applications may impact the environment.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	1	Use materials only where and when needed to complete the work.
<input type="checkbox"/>	2	Minimize use of hazardous materials on-site. Use less hazardous, alternative materials where possible.
<input type="checkbox"/>	3	Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
<input type="checkbox"/>	4	Limit exposure of material to rainfall whenever possible, such as only loading or unloading during dry weather or conducting the loading or unloading indoors or under cover. Avoid placing the loading area near storm drains or cover storm drains during loading or unloading operations.
<input type="checkbox"/>	5	Conduct regular dry sweeping of the loading or unloading areas.
<input type="checkbox"/>	6	Application of fertilizers, herbicides, or pesticides: <ul style="list-style-type: none"> <li>• Do not over apply.</li> <li>• Prepare only the amount needed.</li> <li>• Follow the recommended usage instructions.</li> <li>• Except on steep slopes, till fertilizer into the soil rather than surface spreading or spraying it.</li> <li>• 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 off-site by runoff.</li> <li>• Do not apply these chemicals just before it rains or in high winds.</li> <li>• Log material use for reporting purposes (see attached log sheets).</li> </ul>
<input type="checkbox"/>	7	Carpentry Operations: <ul style="list-style-type: none"> <li>• Use tools that have a vacuum or filter system to reduce airborne saw dust, whenever possible.</li> <li>• Sweep the area frequently to prevent saw dust from leaving the shop.</li> <li>• Dispose of saw dust sweepings in a covered waste bin.</li> </ul>

**Best Management Practices  
Material Handling and Use  
(continued)**

<input type="checkbox"/>	8	<p>Painting Operations:</p> <ul style="list-style-type: none"> <li>• Conduct painting indoors or in the paint booth whenever possible. <ul style="list-style-type: none"> <li>○ If painting must be done outdoors, such as to test striping, ensure that it is not raining. Note: if it begins to rain before the paint has dried, contain the area and clean it up according to the Spill Response BMP.</li> </ul> </li> <li>• Ensure that paints are stored in sound containers to prevent leaks.</li> <li>• Use tarps or other containment devices to prevent paint drips from impacting the storm drains or surface waters.</li> <li>• Clean brushes and materials using a containment system such as solvent washer, bucket, or sink connected to the sanitary sewer. Note: never clean painting materials into the storm drain system.</li> <li>• Properly segregate and label waste paints for disposal according to the Solid Waste BMP. Note: oil based paints are hazardous wastes.</li> </ul>
<input type="checkbox"/>	9	Conduct employee training annually and as required.

## Best Management Practices Solid Waste Storage and Disposal

### Description

The chemicals used at the airport may ultimately require waste management. The improper handling of solid wastes can allow contaminants to enter the storm water runoff. The discharge of these pollutants can be prevented and reduced by tracking solid waste storage, handling, and disposal as well as reducing the waste generation through reuse and recycling.

The solid waste generated from on the Maintenance Baseyard and collected from common areas of the airport may include, but not be limited to, oil based paints, solvents, thinners, petroleum products, acid from batteries, anti-freeze, and other compounds. Some of these wastes should be managed as hazardous waste, universal waste, and/or used oil as required by state and federal regulations (Refer to Appendix II). Hazardous waste generators are responsible for making a hazardous waste determination and to dispose of the waste properly. Universal waste includes batteries, some pesticides, mercury containing equipment (mercury thermostats), and bulbs (lamps).

The procedures outlined in this BMP are intended to prevent or reduce the discharge of pollutants to storm water and to the land from waste through proper solid waste storage and disposal and training of employees and subcontractors.

### Limitations

All hazardous waste that can or cannot be reused or recycled must be disposed of by a certified hazardous waste hauler.

Practice		
<input type="checkbox"/>	1	Use the entire product before disposing of the container. Minimize use of hazardous materials on-site. Use less hazardous, alternative materials where possible.
<input type="checkbox"/>	2	Do not remove the original product label; it contains important safety and disposal information.
<input type="checkbox"/>	3	Inspect containers regularly and transfer waste from damaged containers into containers that are intact.
<input type="checkbox"/>	4	Identify, list and inventory all chemical substances present in the facility. Compile Material Safety Data Sheets (MSDS) for all chemical substances. Have MSDS data readily accessible for facility employees
<input type="checkbox"/>	5	Only purchase and store required quantities of hazardous materials.
<input type="checkbox"/>	6	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. Water-based paints should be dried and disposed of in the landfill. Dispose of excess oil based paints and sludge as hazardous waste.
<input type="checkbox"/>	7	Ensure that hazardous waste or chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for dry construction debris.

**Best Management Practices  
Solid Waste Storage and Disposal  
(Continued)**

<input type="checkbox"/>	8	Designate an indoor or covered hazardous waste collection area.
<input type="checkbox"/>	9	Hazardous wastes should be stored in secure, covered containers, and protected from damage. Place hazardous waste containers in secondary containment.
<input type="checkbox"/>	10	Label hazardous waste containers clearly with the words “Hazardous Waste” and the date when the hazardous waste accumulation began.
<input type="checkbox"/>	11	Do not mix waste, this can cause chemical reactions, make recycling impossible, and complicate disposal.
<input type="checkbox"/>	12	Arrange for regular hazardous waste collection before containers reach capacity.
<input type="checkbox"/>	13	Ensure that hazardous wastes are collected, removed, and disposed of only at authorized disposal sites by an approved hazardous waste hauler. Maintain disposal manifests for a minimum on three years.
<input type="checkbox"/>	14	Recycle any useful waste such as used oil, spent solvents, spent lead acid batteries, scrap metal, and used oil filters, etc. Filter and re-use thinners and solvents.
<input type="checkbox"/>	15	If the facility generates used oil, at a minimum, the facility shall store used oil in appropriate containers, label containers clearly with the words “Used Oil”, and provide secondary containment.
<input type="checkbox"/>	16	If the facility generates Universal Waste, at a minimum, the facility shall store universal waste in appropriate containers, label containers clearly with the words “Universal Waste” followed by “lamps, batteries, etc.”, and mark with the accumulation start date. Dispose of the Universal Waste within a year of the accumulation start date.
<input type="checkbox"/>	17	Place spill cleanup materials where it will be readily accessible.
<input type="checkbox"/>	18	If containers do spill, clean up immediately – follow procedures in Spill Prevention and Response BMP.
<input type="checkbox"/>	19	At minimum, OWSs must be inspected annually and cleaned to remove accumulated oil, grease, floating debris, and sediment in order to maintain solids and petroleum removal efficiency. Maintain an inspection and maintenance log.
<input type="checkbox"/>	20	Conduct employee training annually and as required.

## Best Management Practices Spill Prevention and Response Practices

### Description

Spills of materials used and stored at the tenant facility can contaminate storm water runoff. The procedures outlined in this BMP are intended to prevent spills from occurring and to outline procedures to be followed in the event of a spill.

Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and that do not threaten ground or surface waters will be cleaned up using absorbent materials or other acceptable practices and disposed properly, without disrupting airport operations. All the tenants and/or their contractors are requested to report any spills (irrespective of the size) to the DOTA Airport Duty Manager (ADM). 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 Baseyard Supervisor shall act as the Emergency Coordinator (EC). Employees should follow the guidelines listed below where practicable.

### Limitations

A spill response contractor may need to be retained to respond to large or hazardous spills.

Practice		
<input type="checkbox"/>	1	Stop work.
<input type="checkbox"/>	2	Shut down equipment and secure work operations.
<input type="checkbox"/>	3	Determine the source of the release and any hazards present.
<input type="checkbox"/>	4	Notify the EC, ADM, Security Dispatch, and ARFF. Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
<input type="checkbox"/>	5	<p>The EC 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:</p> <ol style="list-style-type: none"> <li>1. Your name, location, and how you may be reached.</li> <li>2. Location of the release.</li> <li>3. Type, quantity, and description of the release.</li> <li>4. Hazards of the release.</li> <li>5. Type of media affected (soil, asphalt, concrete, etc.).</li> <li>6. Rate of the release.</li> <li>7. Migratory direction of the release.</li> <li>8. Potential for fire or explosion.</li> <li>9. Potential for human exposure.</li> <li>10. Potential for migration to surface water (ocean, storm drains, etc.).</li> </ol>

**Best Management Practices**  
**Spill Prevention and Response Practices**  
(continued)

<input type="checkbox"/>	6	Keep non-essential employees and visitors away from the spill area.
<input type="checkbox"/>	7	Prevent vehicles and equipment from driving through the spill area.
<input type="checkbox"/>	8	Remove all injured persons from the area of danger and render first aid.
<input type="checkbox"/>	9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
<input type="checkbox"/>	10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
<input type="checkbox"/>	11	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
<input type="checkbox"/>	12	Remove or isolate ignitable and incompatible materials from the area of the release if the spill is of a flammable substance.
<input type="checkbox"/>	13	Locate, stop, and contain the source of the release.
<input type="checkbox"/>	14	<p>Confine the release to prevent further migration using drainage controls, including but not limited to methods from the following list:</p> <ul style="list-style-type: none"> <li>▪ Diking and berming using sand, soil, or other inert material;</li> <li>▪ Sealing storm drains with plastic and sandbags;</li> <li>▪ Placing granular absorbent or absorbent pads and booms;</li> <li>▪ Diverting the chemicals from entering drains, manholes, streams, etc.; and</li> <li>▪ Implementing retention techniques.</li> </ul>
<input type="checkbox"/>	15	Call the facility spill response contractor for cleanup and removal of accumulated product resulting from the release. Ensure that the contractor collects and containerizes the spilled materials, affected media, used decontamination solutions, and disposable PPE in proper containers. The contractor will transport and properly dispose of the hazardous waste in accordance with applicable state and federal regulations.
<input type="checkbox"/>	16	Implement proper decontamination procedure on vehicles, pavement, PPE, equipment, and other affected media to prevent the spilled material from being tracked into a larger area.

**Best Management Practices  
Spill Prevention and Response Practices**  
(continued)

<input type="checkbox"/>	17	Clean any stained pavement by placing a berm for containment around the stained area, scrubbing the area using detergent or cleaning agent, and rinsing. The detergent and rinse water must be collected in the bermed area around the spill and removed.
<input type="checkbox"/>	18	If the release is not readily and easily controlled, evacuation may be necessary.
<input type="checkbox"/>	19	If the EC decides on the "flight" option, the EC is to immediately alert and evacuate all personnel to a safe distance upwind from the spill in a designated assembly area.
<input type="checkbox"/>	20	Call the facility spill response contractor to handle the clean-up of the spilled material.
<input type="checkbox"/>	21	<p>DOTA personnel will assist the EC in determining whether the spill is of a reportable quantity. If the spill is of a reportable quantity, the following agencies should be notified:</p> <ul style="list-style-type: none"> <li>▪ National Response Center - (800) 424-8802</li> <li>▪ U.S. Coast Guard - (808) 842-2606</li> <li>▪ DOH HEER office - (808) 586-4249 or after hours (808) 247-2191</li> <li>▪ DOH Clean Water Branch (CWB) – (808) 586-4309 (only if spill reaches state waters)</li> </ul> <p>The following information should be provided:</p> <ol style="list-style-type: none"> <li>1) Caller Name, location, organization, and telephone number</li> <li>2) Name, address, and telephone number of the facility owner</li> <li>3) Name, address, and telephone number of the facility contact person</li> <li>4) Date, time, and duration of the release</li> <li>5) Date and time the release was discovered</li> <li>6) Name of the chemical spilled and the approximate quantity released</li> <li>7) Location of the release</li> <li>8) Type of media affected (e.g. soil, asphalt, concrete, etc.)</li> <li>9) Measures taken in response to the release</li> <li>10) Danger or threat posed by the release or spill</li> <li>11) Number and type of injuries (if any)</li> <li>12) Weather conditions at the incident location</li> <li>13) Any other information that may help emergency personnel respond to the incident</li> </ol>
<input type="checkbox"/>	22	If the spilled material is of a reportable quantity, a written notification must also be submitted to the DOH HEER no later than thirty (30) days following the discovery of the release. A copy of this report must be provided to the DOH CWB if the spilled material reached the state waters.

**APPENDIX I**  
**LIST OF APPLICABLE FEDERAL, STATE, AND LOCAL**  
**REGULATIONS APPLYING TO**  
**ENVIRONMENTAL COMPLIANCE AT AIRPORTS**

## LIST OF REGULATIONS

### **Code of Federal Regulations**

- 29 CFR 1910 (Subparts G, H, I, J, and K,) Hazardous Materials, Environmental Controls, and Personnel Protection.
- 29 CFR 1910.1200 OSHA Hazard Communication Standard
- 40 CFR 110 Discharge of Oil
- 40 CFR 112 Oil Pollution Prevention (SPCC/OPA Plans)
- 40 CFR 117 Determination of Reportable Quantities for a Hazardous Substance
- 40 CFR 122-124, 401 NPDES Regulations for Stormwater Discharges
- 40 CFR 260-263 Hazardous Waste Management
- 40 CFR 273 Universal Waste Management
- 40 CFR 279 Used Oil Management
- 40 CFR 280 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
- 40 CFR 355 Emergency Planning and Notification
- 40 CFR 370 Hazardous Chemical Reporting: Community Right-to-Know
- 40 CFR 372 Toxic Chemical Release Reporting: Community Right-to-Know
- 40 CFR 403 General Pre-Treatment Regulations For Existing And New Sources Of Pollution
- 40 CFR 761 Toxic Substances (PCBs)
- 49 CFR 110.3 Discharge of Oil
- 49 CFR 171-173, 175, and 177 Department of Transportation Regulations

### **Hawaii Administrative Rules**

- HAR Title 11 Chapter 54 Water Quality Standards
- HAR Title 11 Chapter 55 Water Pollution Controls
- HAR Title 11 Chapter 58.1 Solid Waste Management Control
- HAR Title 11 Chapter 62 Wastewater Systems
- HAR Title 11 Chapter 104.1 Management and Disposal of Infectious Waste
- HAR Title 11 Chapter 260-263 Hazardous Waste Management
- HAR Title 11 Chapter 273 Universal Waste Management
- HAR Title 11 Chapter 279 Used Oil Management
- HAR Title 11 Chapter 281 Underground Storage Tanks
- HAR Title 11 Chapter 451 State Contingency Plan
- HAR Title 19 Department of Transportation, Airports Division

**Hawaii Revised Statutes**

HRS 128D Environmental Response Law

HRS 128E Hawaii Emergency Planning and Community Right-to-Know Act

HRS 174C State Water Code

HRS 261 Transportation and Utilities

HRS 342-D Water Pollution

HRS 342-G Integrated Solid Waste Management

HRS 342-H Solid Waste Pollution

HRS 342-I Special Waste Management

HRS 342-J Hazardous Waste

HRS 342-L Underground Storage Tanks

HRS 342-N Used Oil Recycling

**City and County Ordinances**

City and County of Honolulu Sewer Ordinance 14

**Airport Rules**

Property Management Clauses

**APPENDIX II**  
**SUMMARY OF FEDERAL AND STATE REGULATIONS**  
**FOR SOLID WASTE MANAGEMENT**

Solid waste is defined in 40 CFR Part 261.2 of the RCRA regulations as well as the HAR Title 11, Chapter 261.2 (§11-261-2). Solid waste can be further classified into hazardous waste and non-hazardous waste. Hazardous waste is defined in 40 CFR Part 261.3 as well as §11-261-3. Hazardous wastes are divided into listed wastes, characteristic wastes, universal wastes, and mixed wastes. Hazardous waste generators are responsible for making a hazardous waste determination and to dispose of waste properly. The identification and listing of hazardous waste and standards applicable to hazardous waste generators are available in the 40 CFR Parts 261 and 262 as well as §11-261 and §11-262. The facility can determine their hazardous waste generator status based on the following table:

**Table 1 – Hazardous Waste Generator Status, Quantity, and Accumulation Time**

<b>Hazardous Waste Generator Status</b>	<b>Quantity Of Hazardous Waste Generated Per Calendar Month</b>	<b>On-site Accumulation Time</b>
Large Quantity (LQG)	<ul style="list-style-type: none"> <li>• <math>\geq</math> 1,000 kg (approximately 2,200 lbs);</li> <li>• <math>&gt;</math> 1 kg (approximately 2.2 lbs) of acute hazardous waste; and</li> <li>• <math>&gt;</math> 100 kg (approximately 220 lbs.) residue or contaminated soil from cleanup of acute hazardous waste spill.</li> </ul>	$\leq$ 90 days
Small Quantity (SQG)	<ul style="list-style-type: none"> <li>• Between 100 kg (approximately 220 lbs) and 1,000 kg (approximately 2200 lbs);</li> <li>• <math>&lt;</math> 1 kg (approximately 2.2 lbs) of acute hazardous waste;</li> <li>• <math>\leq</math> 100 kg (approximately 220 lbs.) residue or contaminated soil from cleanup of acute hazardous waste spill; and</li> <li>• Never accumulate more than 6,000 kg (approximately 13,200 lbs) at any one time.</li> </ul>	$\leq$ 270 days (for Hawaii, since hazardous waste is shipped 200 miles or more)
Conditionally Exempt Small Quantity (CESQG)	<ul style="list-style-type: none"> <li>• <math>\leq</math> 100 kg (approximately 220 lbs)</li> <li>• <math>&lt;</math> 1 kg (approximately 2.2 lbs) of acute hazardous waste;</li> <li>• <math>\leq</math> 100 kg (approximately 220 lbs.) residue or contaminated soil from cleanup of acute hazardous waste spill; and</li> </ul> <p>Never accumulate more than 1,000 kg (approximately 2,200 lbs) at any one time.</p>	Not applicable

Universal Waste, as defined in 40 CFR Part 273 and §11-273, includes batteries, some pesticides, mercury containing equipment (mercury thermostats), and bulbs (lamps). The Universal Waste rules are not applicable to the conditionally exempt small quantity generators of hazardous waste. Universal Waste handlers are classified into small quantity Universal Waste handlers and large quantity Universal Waste handlers. A small quantity handler of universal waste means a universal waste handler who does not accumulate more than 5,000 kilograms (approximately 11,000 lbs) total of universal waste (batteries, pesticides, or thermostats, calculated collectively) at any time (§11-273-6). A large quantity handler of universal waste means a universal waste handler who accumulates 5,000 kilograms or more total of universal waste (batteries, pesticides, or thermostats, calculated collectively) at any time (§11-273-6). This designation as a large quantity handler of universal waste is retained through the end of the calendar year in which 5,000 kilograms or more total of universal waste is accumulated.

Universal Waste must be managed in a way that prevents releases of any Universal Waste or component of a Universal Waste to the environment. Universal Waste must be labeled or marked to identify the type of universal waste as follows: Universal Waste - Batteries, Universal Waste - Lamps, Universal Waste – Pesticides, and Universal Waste – Mercury Containing Equipment or Universal Waste – Mercury Thermostat. Universal Waste can be stored for one year starting from the date the universal waste was generated. A large quantity Universal Waste handler shall retain the non-hazardous waste manifest associated with Universal Waste disposal at the facility for three years. A small quantity Universal Waste handler is not required to keep records of shipments of universal waste.

Used oil, as defined in 40 CFR Part 279.1 and §11-279-1, is regulated under the 40 CFR Part 279, §11-279, and §11-261-6(a)(4). Containers and aboveground tanks used to store used oil as well as fill pipes used to transfer used oil into UST at generator facilities must be labeled or marked clearly with the words “Used Oil”. Additionally, used oil generators are subject to all applicable SPCC requirements (40 CFR Part 112). Used oil generators are also subject to the State’s UST standards and any applicable federal standards for used oil stored in underground tanks whether or not the used oil exhibits any characteristics of hazardous waste.

# *Appendix C*

## *Storm Water Monitoring DMRs*

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)  
 NAME State of Hawaii - Dept. of Transportation, Airports Division  
 ADDRESS 869 Punchbowl Street  
 Honolulu Hawaii 96813-5097

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0004

HI S000005  
 PERMIT NUMBER

HNL 003  
 DISCHARGE NUMBER

Asset Number/Description:  
 HNL Baseyard SD9328  
 Sample date 1/14/13

FACILITY Honolulu International Airport  
 LOCATION 400 Rodgers Boulevard, Suite 700  
 Honolulu, Hawaii 96819-1880

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2013	01	01	TO	2013	12 31

Check here if No Discharge

NOTE: Read instructions before completing this form

PARAMETER	SAMPLE MEASUREMENT / PERMIT REQUIREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		VALUE AVERAGE	VALUE MAXIMUM	UNITS	VALUE MINIMUM	VALUE AVERAGE	VALUE MAXIMUM	UNITS				
Flow (Q)	SAMPLE MEASUREMENT					108,000						
	PERMIT REQUIREMENT					Report				1/365	ES	
Biological O2 Demand (BOD-5)	SAMPLE MEASUREMENT					3.64						
	PERMIT REQUIREMENT					Report				1/365	CP	
Chemical O2 Demand (COD)	SAMPLE MEASUREMENT					110						
	PERMIT REQUIREMENT					Report				1/365	CP	
Nitrogen of Nitrate and Nitrite	SAMPLE MEASUREMENT					.21						
	PERMIT REQUIREMENT					Report				1/365	CP	
Nitrogen, Total	SAMPLE MEASUREMENT					1.2						
	PERMIT REQUIREMENT					Report				1/365	CP	
Phosphorus, Total	SAMPLE MEASUREMENT					.31						
	PERMIT REQUIREMENT					Report				1/365	CP	
Total Suspended Solids (TSS)	SAMPLE MEASUREMENT					150						
	PERMIT REQUIREMENT					Report				1/365	CP	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE 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.						TELEPHONE		DATE		
GLENN M. OKIMOTO, Ph.D. Director of Transportation								808 587-2150				
TYPED OR PRINTED								AREA CODE	NUMBER	YEAR	MO	DAY
		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT										

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)  
 NAME State of Hawaii - Dept. of Transportation, Airports Division

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

Form Approved.  
 OMB No. 2040-0004

ADDRESS 869 Punchbowl Street  
 Honolulu Hawaii 96813-5097

HI S000005  
 PERMIT NUMBER

HNL 003  
 DISCHARGE NUMBER

Asset Number/Description:  
 HNL Baseyard SD9328  
 Sampling date 1/14/13

FACILITY LOCATION Honolulu International Airport  
 400 Rodgers Boulevard, Suite 700  
 Honolulu, Hawaii 96819-1880

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2012	01	01	TO	2013	12 31

Check here if No Discharge

NOTE: Read Instructions before completing this form

PARAMETER	X	QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		VALUE AVERAGE	VALUE MAXIMUM	UNITS	VALUE MINIMUM	VALUE AVERAGE	VALUE MAXIMUM	UNITS				
Oil and Grease (O&G) / HEM	SAMPLE MEASUREMENT					<5.2		mg/L				
	PERMIT REQUIREMENT						15			1/365	GR	
pH	SAMPLE MEASUREMENT					7.70		Std. Unit				
	PERMIT REQUIREMENT				5.5		8.0			1/365	GR	
Total Dissolved Solids (TDS)	SAMPLE MEASUREMENT					4200		mg/L				
	PERMIT REQUIREMENT					Report				1/365	GR	
	SAMPLE MEASUREMENT											
	PERMIT REQUIREMENT											
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	PERMIT REQUIREMENT											
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE 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.							TELEPHONE		DATE		
GLENN M. OKIMOTO, Ph.D. Director of Transportation								808	587-2150			
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT							AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

99-193 Aiea Heights Drive, Suite 121

Aiea, HI 96701

Tel: 808-486-5227

TestAmerica Job ID: HWA0037

Client Project/Site: HNL Baseyard

Client Project Description: Airport Stormwater

For:

Department of Transportation, Airports

400 Rodgers Blvd. Ste. 700

Honolulu, HI 96819

Attn: Joe Balignasay



Authorized for release by:

2/7/2013 9:57:59 AM

Kristie Reilly

Project Manager

[Kristie.Brachmann@testamericainc.com](mailto:Kristie.Brachmann@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1

2

3

4

5

6

7

8

9

10

11

12

13



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions . . . . .	3
Case Narrative . . . . .	4
Sample Summary . . . . .	6
Detection Summary . . . . .	7
Client Sample Results . . . . .	8
QC Sample Results . . . . .	9
QC Association . . . . .	13
Chronicle . . . . .	16
Certification Summary . . . . .	17
Method Summary . . . . .	19
Chain of Custody . . . . .	20

# Definitions/Glossary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

**Job ID: HWA0037**

**Laboratory: TestAmerica Honolulu**

## Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

## LABORATORY REPORT

At sample receipt, the cooler/sample was 24 degrees C.

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

**Laboratory: TestAmerica Irvine**

## Narrative

**Job Narrative**  
**440-35255-1**

## Comments

No additional comments.

## Receipt

The samples were received on 1/16/2013 2:44 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.1° C, 4.3° C and 5.0° C.

## General Chemistry

Method(s) 1664A: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 80332. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

**Laboratory: TestAmerica Savannah**

## Narrative

## CASE NARRATIVE

**Client: TestAmerica Laboratories, Inc**

**Project: HWA0037 - DOT Airports**

**Report Number: 680-86613-5**

# Case Narrative

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

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## Job ID: HWA0037 (Continued)

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### Laboratory: TestAmerica Savannah (Continued)

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### RECEIPT

The samples were received on 01/17/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.0 & 3.6 C.

#### TOTAL KJELDAHL NITROGEN (TKN)

Sample HWA0037-01 (680-86613-7) was analyzed for total kjeldahl nitrogen (TKN) in accordance with EPA Method 351.2. The samples were prepared on 01/22/2013 and analyzed on 01/23/2013.

No difficulties were encountered during the TKN analysis.

All quality control parameters were within the acceptance limits.

#### NITRATE-NITRITE AS NITROGEN

Sample HWA0037-01 (680-86613-7) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 01/24/2013.

No difficulties were encountered during the nitrate-nitrite analysis.

All quality control parameters were within the acceptance limits.

#### TOTAL PHOSPHORUS

Sample HWA0037-01 (680-86613-7) was analyzed for total phosphorus in accordance with EPA Method 365.4. The samples were prepared on 01/22/2013 and analyzed on 01/23/2013.

No difficulties were encountered during the total phosphorus analysis.

All quality control parameters were within the acceptance limits.

#### CHEMICAL OXYGEN DEMAND

Sample HWA0037-01 (680-86613-7) was analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 01/28/2013.

No difficulties were encountered during the COD analysis.

All quality control parameters were within the acceptance limits.

#### TOTAL NITROGEN BY CALCULATION

Sample HWA0037-01 (680-86613-7) was analyzed for total nitrogen by calculation in accordance with a calculated method. The samples were analyzed on 01/28/2013.

No difficulties were encountered during the Total Nitrogen analysis.

All quality control parameters were within the acceptance limits.



# Sample Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HWA0037-01	HNL BASEYARD	Water - NonPotable	01/14/13 10:50	01/14/13 14:15

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# Detection Summary

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

**Client Sample ID: HNL BASEYARD**

**Lab Sample ID: HWA0037-01**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	1.0		0.20	0.15	mg/L	1		351.2	Total/NA
Nitrate Nitrite as N	0.21		0.050	0.010	mg/L	1		353.2	Total/NA
Phosphorus	0.31		0.10	0.024	mg/L	1		365.4	Total/NA
Chemical Oxygen Demand	110		20	6.3	mg/L	1		410.4	Total/NA
Total Dissolved Solids	4200		100		mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	150		1.0		mg/L	1		SM 2540D LL	Total/NA
pH - measured in lab not in field	7.70		1.00		pH Units	1.00		EPA 150.1	Total
BOD - 5 Day	3.64		2.00		mg/L	1.00		SM5210B	Total
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Total	1.2		0.25	0.25	mg/L	1		Total Nitrogen	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Honolulu



# Client Sample Results

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

**Client Sample ID: HNL BASEYARD**

**Lab Sample ID: HWA0037-01**

**Date Collected: 01/14/13 10:50**

**Matrix: Water - NonPotable**

**Date Received: 01/14/13 14:15**

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexane Extractable Material (Oil and Grease)	ND		5.2		mg/L		01/23/13 04:37	01/23/13 05:00	1
<b>Nitrogen, Kjeldahl</b>	<b>1.0</b>		0.20	0.15	mg/L		01/22/13 12:35	01/23/13 14:11	1
<b>Nitrate Nitrite as N</b>	<b>0.21</b>		0.050	0.010	mg/L			01/24/13 13:55	1
<b>Phosphorus</b>	<b>0.31</b>		0.10	0.024	mg/L		01/22/13 12:35	01/23/13 14:11	1
<b>Chemical Oxygen Demand</b>	<b>110</b>		20	6.3	mg/L			01/28/13 11:49	1
<b>Total Dissolved Solids</b>	<b>4200</b>		100		mg/L			01/21/13 10:24	1
<b>Total Suspended Solids</b>	<b>150</b>		1.0		mg/L			01/17/13 13:48	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Nitrogen, Total</b>	<b>1.2</b>		0.25	0.25	mg/L			01/28/13 09:51	1

**Method: EPA 150.1 - General Chemistry Parameters**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH - measured in lab not in field	7.70		1.00		pH Units		01/14/13 18:18	01/14/13 18:18	1.00

**Method: SM5210B - General Chemistry Parameters**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
BOD - 5 Day	3.64		2.00		mg/L		01/16/13 09:40	01/21/13 10:01	1.00

# QC Sample Results

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-80331/1-A  
 Matrix: Water  
 Analysis Batch: 80332

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 80331

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexane Extractable Material (Oil and Grease)	ND		5.0		mg/L		01/23/13 04:37	01/23/13 05:00	1

Lab Sample ID: LCS 440-80331/2-A  
 Matrix: Water  
 Analysis Batch: 80332

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 80331

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexane Extractable Material (Oil and Grease)	20.0	16.4		mg/L		82	78 - 114

Lab Sample ID: LCSD 440-80331/3-A  
 Matrix: Water  
 Analysis Batch: 80332

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 80331

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexane Extractable Material (Oil and Grease)	20.0	17.2		mg/L		86	78 - 114	5	11

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 680-263592/2-A  
 Matrix: Water  
 Analysis Batch: 263753

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 263592

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.20	U	0.20	0.15	mg/L		01/22/13 12:35	01/23/13 14:07	1

Lab Sample ID: LCS 680-263592/1-A  
 Matrix: Water  
 Analysis Batch: 263753

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 263592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	2.22		mg/L		111	75 - 125

Lab Sample ID: 680-86613-7 DU  
 Matrix: Water  
 Analysis Batch: 263753

Client Sample ID: HWA0037-01  
 Prep Type: Total/NA  
 Prep Batch: 263592

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Kjeldahl	1.0		0.768		mg/L		27	40

# QC Sample Results

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-263967/13

Matrix: Water

Analysis Batch: 263967

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.050	U	0.050	0.010	mg/L	-		01/24/13 13:37	1

Lab Sample ID: LCS 680-263967/14

Matrix: Water

Analysis Batch: 263967

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.997	1.03		mg/L	-	104	90 - 110

## Method: 365.4 - Phosphorus, Total

Lab Sample ID: MB 680-263592/2-A

Matrix: Water

Analysis Batch: 263752

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 263592

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.10	U	0.10	0.024	mg/L	-	01/22/13 12:35	01/23/13 14:07	1

Lab Sample ID: LCS 680-263592/1-A

Matrix: Water

Analysis Batch: 263752

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 263592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	2.00	2.18		mg/L	-	109	60 - 140

Lab Sample ID: 680-86613-7 DU

Matrix: Water

Analysis Batch: 263752

Client Sample ID: HWA0037-01

Prep Type: Total/NA

Prep Batch: 263592

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Phosphorus	0.31		0.311		mg/L	-	0.6	40

## Method: 410.4 - COD

Lab Sample ID: MB 680-264256/3

Matrix: Water

Analysis Batch: 264256

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	20	U	20	6.3	mg/L	-		01/28/13 11:49	1

Lab Sample ID: LCS 680-264256/4

Matrix: Water

Analysis Batch: 264256

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	100	94.7		mg/L	-	95	90 - 110

TestAmerica Honolulu

# QC Sample Results

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 440-79979/1**  
**Matrix: Water**  
**Analysis Batch: 79979**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			01/21/13 10:22	1

**Lab Sample ID: LCS 440-79979/2**  
**Matrix: Water**  
**Analysis Batch: 79979**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	1000		mg/L		100	90 - 110

**Lab Sample ID: 440-35195-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 79979**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	5800		5580		mg/L		4	10

## Method: SM 2540D LL - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 440-79507/1**  
**Matrix: Water**  
**Analysis Batch: 79507**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0		mg/L			01/17/13 13:48	1

**Lab Sample ID: LCS 440-79507/2**  
**Matrix: Water**  
**Analysis Batch: 79507**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	984		mg/L		98	85 - 115

**Lab Sample ID: 440-35125-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 79507**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	30		29.5		mg/L		2	10

## Method: EPA 150.1 - General Chemistry Parameters

**Lab Sample ID: 13A0013-DUP1**  
**Matrix: Water - NonPotable**  
**Analysis Batch: 13A0013**

**Client Sample ID: Duplicate**  
**Prep Type: Total**  
**Prep Batch: 13A0013\_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
pH - measured in lab not in field	7.86		7.88		pH Units		0.3	20

TestAmerica Honolulu

# QC Sample Results

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Method: SM5210B - General Chemistry Parameters

Lab Sample ID: 13A0015-BLK1  
 Matrix: Water - NonPotable  
 Analysis Batch: 13A0015

Client Sample ID: Method Blank  
 Prep Type: Total  
 Prep Batch: 13A0015\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
BOD - 5 Day	ND		2.00		mg/L		01/16/13 09:19	01/21/13 09:38	1.00

Lab Sample ID: 13A0015-BS1  
 Matrix: Water - NonPotable  
 Analysis Batch: 13A0015

Client Sample ID: Lab Control Sample  
 Prep Type: Total  
 Prep Batch: 13A0015\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
BOD - 5 Day	198	218		mg/L		110	85 - 115

Lab Sample ID: 13A0015-DUP1  
 Matrix: Water - NonPotable  
 Analysis Batch: 13A0015

Client Sample ID: Duplicate  
 Prep Type: Total  
 Prep Batch: 13A0015\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	Limit
BOD - 5 Day	5.44		6.13		mg/L		12	20

# QC Association Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## General Chemistry

### Analysis Batch: 79507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35125-A-1 DU	Duplicate	Total/NA	Water	SM 2540D LL	
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	SM 2540D LL	
LCS 440-79507/2	Lab Control Sample	Total/NA	Water	SM 2540D LL	
MB 440-79507/1	Method Blank	Total/NA	Water	SM 2540D LL	

### Analysis Batch: 79979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35195-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	SM 2540C	
LCS 440-79979/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-79979/1	Method Blank	Total/NA	Water	SM 2540C	

### Prep Batch: 80331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	1664A	
LCS 440-80331/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-80331/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 440-80331/1-A	Method Blank	Total/NA	Water	1664A	

### Analysis Batch: 80332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	1664A	80331
LCS 440-80331/2-A	Lab Control Sample	Total/NA	Water	1664A	80331
LCSD 440-80331/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	80331
MB 440-80331/1-A	Method Blank	Total/NA	Water	1664A	80331

### Prep Batch: 263592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86613-7 DU	HWA0037-01	Total/NA	Water	Digestion	
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	Digestion	
LCS 680-263592/1-A	Lab Control Sample	Total/NA	Water	Digestion	
MB 680-263592/2-A	Method Blank	Total/NA	Water	Digestion	

### Analysis Batch: 263752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86613-7 DU	HWA0037-01	Total/NA	Water	365.4	263592
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	365.4	263592
LCS 680-263592/1-A	Lab Control Sample	Total/NA	Water	365.4	263592
MB 680-263592/2-A	Method Blank	Total/NA	Water	365.4	263592

### Analysis Batch: 263753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86613-7 DU	HWA0037-01	Total/NA	Water	351.2	263592
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	351.2	263592
LCS 680-263592/1-A	Lab Control Sample	Total/NA	Water	351.2	263592

TestAmerica Honolulu

# QC Association Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## General Chemistry (Continued)

### Analysis Batch: 263753 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-263592/2-A	Method Blank	Total/NA	Water	351.2	263592

### Analysis Batch: 263967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	353.2	
LCS 680-263967/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-263967/13	Method Blank	Total/NA	Water	353.2	

### Analysis Batch: 264153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	Total Nitrogen	

### Analysis Batch: 264256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HWA0037-01	HNL BASEYARD	Total/NA	Water - NonPotable	410.4	
LCS 680-264256/4	Lab Control Sample	Total/NA	Water	410.4	
MB 680-264256/3	Method Blank	Total/NA	Water	410.4	

## WetChem

### Analysis Batch: 13A0013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13A0013-DUP1	Duplicate	Total	Water - NonPotable	EPA 150.1	13A0013_P
HWA0037-01	HNL BASEYARD	Total	Water - NonPotable	EPA 150.1	13A0013_P

### Analysis Batch: 13A0015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13A0015-BLK1	Method Blank	Total	Water - NonPotable	SM5210B	13A0015_P
13A0015-BS1	Lab Control Sample	Total	Water - NonPotable	SM5210B	13A0015_P
13A0015-DUP1	Duplicate	Total	Water - NonPotable	SM5210B	13A0015_P
HWA0037-01	HNL BASEYARD	Total	Water - NonPotable	SM5210B	13A0015_P

### Prep Batch: 13A0013\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13A0013-DUP1	Duplicate	Total	Water - NonPotable	Default Prep GenChem	
HWA0037-01	HNL BASEYARD	Total	Water - NonPotable	Default Prep GenChem	

### Prep Batch: 13A0015\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13A0015-BLK1	Method Blank	Total	Water - NonPotable	Default Prep GenChem	
13A0015-BS1	Lab Control Sample	Total	Water - NonPotable	Default Prep GenChem	

TestAmerica Honolulu

# QC Association Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## WetChem (Continued)

### Prep Batch: 13A0015\_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13A0015-DUP1	Duplicate	Total	Water - NonPotable	Default Prep GenChem	
HWA0037-01	HNL BASEYARD	Total	Water - NonPotable	Default Prep GenChem	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

# Lab Chronicle

Client: Department of Transportation, Airports  
 Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

**Client Sample ID: HNL BASEYARD**

**Lab Sample ID: HWA0037-01**

**Date Collected: 01/14/13 10:50**

**Matrix: Water - NonPotable**

**Date Received: 01/14/13 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D LL		1	79507	01/17/13 13:48	DK	TAL IRV
Total/NA	Analysis	SM 2540C		1	79979	01/21/13 10:24	XL	TAL IRV
Total/NA	Prep	1664A			80331	01/23/13 04:37	DA	TAL IRV
Total/NA	Analysis	1664A		1	80332	01/23/13 05:00	DA	TAL IRV
Total/NA	Prep	Digestion			263592	01/22/13 12:35	AJO	TAL SAV
Total/NA	Analysis	365.4		1	263752	01/23/13 14:11	JR	TAL SAV
Total/NA	Analysis	351.2		1	263753	01/23/13 14:11	JR	TAL SAV
Total/NA	Analysis	353.2		1	263967	01/24/13 13:55	JNC	TAL SAV
Total/NA	Analysis	Total Nitrogen		1	264153	01/28/13 09:51	JR	TAL SAV
Total/NA	Analysis	410.4		1	264256	01/28/13 11:49	TAR	TAL SAV
Total	Prep	Default Prep GenChem		1.00	13A0015_P	01/16/13 09:40	NK	TAL HON
Total	Analysis	SM5210B		1.00	13A0015	01/21/13 10:01	NK	TAL HON
Total	Analysis	EPA 150.1		1.00	13A0013	01/14/13 18:18	NK	TAL HON
Total	Prep	Default Prep GenChem		1.00	13A0013_P	01/14/13 18:18	NK	TAL HON

**Laboratory References:**

TAL HON = TestAmerica Honolulu, 99-193 Aiea Heights Drive, Suite 121, Aiea, HI 96701, TEL 808-486-5227

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

# Certification Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Laboratory: TestAmerica Honolulu

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E87907	06-30-13
Hawaii	State Program	9	N/A	06-28-13
USDA	Federal		HON-S-206	01-31-15

## Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-13
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-13
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-13
Hawaii	State Program	9	N/A	01-31-13
Nevada	State Program	9	CA015312007A	07-31-13
New Mexico	State Program	6	N/A	01-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-13
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

## Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-13
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-13
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13

TestAmerica Honolulu

# Certification Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

## Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

# Method Summary

Client: Department of Transportation, Airports  
Project/Site: HNL Baseyard

TestAmerica Job ID: HWA0037

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	TAL IRV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
365.4	Phosphorus, Total	EPA	TAL SAV
410.4	COD	MCAWW	TAL SAV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 2540D LL	Solids, Total Suspended (TSS)	SM	TAL IRV
Total Nitrogen	Nitrogen, Total	EPA	TAL SAV
EPA 150.1	General Chemistry Parameters		TAL HON
SM5210B	General Chemistry Parameters		TAL HON

#### Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

#### Laboratory References:

TAL HON = TestAmerica Honolulu, 99-193 Aiea Heights Drive, Suite 121, Aiea, HI 96701, TEL 808-486-5227

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

DOD QSM Required?

Report to MDL with J Flag values?

**Chain of Custody / Analysis Request Form**

Report to:		Project identification		Indicate analyses requested	
Company name <u>Joe Balignasay - AIR-EE</u>		Job name			
Address <u>HDO TA - AIR-EE (Env't Section)</u>		Job number			
City <u>Honolulu, HI</u>		PO number			
State <u>HI</u>		Date results needed			
Zip <u>96811</u>		Contact email address <u>Joe Balignasay@hawaii.gov</u>			
Phone <u>838-8064</u>		Matrix			
Fax <u>Joe Balignasay</u>		Grab			
# samples in shipment		Composite			
Client sample ID <u>HNL Base yard</u>		Multi Incremental			
		Water			
		Soil			
		Wastewater			
		Drinking water			
		Sludge			
		Liquid			
		Solid			
		Oil			
		Other			
		Preservation method			
		Date			
		Time			
		No. of containers			
		Laboratory ID no.			
		<u>NWA0037</u>			

← see attached forms

Released by (print / sign)	Date / time released	Delivery method	Received by (print / sign)	Date / time received	Company / Agency affiliation	Condition noted
<u>Joe Balignasay</u>	<u>1/14/12 2:5p Hand</u>	<u>Hand</u>	<u>Joe Balignasay</u>	<u>1/14/12 1:15p</u>	<u>TAMon</u>	<u>Param 242</u>
						<u>OK to go</u>

Comments: HNL Rspnd: SD9328/102 ; pH(strip) = 7

1/17/2012

Please check one:  
 Dispose by lab  
 Return to client  
 Archive (fee may apply)

# *Appendix D*

## *Industrial Wastewater Discharge Permit*

DEPARTMENT OF ENVIRONMENTAL SERVICES  
**CITY AND COUNTY OF HONOLULU**  
DIVISION OF ENVIRONMENTAL QUALITY  
1000 ULUOHIA STREET, SUITE 303 • KAPOLEI, HAWAII 96707  
Website: <http://envhonolulu.org>

PETER B. CARLISLE  
MAYOR



TIMOTHY E. STEINBERGER, P.E.  
DIRECTOR

SILVESTRE L. ULEP, P.E.  
CHIEF

EARL W.M. NG, P.E.  
ASSISTANT CHIEF  
EQ 12-357

September 6, 2012

State Department of Transportation, Airport Division  
Honolulu International Airport  
300 Rodgers Boulevard  
Honolulu, Hawaii 96819

Gentlemen:

Subject: Industrial Wastewater Discharge Permit (IWDP)

Enclosed is the subject Permit which allows wastewater discharge into the City Sewer. This Permit shall be kept on file at your place of business and is not transferable without written consent. If any change in the wastewater discharge or use of the facilities is anticipated, you must apply for an amended Permit. It is your responsibility to ensure that all waste from your operation is properly collected, recycled, or disposed in accordance with all applicable regulations.

Please apply with the City and County of Honolulu's, Department of Environmental Services to renew your Permit at least 90 days prior to your Permit expiration date.

If you have any questions, please contact our Regulatory Control Branch at 768-3262.

Sincerely

A handwritten signature in black ink, appearing to read "Earl W. M. Ng".

Earl W. M. Ng  
Assistant Chief

Enclosure: IWDP

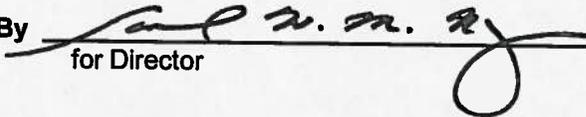
# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

CITY AND COUNTY OF HONOLULU  
DEPARTMENT OF ENVIRONMENTAL SERVICES

Permit No. 20120341

Expiration Date: 09/03/2017

Issued By

  
for Director

Effective Date: 09/04/2012

This Permit grants authorization to the Industrial User (hereinafter referred to as "IU") named below to discharge industrial wastewater into the City and County of Honolulu's publicly owned treatment works (hereinafter referred to as "POTW"). This Permit may be revoked or suspended by the Department of Environmental Services of the City and County of Honolulu (hereinafter referred to as "ENV") in the event that the IU fails to comply with the Permit Conditions, Discharge Limits, or General Provisions contained herein. A COPY OF THIS PERMIT MUST REMAIN ON THE PREMISES OF THE INDUSTRIAL USER INDICATED BELOW.

INDUSTRIAL USER: STATE DEPARTMENT OF TRANSPORTATION  
AIRPORT DIVISION  
DISCHARGE LOCATION: HONOLULU INTERNATIONAL AIRPORT  
300 RODGERS BLVD.  
HONOLULU, HI 96819

## PERMIT CONDITIONS

1. The IU is subject to regulation and enforcement by the ENV in accordance with all regulatory requirements pertaining to indirect discharges into the POTW including, but not limited to the following together with any amendments: Chapter 14 (hereinafter referred to as the "Sewer Ordinance") of the Revised Ordinances of Honolulu, applicable Pretreatment Standards and requirements as set forth in Title 40 of the Code of Federal Regulations, Sections 204(b) and 403 of the Federal Water Pollution Control Act, Subtitles C and D of the Resource Conservation and Recovery Act, and the State of Hawaii Water Quality Standards.
2. The IU is limited to wastewater discharge only through City and County of Honolulu approved fixed connections from the Discharge Location set forth above in this Permit.
3. The Standard Industrial Classification of the IU is determined to be:  
4581 – AIRPORTS, FLYING FIELDS, & AIRPORT TERMINAL SERVICES

# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## PERMIT CONDITIONS

Continued

4. **PRETREATMENT:** The IU shall install, maintain, and operate the following wastewater pretreatment devices to pretreat its industrial process wastewater in order to comply with all Discharge Limits prior to discharge into the POTW:

OIL INTERCEPTOR

HAULING USED MECHANICAL FLUIDS

5. **OPERATION AND MAINTENANCE RECORDS:** The IU shall maintain Operation and Maintenance Records for the pretreatment devices named in Permit Condition 4 and for any and all other devices on its premises which serve to pretreat process wastewater. At a minimum, these records shall include a chronological log of any and all installation, maintenance, servicing, repair, and modification of pretreatment devices at the Discharge Location. Should an outside party be hired by the IU to perform services related to any pretreatment devices, the Operation and Maintenance Records are required to include documentation of those services, including the name of the outside party, the address of the outside party, the dates of the service, the nature of the service, and the quantities, nature, and origin of wastes handled or disposed.

In addition, the Operation and Maintenance Records shall be maintained at all times on the Discharge Location premises and shall be available, at any time, for compliance evaluation and copying by City, State, or Federal officials as provided by law.

6. **SELF-MONITORING AND REPORTING:** The IU shall perform periodic industrial wastewater self-monitoring sampling and analysis and report its self-monitoring results to the ENV.

The self-monitoring requirements for this Permit are described below. These self-monitoring requirements are subject to change should the IU fail to maintain continued compliance with any of the Permit Conditions, Discharge Limits, or General Provisions, or should new or revised regulations be established.

- NO SELF MONITORING REQUIRED AT THIS TIME

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT****PERMIT CONDITIONS**

Continued

7. **SAMPLING AND ANALYSIS:** The IU shall submit complete and detailed records regarding the procedures used to analyze the samples. All IU sampling and analysis reports must include the following information and records:
- A. The date, exact place, and time of sampling;
  - B. The names of the person or persons taking the samples;
  - C. The dates the analyses were performed;
  - D. The names of the person or persons performing the analyses;
  - E. The analytical techniques and the methods used to perform the analyses;
  - F. The results of the analyses; and
  - G. A completed Chain of Custody Form.
8. **THREE YEAR RECORD-KEEPING:** The IU shall retain for a minimum of three (3) years any and all records pertaining to activities associated with this permit. The IU shall make such records available for compliance evaluation and copying by City, State, or Federal officials as provided by law. This period of retention shall be extended during the course of any unresolved litigation or administrative procedure regarding indirect discharges of pollutants or violations of the Revised Ordinances of Honolulu or any other regulatory requirement by the IU.
9. **CERTIFICATION STATEMENT:** The IU shall include a Certification with each submission of a self-monitoring report or any other report or statement of compliance submitted pursuant to pretreatment regulations. The Certification Statement, indicated below, shall be included in the cover letter transmitting the report and must be signed by an Authorized Representative of the IU.
- I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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, I certify that 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.
10. **AUTHORIZED REPRESENTATIVE:** Pursuant to 40 CFR 403.12(1), an Authorized Representative of the IU is defined as and shall be:
- A. A responsible corporate officer if the IU submitting the statement or report is a corporation. For the purpose of this paragraph, a responsible corporate officer means:
    - i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or

# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## PERMIT CONDITIONS

Continued

- ii. The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
  - B. A general partner or proprietor if the IU submitting the statement report is a partnership or sole proprietorship respectively.
  - C. A duly authorized representative of the individual designated in paragraph (A)(i) or (A)(ii) of this section if:
    - i. The authorization is made in writing by the individual described in paragraph (A)(i) or (A)(ii); and
    - ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the industrial discharge originates, such as the position of plant manager or a position of equivalent responsibility, or having overall responsibility for environmental matters for the company; and
    - iii. The written authorization is submitted to the ENV.
  - D. If an authorization under paragraph (C) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirements of paragraph (C) of this section must be submitted to the ENV prior to or together with any other reports to be signed by an authorized representative.
11. **DEMONSTRATION OF CONTINUED COMPLIANCE:** In the event that IU self-monitoring results indicate a violation of any Discharge Limits, the IU shall notify the ENV, Supervising Waste Water Service Investigator, phone 768-3264, within 24 hours of becoming aware of the violation, and shall submit, within 5 days, a written report detailing the violation occurrence and corrective actions taken by the IU. The IU shall also repeat the sampling and analysis and shall submit the results of the repeat analysis to the ENV within 30 calendar days after becoming aware of the violation.
12. **TRANSFERABILITY:** This Permit is non-transferable without the IU's 20-day prior written notification and request to transfer the Permit and written approval, by the ENV, of the transfer request. The IU shall provide a copy of the Permit, within 20 days of the ENV approval, to the new owner or operator of the Discharge Location.
13. **DURATION:** The effective duration of this Permit begins from the Effective Date and ends on the Expiration Date stated on Permit Page 1. In no event shall this Permit extend beyond five (5) years of the stated Effective Date.

# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## PERMIT CONDITIONS

Continued

14. **PENALTIES FOR VIOLATIONS:** An IU in violation of any Permit Conditions, Discharge Limits, General Provisions, or any other regulatory requirements will be subject to enforcement actions and penalties by the ENV. These enforcement actions and penalties will be of the following forms.

### WARNING TELEPHONE CALL

CCH will initiate telephone notification upon identification of an IU violation. Notification will include detailed description of IU violation.

### WARNING LETTER

- A. CCH will initiate the warning letter upon identification of a continued IU violation which has already received a warning telephone call.
- B. The warning letter will include at least the following information;
- i. Who and what is in violation;
  - ii. When the violation occurred;
  - iii. The ordinance section, rule or other law which has been violated;
  - iv. Notification of enforcement options upon repeat noncompliance to CCH ordinance.

### NOTICE OF VIOLATION

- A. Upon identification of a continued non-compliance, a Notice of Violation will be issued to the IU responsible for the violation.
- B. The Notice of Violation will include at least the following information;
- i. The date of the notice;
  - ii. The name and address of the person served with the notice;
  - iii. The section number of the ordinance, rule or other law which has been violated;
  - iv. The nature of the violation(s);
  - v. The deadline for compliance with the notice.

### COMPLIANCE SCHEDULE

An enforceable schedule issued by the ENV to the IU to comply with the applicable regulations, including any interim discharge limits. Failure by the IU to comply with items of the schedule may result in civil fines, sewer bans, injunctive relief, and/or criminal actions against the IU. The specific penalties will be set forth in the Compliance Schedule. In no event may a Compliance Schedule extend beyond applicable federal deadlines.

# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## PERMIT CONDITIONS

Continued

### NOTICE TO SHOW CAUSE

The ENV can issue a Notice To Show Cause to the IU requiring the IU to meet and "show cause": prior to taking formal enforcement action. Generally, the IU would be presented with the facts that the ENV believes demonstrate noncompliance and the IU will be asked to "show cause" to the ENV as to why formal enforcement action against the IU should not be initiated. Such a meeting, however, is not a prerequisite to taking formal enforcement action against the IU.

### INJUNCTIVE RELIEF

Whenever an IU has violated a pretreatment standard or requirement or continues to violate the provisions of the Sewer Ordinance, wastewater discharge permits or orders, or any other pretreatment requirement, the ENV may petition the Circuit Court of the First Circuit, State of Hawaii, or the United States District Court, State of Hawaii, through the Department of the Corporation Counsel for the issuance of a temporary or permanent injunction, as appropriate, which restrains or compels the specific performance of the wastewater discharge permit, order, or other requirement imposed by the Sewer Ordinance on activities of the industrial user. Such other action as appropriate for legal and/or equitable relief may also be sought by the ENV. A petition for injunctive relief need not be filed as a prerequisite to taking any other action against the IU.

### CRIMINAL ENFORCEMENT

Any person violating any provisions of the Sewer Ordinance shall upon conviction, be punished by a fine of \$1,000 or by imprisonment not exceeding ninety days, or both, except that in cases where such offense shall continue after due notice, each day's continuance of the same shall constitute a separate offense.

### ADMINISTRATIVE ORDER

- A. In lieu of or in addition to enforcement under Section 14-11.1 of the Revised Ordinances of Honolulu, if the Director determines that any person, firm, or corporation is not complying with a Notice of Violation for a violation of Article 5 of Chapter 14, the Director may have the party responsible for the violation served, by mail or delivery, with an order pursuant to this section.
- B. The order may require the party responsible for the violation to do any or all of the following:
  - i. Correct the violation within the time specified in the order;
  - ii. Pay a civil fine of not less than \$2,500 and not more than \$25,000 in the manner, at the place and before the date specified in the order;
  - iii. Pay a civil fine of not less than \$2,500 per day and not more than \$25,000 per day for each day that the violation persists, in the manner and at the time and place specified in the order.

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT****DISCHARGE LIMITS**

Continued

- C. The order shall become final thirty days from the date of service unless the party served requests a hearing under Chapter 91, Hawaii Revised Statutes. If a hearing is requested, no fine shall be imposed except upon completion of the hearing. In determining the amount of the fine, the Director shall consider the seriousness of the violation or violations, any history of such violations, any good-faith efforts to comply with applicable requirements, the economic impact of the fine on the violator, and such other considerations that have a bearing on the bearing on the amount of the fine.
- D. The Director may institute a civil action in any court of competent jurisdiction for the enforcement of any Order issued pursuant to this section. Where the civil action has been instituted to enforce the civil fine imposed by said Order, the Director need only show that the Notice of Violation and Order were served, that a civil fine was imposed, the amount of the civil fine imposed and that the fine has not been paid.
15. **MAILING ADDRESS:** The IU shall submit all correspondence, statements, self-monitoring reports, and other submittals to this Permit to:

Department of Environmental Services  
City and County of Honolulu  
1000 Uluohia Street, #303  
Kapolei, Hawaii 96707

Attention: Regulatory Control Branch

**DISCHARGE LIMITS**

1. **PROHIBITED DISCHARGE STANDARDS:** The IU shall not introduce or cause to be introduced into the POTW any pollutant or wastewater which causes pass through or interference. These prohibitions apply to all IUs of the POTW whether or not they are subject to categorical pretreatment standards or any other Federal, State, or local pretreatment standards or requirements. Furthermore, the IU shall not discharge any of the following substances into the POTW:
- A. Pollutants which create a fire or explosive hazard in the municipal wastewater collection and POTW, including but not limited to, wastestreams with a closed-cup flashpoint of less than 140°F (60°C) using the test methods specified in 40 CFR 261.21.
- B. Any wastewater having a pH less than 5.5 or more than 11.0, or otherwise causing corrosive structural damage to the POTW or equipment, or endangering personnel.
- C. Solid or viscous substances in amounts which will cause obstruction of the flow in the POTW resulting in interference, but in no case solids greater than 0.25 inches in any dimension.
- D. Any wastewater containing pollutants, including oxygen demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which, either singly or by interaction with other pollutants, will cause interference with either the POTW; or any wastewater which causes the temperature at the introduction into the treatment plant to exceed 104°F (40°C).

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT****DISCHARGE LIMITS**

Continued

- E. Any wastewater having a temperature greater than 150°F, or which will inhibit biological activity in the treatment plant resulting in interference, but in no case wastewater which causes the temperature at the introduction into the treatment plant to exceed 104°F (40°C).
- F. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin, in amounts that will cause interference or pass through.
- G. Any pollutants which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker health and safety problems.
- H. Any trucked or hauled pollutants, except at discharge points designated by the POTW.
- I. Any noxious or malodorous liquids, gases, solids or other wastewater which, either singly or by interaction with other wastes, are sufficient to create a public nuisance, a hazard to life, or to prevent entry into the sewers for maintenance and repair.
- J. Any wastewater which impart colors which cannot be removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions, which consequently imparts color to the treatment plant's effluent thereby violating the City and County of Honolulu's NPDES permit. Color (in combination with turbidity) shall not cause the treatment plant effluent to reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonably established norm for the aquatic life.
- K. Any wastewater containing any radioactive wastes or isotopes except as specifically approved by POTW in compliance with applicable State or Federal regulations.
- L. Storm water, surface water, ground water, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, non-contact cooling water, and unpolluted industrial wastewater, unless specifically authorized by the POTW.
- M. Any sludges, screenings, or other residues from the pretreatment of industrial wastes.
- N. Any medical wastes, except as specifically authorized by the [the Superintendent] in a wastewater discharge permit.
- O. Any wastewater causing the treatment plant's effluent to fail a toxicity test.
- P. Any wastes containing detergents, surface active agents, or other substances which may cause excessive foaming in the POTW.
- Q. Any discharge of fats, oils, or greases of animal or vegetable origin is limited to 100 mg/L.

Wastes prohibited by this section shall not be processed or stored in such a manner that they could be discharged to the POTW. All floor drains located in process or materials storage area must discharge to the Industrial User's pretreatment facility before connecting with the POTW.

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT****DISCHARGE LIMITS**

Continued

2. **FEDERAL CATEGORICAL PRETREATMENT STANDARDS:** The National Categorical Pretreatment Standards found in 40 CFR Chapter I, Subchapter N, Parts 405-471 are hereby incorporated.
3. **SPECIFIC POLLUTANT LIMITATIONS:** The IU shall not discharge wastewater containing pollutants in excess of the following instantaneous maximum allowable discharge limits.

Arsenic	0.50 mg/L
Cadmium	0.69 mg/L
Chromium	2.77 mg/L
Copper	3.38 mg/L
Lead	0.60 mg/L
Mercury	0.50 mg/L
Nickel	3.98 mg/L
Selenium	2.00 mg/L
Silver	0.43 mg/L
Zinc	2.61 mg/L
PHENOLS	2.00 mg/L
Cyanide	1.90 mg/L
Oil and Grease	100.00 mg/L
pH	within 5.5 to 11.0
Solids	not exceed 0.25 inches

4. **AMENDMENTS:** This Permit shall by no means restrict or prohibit the ENV from establishing more stringent requirements than set forth herein, if deemed reasonably necessary to comply with pretreatment regulations.
5. **SPECIAL AGREEMENTS:** The ENV reserves the right to enter into special agreements with IUs setting out special terms under which they may discharge to the POTW. In no case shall a special agreement waive compliance with applicable City, State, or Federal pretreatment standards or requirements. However, the IU may request a variance from the categorical pretreatment standards from the EPA. Such a request will be approved only if the IU can prove that factors relating to its discharge are fundamentally different from the factors considered by the EPA when establishing those pretreatment standards. An IU requesting a fundamentally different factor variance must comply with the procedural and substantive provisions in 40 CFR 403.13.

# INDUSTRIAL WASTEWATER DISCHARGE PERMIT

## DISCHARGE LIMITS

Continued

6. Dilution: The IU shall not increase the use of process water, or in any way attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a discharge limitation unless expressly authorized by an applicable pretreatment standard or requirement. The ENV may impose mass limitations on IUs which are using dilution to meet applicable pretreatment standards or requirements, or in other cases when the imposition of mass is appropriate.

## GENERAL PROVISIONS

1. The IU shall take all reasonable steps to minimize or prevent any discharge in violation of this Permit which has a reasonable likelihood of adversely affecting human health or the environment, including additional monitoring as appropriate to determine the nature and impact of the violation.
2. The provisions in this Permit are severable. If any of the provisions set forth in this Permit are found invalid, the remainder of this Permit shall not be affected and shall be in full force and effect.
3. The requirements set for the herein shall not protect the IU from liabilities under Federal, State, or local law.
4. If Federal or City pretreatment requirements are amended, the ENV may revise and modify this Permit accordingly.
5. The IU shall furnish any information the ENV may request to determine whether cause exists for modifying, revoking, and re-issuing, or terminating this Permit or to determine compliance with this Permit. This information shall be submitted within 20 days of the ENV's request.
6. Should the IU find that it failed to submit relevant facts or submitted incorrect information to the ENV, it shall promptly submit or re-submit the missing or correct information.
7. An IU seeking to establish that it did not violate pretreatment or permit requirements shall have the burden of proof.

## ***Attachment E.2***

### ***Chemical Applications BMPs***



# Best Management Practices Plan

## Chemical Application Program



**PROTECT  
OUR WATER**  
MĀLAMA I KA WAI  
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

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



June 2015

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## TABLE OF CONTENTS

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General Vegetation Management Guidelines .....	1
Fertilizer Management .....	3
Pesticide Application for Vegetation Control .....	4
Spill Prevention and Response.....	6

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## LIST OF ACRONYMS

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AOA	Air Operations Area
ARFF	Aircraft Rescue and Fire Fighting
AFFF	Aqueous Film Forming Foam
AST	Aboveground Storage Tank
BMP	Best Management Practice
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWB	Department of Health, Clean Water Branch
DOH	State of Hawaii, Department of Health
DOTA	State of Hawaii, Department of Transportation, Airports Division
EC	Emergency Coordinator
EHS	Environmental Health Specialist
EID	Environmental Identification Number
FAA	Federal Aviation Administration
GSE	Ground Service Equipment
HAR	Hawaii Administrative Rules
HEER	Hazard Evaluation and Emergency Response
HRS	Hawaii Revised Statutes
MS4	Municipal Separate Storm Sewer System
MSDS	Materials Safety Data Sheet
NGPC	Notice of General Permit Coverage
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OWS	Oil Water Separator
PPE	Personal Protective Equipment
SWMPP	Storm Water Management Program Plan
SWPCP	STORM WATER POLLUTION CONTROL PLAN

## Chemical Program Best Management Practices General Vegetation Management Guidelines

### Description

Proper vegetation management is a BMP that applies to routine landscape maintenance. Such management includes preventative measures and good housekeeping practices, both of which will reduce the amount of pollutants entering the Small MS4. The following practices are to be undertaken during routine maintenance of landscaped areas.

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	CP1.1	Maintain all chemical application equipment in good operating condition. Check for proper operation of controls, valves, and regulators prior going into field. Assure that all hoses are attached properly and in good-working condition.
<input type="checkbox"/>	CP1.2	Clean spray tanks, hand sprayers, mowers, weed trimmers, and any vehicles used during landscaping operations. Perform cleaning in a location that will not result in contamination of storm drains, channels, or surface waters (i.e. graveled rinse area in DOTA Maintenance Baseyard or wash racks). Recycle rinse water for future chemical application, if applicable.
<input type="checkbox"/>	CP1.3	Properly locate chemical mixing and equipment rinsing stations in designated areas only.
<input type="checkbox"/>	CP1.4	Do not fuel or service equipment near drain inlets, channels, or receiving waters. Perform maintenance in an area protected from storm water runoff.
<input type="checkbox"/>	CP1.5	Store all chemicals in closed containers within covered areas. Provide secondary containment in the event of spills.
<input type="checkbox"/>	CP1.6	Maintain accurate inventory of all chemicals and have material safety data sheets on file for all hazardous chemicals.
<input type="checkbox"/>	CP1.7	Review work area requirements to determine areas where chemical application is not needed to minimize chemical application.
<input type="checkbox"/>	CP1.8	Use weed blocking geotextile where feasible.
<input type="checkbox"/>	CP1.9	Mow/cut grass and landscaping covers to appropriate height.
<input type="checkbox"/>	CP1.10	Trim trees and shrubs regularly to prevent overgrowth, eliminate traffic hazards, maintain a neat appearance, and to maintain healthy growth.
<input type="checkbox"/>	CP1.11	Do not apply fertilizers or herbicides preceding rainy weather.

**Chemical Program Best Management Practices**  
**General Vegetation Management Guidelines**  
(continued)

<input type="checkbox"/>	CP 1.12	Do not spray chemicals during high winds.
<input type="checkbox"/>	CP1.13	Upon mobilizing to a work site identify storm drainage inlets.
<input type="checkbox"/>	CP1.14	Identify areas for waste material collection and stockpiling. Prevent grass, other vegetative materials, sediment, or chemicals from entering storm drains.
<input type="checkbox"/>	CP1.15	Clean storm drainage facilities before leaving work areas.
<input type="checkbox"/>	CP1.16	Design and maintain proper irrigation rates to prevent erosion and minimize runoff.

## Chemical Program Best Management Practices Fertilizer Management

### Description

Maintaining health and aesthetically pleasing landscaping at a facility sometimes requires the application of fertilizers. Proper management of fertilizer application and irrigation will promote growth and help prevent excess fertilizer from being released with storm water runoff and entering State Waters.

### Limitations

Applying BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	CP 2.1	Perform soil analysis for each landscaped area wherever possible to determine need and composition of fertilizer required. <ul style="list-style-type: none"> <li>▪ use fertilizer only when needed</li> <li>▪ base fertilizer type and composition upon soil analysis and site conditions</li> </ul>
<input type="checkbox"/>	CP 2.2	Consider natural versus manufactured fertilizers, such as the following: <ul style="list-style-type: none"> <li>▪ manure, grass clippings, potash, milorganite, ringer, or sustane</li> </ul>
<input type="checkbox"/>	CP2.3	Use only State of Hawaii, Department of Agriculture approved fertilizers and chemicals.
<input type="checkbox"/>	CP2.4	Store fertilizers in clean, sealed, and properly labeled containers.
<input type="checkbox"/>	CP2.5	Store fertilizer containers in covered areas, protected from rain and wind.
<input type="checkbox"/>	CP2.6	For newly planted areas, till the top four inches of soil to evenly incorporate fertilizer into soil and protect fertilizer from storm runoff. Divert storm runoff around area using temporary berms and use silt fences downstream of area to control silt laden runoff, if needed.
<input type="checkbox"/>	CP2.7	Do not apply fertilizer to slopes greater with grade larger than 3:1.
<input type="checkbox"/>	CP2.8	Follow all manufacturers' instructions for fertilizer application.
<input type="checkbox"/>	CP2.9	Do not apply fertilizers during or preceding heavy rainfall.
<input type="checkbox"/>	CP2.10	Do not spray fertilizers during high winds.
<input type="checkbox"/>	CP2.11	Maintain a log of the amount, type, and locations where fertilizers applied (see attached log sheets). Report annual fertilizer application amount (pounds) to DOTA Environmental Section, 808-838-8002.

## Chemical Program Best Management Practices Pesticide Application for Vegetation Control

### Description

Maintaining landscaping in a healthy, safe, and aesthetically pleasing condition may require the application of various chemical pesticides. Pesticides are defined as chemicals used to kill pest animals or plants and can be herbicides, fungicides, rodenticides, or insecticides. The normal pesticides used are herbicides used to control the growth of weeds or other undesirable vegetation. Occasionally, insecticides or rodenticides are used to control an infestation of insects or to prevent the spread of diseases (i.e. mosquito or rodent control). The contamination of storm water runoff and State Waters by pesticides is to be minimized or prevented through proper handling and application procedures. Irrigation systems also need to be adjusted following pesticide application to optimize effectiveness of the pesticide and avoid conveying pesticide contaminated sprinkler runoff to State Waters.

### Limitations

Applying the BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations. **NPDES permit per HAR 11-55, App M may be required for applications near surface waters.**

Practice		
<input type="checkbox"/>	CP3.1	Assess the pest control requirements for each area. Use only the least toxic and most effective chemicals available that are suited to the vegetation or pest to be controlled. In choosing pesticides, avoid non-biodegradable chemicals or chemicals with long half-lives in the environment.
<input type="checkbox"/>	CP3.2	Use only State of Hawaii, Department of Agriculture approved pesticides.
<input type="checkbox"/>	CP3.3	Keep chemicals in their original containers, properly sealed, and with readable labels (relabel as needed). Kept diluted pesticides shall only be stored following the manufacturers' recommendations on type of storage container and storage conditions (i.e. temperature and sunlight exposure). Label containers with the pesticide name, mix concentration, expiration date, and any other pertinent information.
<input type="checkbox"/>	CP3.4	Store pesticide containers in enclosed sheds or building that have secondary containment structures.
<input type="checkbox"/>	CP3.5	Keep an up-to-date pesticide inventory. Check for expiration dated monthly and dispose of outdated pesticides according to the manufacturers' guidelines and Federal, State, and City regulations. If the pesticide waste is classified as hazardous according to Hawaii Administrative Rules Chapter 11-261, do not move waste and contract a licensed hazardous waste contractor to pack and dispose of waste properly. If the facility is a classified Conditionally Exempt Small Quantity Generator, no USEPA identification number is needed. If the facility is Small Quantity Generator or Large Quantity Generator, an USEPA identification number must be obtained and proper protocols followed based on generator status.

**Chemical Program Best Management Practices**  
**Pesticide Application for Vegetation Control**  
(continued)

<input type="checkbox"/>	CP3.6	During monthly inventory, check for condition of containers - look for leaking or corroded containers, crystallization on covers or bases of containers, or discolored labels. Dispose of properly if necessary.
<input type="checkbox"/>	CP3.7	All personnel performing pesticide application must wear proper personal protective equipment (PPE): long pants, long sleeved shirt, respirator, gloves, rubber boots, and goggles.
<input type="checkbox"/>	CP3.8	Apply pesticides according to manufacturers' instructions.
<input type="checkbox"/>	CP3.9	Properly locate chemical mixing and equipment rinsing stations in designated areas only.
<input type="checkbox"/>	CP3.10	Do not apply pesticides or herbicides during or preceding heavy rainfall. Do not apply pesticide sprays in high winds.
<input type="checkbox"/>	CP3.11	Do not apply in or near surface waters without a DOH NPDES permit.
<input type="checkbox"/>	CP3.12	Protect treated areas from storm water sheet-flows. Place diversion berms or implement other control measures to prevent contact of storm runoff with pesticide.
<input type="checkbox"/>	CP3.13	Rinse empty tanks and containers three (3) times before reuse or disposal. Reuse rinse water if possible or dispose according to the manufacturers' instructions.
<input type="checkbox"/>	CP3.14	Maintain a log of the amount, type, and locations where pesticide applied (see attached log sheets). Report annual pesticide application amount (gallons) to DOTA Environmental Section, 808-838-8002.

## Chemical Program Best Management Practices Spill Prevention and Response

### Description

Proper control and cleanup of spilled materials reduces the discharge of hazardous chemicals to the storm drain system and receiving water. Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and that do not threaten ground or surface waters will be cleaned up using absorbent materials or other acceptable practices, without disrupting airport operations. All tenants and/or their contractors are requested to report any spills (irrespective of the size) to Airport Operations Control / Security. Inspections of the Common Use Areas of the AOA will identify any small spills, which will be addressed immediately.

In the event of a large or uncontrolled release, the tenant and/or contractor shall notify Airport Operations Control or Security (after hours) and they will assume the role of Emergency Coordinator (EC).

### Limitations

All the DOTA personnel, tenants, and/or their contractors will implement their individual or contractor's company policies or spill response procedures, ramp responsibilities, and state and federal regulations in addition to this BMP.

Practice		
<input type="checkbox"/>	1	Stop work.
<input type="checkbox"/>	2	Shut down any nearby fuel tanks, pumps, and equipment. Secure valves and work operations.
<input type="checkbox"/>	3	For spills of unknown content, contain the contents of the spill and move away from affected area as soon as possible.
<input type="checkbox"/>	4	Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
<input type="checkbox"/>	5	Keep non-essential employees away from the spill area.
<input type="checkbox"/>	6	Notify the EC.
<input type="checkbox"/>	7	<p>The EC 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:</p> <ol style="list-style-type: none"> <li>1. Your name, location, and how you may be reached.</li> <li>2. Location of the release.</li> <li>3. Type, quantity, and description of the release.</li> <li>4. Hazards of the release.</li> <li>5. Type of media affected (soil, asphalt, concrete, etc.).</li> <li>6. Rate of the release.</li> <li>7. Migratory direction of the release.</li> <li>8. Potential for fire or explosion.</li> <li>9. Potential for human exposure.</li> <li>10. Potential for migration to surface water (ocean, storm drains, etc.).</li> </ol>

**Chemical Program Best Management Practices**  
**Spill Prevention and Response**  
(continued)

<input type="checkbox"/>	8	Never subject yourself or other personnel to unreasonable risk of illness or injury.
<input type="checkbox"/>	9	Remove all injured persons from the immediate area of danger and render first aid. If injuries are severe, call 911 or ARFF for emergency medical assistance.
<input type="checkbox"/>	10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
<input type="checkbox"/>	11	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
<input type="checkbox"/>	12	Remove or isolate ignitable and incompatible materials from the area of the release.
<input type="checkbox"/>	13	Locate, stop, and contain the source of the release by: (1) closing, checking, repairing, plugging valves; and/or (2) plugging and patching holes.
<input type="checkbox"/>	14	Confine the release to prevent further migration by using the following methods: 1) Dike and berm using sand, soil, or other inert material; 2) Seal storm drains with plastic and sandbags; 3) Place granular bulk absorbent or absorbent pads and booms; 4) Divert the chemicals from entering drains, manholes, streams, etc.; or 5) Implement retention techniques.
<input type="checkbox"/>	15	If the release is not readily and easily controlled, evacuation may be necessary.
<input type="checkbox"/>	16	If the EC decides on the "flight" option, the EC is to immediately alert and evacuate all personnel.
<input type="checkbox"/>	17	Affected personnel are to proceed along an evacuation route to the nearest unaffected area.
<input type="checkbox"/>	18	Call the necessary emergency service providers such as Airport Operations Control, ARFF, U.S. Coast Guard (522-8260), DOH HEER office (586-4249), National Response Center (800-424-8802), and/or spill response contractors and vendors. Also report any large spills or spills that have the potential of entering either storm drain, canal, or the ocean to the DOTA Environmental Health Specialist (EHS) at 808-838-8002. The following information should be provided: 1) Caller Name, location, organization, and telephone number 2) Name and address of the party responsible for the incident 3) Date, time, and location of the incident 4) Source, cause types and quantity of material(s) released or spilled 5) Danger or threat posed by the release or spill 6) Number and type of injuries (if any) 7) Weather conditions at the incident location 8) Any other information that may help emergency personnel respond to the incident 9) Report confirmation number back to Airport Operations Control.

**Chemical Program Best Management Practices**  
**Spill Prevention and Response**  
(continued)

<input type="checkbox"/>	19	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.
<input type="checkbox"/>	20	All used decontamination solution, disposable PPE and affected media must be properly packaged in U.S. Department of Transportation (U.S. DOT) - specified containers.
<input type="checkbox"/>	21	Labeling, transportation and subsequent disposal of hazardous materials/waste must be in accordance with applicable government regulations.
<input type="checkbox"/>	22	If needed, call a 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.

**State of Hawaii**  
**Department of Transportation – Airports Division**  
**Standard Operating Procedures**  
**Pesticide / Herbicide Management**

**1.0 Purpose**

This procedure establishes a standard for proper storing, mixing, disposal and application of pesticides, including herbicides, in accordance with applicable regulations (Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); Hawaii Revised Statutes (HRS) Chapter 149A; and the Hawaii Administrative Rules (HAR) Title 11, Part 54 and 55).

**2.0 Definitions**

*Pesticide* - Any toxic substance used to kill animals or plants.

*Personal Protective Equipment (PPE)* - Specialized clothing or equipment worn by employees for protection against health and safety hazards.

*Material Safety Data Sheet (MSDS/SDS)* - Formal document containing important information about the characteristics and actual or potential hazards of a substance.

**3.0 General Management Procedures**

Follow these procedures whenever handling pesticides / herbicides:

- Review and adhere to the Federal and State regulations governing use, storage, and disposal of pesticides found on the label of each pesticide or herbicide.
- Follow the best management practices (BMPs) regarding chemical usage found in the Storm Water Management Program Plan (SWMPP), Section E: <http://hidot.hawaii.gov/airports/doing-business/environmental/hnl-storm-water-program/>.
- Wear proper PPE as described on the MSDS/SDS, such as gloves and face shield.
- Ensure that all pesticide containers are labeled. Never transfer pesticides into any food or drink containers.
- Use manual or mechanical methods for pest control wherever possible, such as cutting grass.
- Ensure proper training for mixing and application of pesticide/herbicide is done annually. Submit signed roster by June 30, of each year.

**4.0 Mixing Procedures**

Follow these procedures when mixing pesticides / herbicides:

- Mix pesticides and herbicides in an area with secondary containment to contain spills.
- While filling mixing tanks keep hose above the level of the pesticide mixture to avoid back siphoning.
- Do not leave mixing tank unattended while filling to avoid spills from overfilling.
- Mix only the amount of pesticides and herbicides that will be needed for the immediate job.
- Reuse rinse water from cleaning containers and application equipment.

**5.0 Application Procedures**

Follow these procedures when applying pesticides / herbicides:

- **Do not apply pesticides within 6 feet of surface water bodies, such the ocean, streams, and drainage ditches.**
  - Refer to MSDS/SDS as some pesticides may need to be applied even further from surface bodies of water.
  - Do not apply in high wind, prior to expected rain events, or on steep slopes.
- Ensure that target areas are evaluated to determine whether pesticides / herbicides are necessary and to apply the correct quantity.
- If possible, spot spray on infested areas rather than treating a large area.

**State of Hawaii**  
**Department of Transportation – Airports Division**  
**Standard Operating Procedures**

**Pesticide / Herbicide Management**

- Time the application of pesticides to coincide with manufacturer's recommendations for best results (i.e. don't apply pesticides during a heavy rain).
- Complete the pesticide/herbicide application sheet attached. Submittal procedures on the pesticide/herbicide application form. Submit completed application forms 7 days after application of pesticides/herbicides.

**6.0 Disposal Procedures**

Follow these procedures when disposing of a pesticide / herbicide container:

- Dispose of leftover pesticides according to the instructions on the label. Preferably on the targeted pest or vegetated area.
- Triple rinse all empty containers. Use the rinsate in the next batch or apply to target area.
- Puncture, cut or crush all triple rinsed containers unless otherwise directed by the label.

**7.0 Storage Procedures**

Follow these procedures for storing pesticide / herbicide containers:

- Store pesticides in a covered area with an impervious secondary containment. Ensure the area is locked and well ventilated.
- Store pesticides in their original containers, which include the corresponding labels.
- Keep containers sealed to prevent spills and contamination.
- Do not store pesticides in application equipment.
- Buy in small quantities.

**8.0 Standard Operating Practice Approval**



Ross M Higashi  
Deputy Director - Airports  
State of Hawaii  
Department of Transportation

5/19/15  
Date

Department of Transportation, Airports Division  
Landscape Chemical Application Sheet

Airport: \_\_\_\_\_

<b>Date:</b>	<b>Name:</b>	<b>Amount (lbs):</b>			
<b>Location Applied:</b>		<b>Type (circle):</b>	Pesticide	Herbicide	Fertilizer
<b>Pesticide / Herbicide BMP Questions</b>		<b>Yes</b>	<b>No</b>	<b>N/A</b>	
1. Are you at least 6 feet from any surface water?					
2. Are you applying the chemicals in low winds? (*If winds are strong enough to carry away the chemicals, do not apply)					
3. Are you wearing the proper protective gear (long pants, long sleeved shirt, gloves, goggles, etc.)?					
4. If mixing chemicals, was it conducted in a designated area designed to contain any spilled chemicals?					
5. Are the storm drains and other drainageways protected from the discharge of pesticide chemicals?					
6. Have the pesticide containers been properly disposed of by rinsing them three times?					
7. Was the fertilizer applied on relatively flat area (slope of less than 3:1)?					
8. In newly planted areas was the fertilizer tilled into the top four inches of soil?					

\* Supervisor, please fax to 808-838-8014 or email joy.masuda@hawaii.gov completed form within 7 working days of chemical application.

Department of Transportation, Airports Division  
Landscape Chemical Application Sheet

<b>Date:</b>	<b>Name:</b>	<b>Amount (lbs):</b>			
<b>Location Applied:</b>		<b>Type (circle):</b>	Pesticide	Herbicide	Fertilizer
<b>Pesticide / Herbicide BMP Questions</b>		<b>Yes</b>	<b>No</b>	<b>N/A</b>	
1. Are you applying the chemicals in low winds? (*If winds are strong enough to carry away the chemicals, do not apply)					
2. Are you wearing the proper protective gear (long pants, long sleeved shirt, gloves, goggles, etc.)?					
3. If mixing chemicals, was it conducted in a designated area designed to contain any spilled chemicals?					
4. Are the storm drains and other drainageways protected from the discharge of pesticide chemicals?					
5. Have the pesticide containers been properly disposed of by rinsing them three times?					
6. Was the fertilizer applied on relatively flat area (slope of less than 3:1)?					
7. In newly planted areas was the fertilizer tilled into the top four inches of soil?					

\* Supervisor, please fax to 808-838-8014 or email joy.masuda@hawaii.gov completed form within 7 working days of chemical application.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
**MEMORANDUM**

AIR-EE  
15.0077

**TO:** ADMs **DATE:** 5/13/15  
**FROM:** DEP-A (ROSS M. HIGASHI)   
**SUBJECT:** PESTICIDE/HERBICIDE USE AT HDOT AIRPORTS

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The Hawaii Administrative Rules, Title 11, Chapter 54 and 55 regarding pesticide/herbicide use have recently been revised:

<http://hawaii.gov/health/environmental/water/cleanwater/pubntes/index.html>.

Therefore, personnel applying pesticides/herbicides at any HDOT airport, are prohibited from spraying directly into or near a state water body in order to exempt the DOTA from permit as depicted in the DOH flow chart Attachment 1 and Standard Operating Procedure Attachment 3. (<http://health.hawaii.gov/cwb/sitemap/home/workshop/presentations/>)

State waters may include surface water bodies such as the ocean, streams, ponds, and drainage ditches. The DOTA is defining "near state water" as within 6 feet of the bank edge of that surface water from the top of the bank back 6 feet is the no-spray zone.

Additionally, pesticide/herbicide use in other areas of the airport must be applied in a manner consistent with the manufacturer's directions and the DOTA best management practices as described in Attachment 2. Also, on the DOTA website at <http://hawaii.gov/dot/airports/donns-business/henviromental/hnl-Storm>.

Any application of pesticides/herbicide use in or near a state water may result in potential fines of \$25,000 per day per offense under the Hawaii Revised Statutes. Chapter 32D and the Clean Water Act, Section 311.

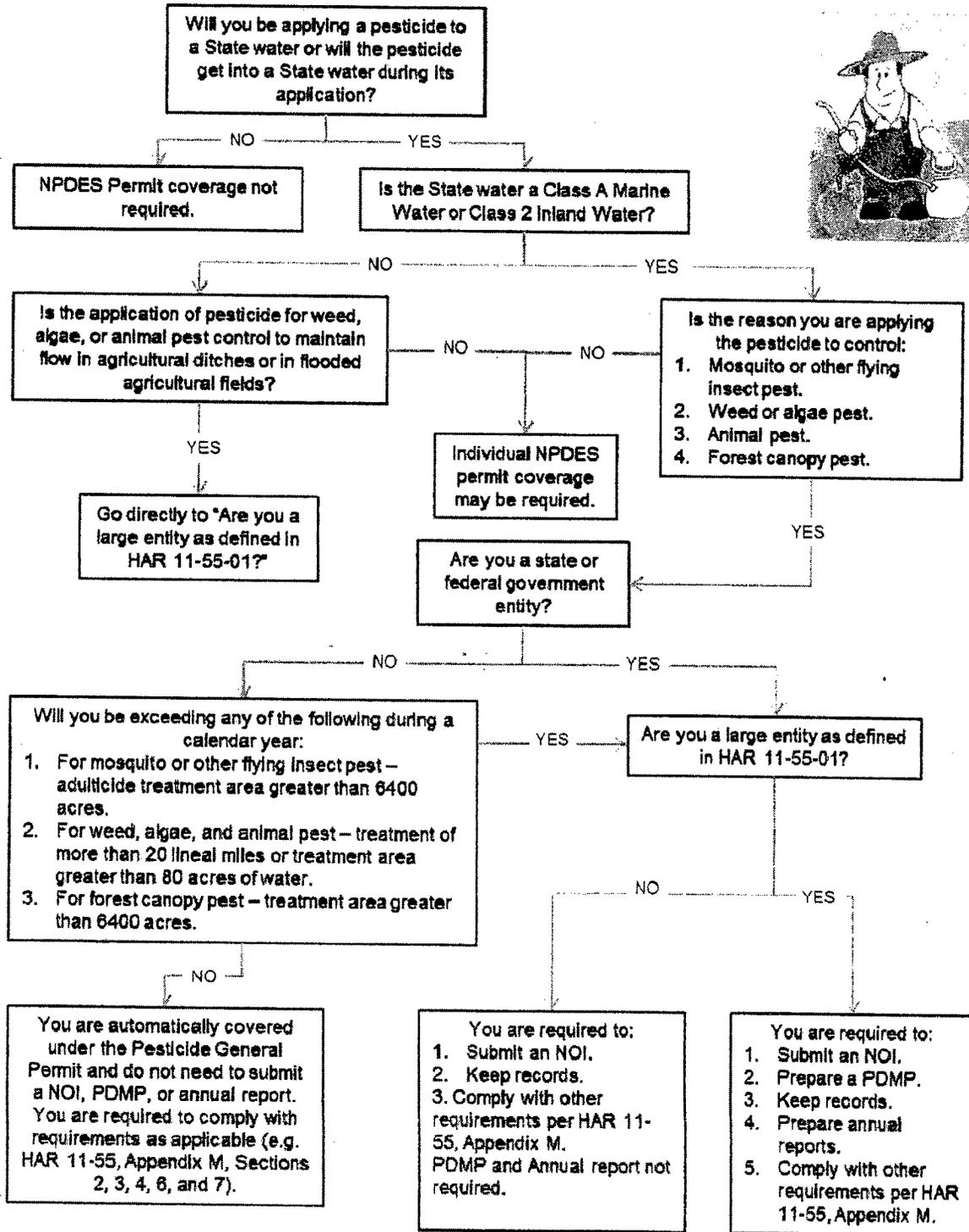
Specific questions regarding pesticide/herbicide use may be directed to the respective Environmental Health Specialists.

LIH - Jesse Chow, [jesse.w.chow@hawaii.gov](mailto:jesse.w.chow@hawaii.gov)  
KOA & ITO – Stefan Borduz, [stefan.borduz@hawaii.gov](mailto:stefan.borduz@hawaii.gov)  
JRF & HDH – Michael Goshima, [michael.goshima@hawaii.gov](mailto:michael.goshima@hawaii.gov)  
HNL & OGG – Joy Masuda, [joy.masuda@hawaii.gov](mailto:joy.masuda@hawaii.gov)

Attachment 1: Flow chart from Department of Health  
Attachment 2: Chemical application, Best Management Practices  
Attachment 3: Standard Operating Procedures for pesticide/herbicide operation.

# Pesticide General Permit – Flow Chart\*

Hawaii Administrative Rules (HAR) 11-55, Appendix M



\*This flow chart is intended to summarize permit applicability and requirements. It is not all inclusive of the terms, conditions, and requirements of the Pesticide General Permit. You must read HAR Ch. 11-55, Appendix M, for further detail.

For more information – contact the Department of Health, Clean Water Branch

at 586-4309 or [CleanWaterBranch@doh.hawaii.gov](mailto:CleanWaterBranch@doh.hawaii.gov)



# ***Attachment E.3***

## ***Maintenance Activities BMPs***



## Best Management Practices

### Maintenance Activities BMP Program Plan



**PROTECT  
OUR WATER**  
MĀLAMA I KA WAI  
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

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



June 2015

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**TABLE OF CONTENTS**

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PREVENTATIVE MEASURES AND GENERAL HOUSEKEEPING PRACTICES .....2

DEBRIS AND TRASH REMOVAL .....3

INSPECTION AND CLEANING OF STORM DRAIN SYSTEMS.....4

OIL WATER SEPARATORS .....5

STREET SWEEPING OPERATIONS .....6

PAVING AND REPAIRS: ROADWAY, RUNWAY, AND TAXIWAY MAINTENANCE .....7

CONSTRUCTION MAINTENANCE.....8

PAINTING .....9

SPILL PREVENTION AND RESPONSE .....10

## Maintenance Best Management Practices Preventative Measures and General Housekeeping Practices

### Description

During routine and emergency in-house maintenance work, the following preventative measures and good housekeeping practices will reduce the amount of pollutants entering the Department of Transportation, Airports Division's (DOTA) Honolulu International Airport (HNL) Small Municipal Separate Storm Sewer System (MS4).

### Limitations

- None.

Practice		
<input type="checkbox"/>	M1.1	Train maintenance field personnel in preventative measures and good housekeeping practices annually.
<input type="checkbox"/>	M1.2	Identify and protect storm drain inlets and waterways in each work area. Protection of storm drain includes using sandbags, booms, and/or other appropriate runoff diversion devices/techniques. Identify where the flow of a potential leak, spill, or other runoff from maintenance will flow to protect the appropriate storm drain(s) or outfall(s).
<input type="checkbox"/>	M1.3	Do not overfill trash receptacles or leave trash outside of these receptacles. Ensure that materials put into dumpsters will not leak out of dumpsters and commingle with storm water runoff. Use leak-proof dumpsters and keep covered when not in use.
<input type="checkbox"/>	M1.4	Keep maintenance vehicles and equipment clean and in good operating condition. Wash only in DOTA approved wash racks or areas. Perform equipment maintenance in designated areas away from storm water runoff and under cover.
<input type="checkbox"/>	M1.5	Ensure maintenance vehicles have ample spill clean-up and containment supplies.
<input type="checkbox"/>	M1.6	Promptly clean spills with rags or absorbent material, and properly dispose of clean up materials.
<input type="checkbox"/>	M1.7	For non-hazardous spills within the HNL MS4: <ul style="list-style-type: none"> <li>• Respond promptly</li> <li>• Set up traffic controls</li> <li>• Block drainage systems with sandbags, booms, and/or other appropriate runoff diversion devices/techniques</li> <li>• Promptly absorb spills with rags or absorbent material, and properly transport and dispose of used absorbents</li> <li>• Assist tenants in cleanup, as needed</li> </ul>
<input type="checkbox"/>	M1.8	Identify all chemical substances used in maintenance activities, compile Material Safety Data Sheets (MSDS) for hazardous chemicals, and store MSDS(s) where chemicals are used. MSDSs provide both workers and emergency responders with the proper procedures for handling a particular hazardous substance. The sheets must include information such as physical data (melting point, boiling point, flash point etc.), toxicity, health effects, first aid, reactivity, storage requirements, proper disposal, personal protective equipment, and spill/leak/cleanup procedures.

## Maintenance Best Management Practices Debris and Trash Removal

### Description

Litter removal is necessary to maintain safety and prevent storm water pollution along aircraft runways and surface roadways. DOTA HNL maintenance personnel perform litter removal.

### Limitations

Applying the BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	M2.1	Schedule litter removal by DOTA maintenance personal ensuring full coverage of all areas of HNL at least twice per month. Litter removal activities shall include removal of litter, debris, and sediment from areas in and around storm drainage structures.
<input type="checkbox"/>	M2.2	Clean up any reported litter problems or areas within three days of receiving notification or public complaint.
<input type="checkbox"/>	M2.3	Consider installing anti-littering signs in locations around HNL. These should list the penalties and/or monetary fines for littering. Also post sign near Arrival Areas at the HNL so that the visitors are made aware of the state of Hawaii and DOTA's anti-littering position.
<input type="checkbox"/>	M2.4	Report litter and maintenance issues from tenants and public to Oahu District Facility Maintenance Clerk at 836-6646, Custodial Clerk at 836-6671, and/or CODE 22.
<input type="checkbox"/>	M2.5	Collected litter and debris shall be bagged and stored in locations away from storm drain structures, channels, and other waterways. Public litter pick up groups shall be provided with garbage bags and instructed where to place of the filled bags. DOTA maintenance personnel and/or contractors shall promptly pick up litter collected.
<input type="checkbox"/>	M2.6	All collected wastes shall be properly transported, stored, and disposed.

## Maintenance Best Management Practices Inspection and Cleaning of Storm Drain Systems

### Description

Drain inlets, catch basins, culverts, ditches, canals, and other storm water outfalls require inspection and if needed cleaning twice per year.

### Limitations

Applying these BMPs will be controlled by weather, air and surface traffic, access to the storm drainage system, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	M3.1	Do not clean storm drain facilities during storms or when storm systems are predicted at HNL.
<input type="checkbox"/>	M3.2	Remove litter, sediment, and other debris from around all drain inlets and keep vegetation adjacent to inlets trimmed.
<input type="checkbox"/>	M3.3	Annually (before November 1 <sup>st</sup> of each year), inspect each storm water retention basins (Wash Water Evaporation Ponds) and perform maintenance at minimum semi-annually. Keep an inspections and maintenance log and include log in HNL MS4 Annual Report. Report any overflows from the evaporation ponds – divert flows to prevent contact of wash water with storm drainage system.
<input type="checkbox"/>	M3.4	At minimum semi-annually, inspect each storm drainage catch basin, drainline, gutter, open ditch, and OWS to determine if maintenance is required. Keep a log of storm drain system inspections and maintenance – report in HNL MS4 Annual Report (see attached sample log).
<input type="checkbox"/>	M3.5	If maintenance of storm drainage system is required, clean structure(s) within four weeks of inspection. Clean using a vacuum truck and/or hand tools – prevent any runoff downstream using sand bags, booms, or other appropriate diversion devices/techniques.
<input type="checkbox"/>	M3.6	Areas determined through monitoring and inspections to be the highest pollutant loading area(s) shall be inspected more frequently. One measure of high pollutant loading is storm drain systems where sediments collect one-third its structures depth in one year.
<input type="checkbox"/>	M3.7	Properly transport, store and dispose of removed debris. Keep a log of debris removed from storm drainage structures – report in HNL MS4 Annual Report.
<input type="checkbox"/>	M3.8	As part of the public education and participation program, HNL tenants will be informed of litter prevention program using mailers and the DOTA website. Another example is to apply “Do Not Dump – Goes To Ocean” (with Humuhumu Nukunuku Apua'a) stenciled signs near storm drains leading to State receiving waters.

## Maintenance Best Management Practices Oil Water Separators

### Description

Oil/water separator (OWS) are baffled chambers designed to remove petroleum, grease, sediment, and settleable solids. There are two types of OWSs American Petroleum Institute (API) separator and the coalescing plate (CPS) separator.

### Limitations

Applying the BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations. Normally, OWS maintenance is performed by pumping contractors; however, DOTA maintenance personnel can perform the maintenance if provided with the proper training, equipment (vacuum truck, push rods, and steam cleaner), and methods to dispose of petroleum, grease, and possibly "wet" settleable solids.

Practice		
<input type="checkbox"/>	M4.1	OWSs must be inspected semiannually and cleaned to remove accumulated oil, grease, floating debris, and settleable solids in order to maintain solids and petroleum removal efficiency.
<input type="checkbox"/>	M4.2	If oil absorbent pads are used, replace as needed and before each wet season (inflow from land equals or exceeds 1% of embayment volume per year or November 1 <sup>st</sup> ).
<input type="checkbox"/>	M4.3	Dispose of water and oil removed during cleaning operations according to Federal, State, and local requirements. Routinely before disposal, the waste solids, liquids, or sludges should be tested to classify waste and determine proper disposal.
<input type="checkbox"/>	M4.4	Replace any removed fluid with clean water to help prevent carry-over of oily water through outlet pipe.
<input type="checkbox"/>	M4.5	After large spills, inspect nearby OWSs, remove any product which entered OWS and clean sumps if needed.

## Maintenance Best Management Practices Street Sweeping Operations

### Description

Street, runway, and taxiway sweeping is performed to remove litter and debris from the vehicle and aircraft travel ways in order to prevent discharge of potential pollutants into the storm water drainage system, improve safety, and improve aesthetics. DOTA HNL maintenance personnel and contractors perform street sweeping.

### Limitations

Applying BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	M5.1	DOTA maintenance personal and contractors will inspect and sweep all areas of HNL at least twice per month. When inspections or complaints indicate, sweep more frequently than twice/month.
<input type="checkbox"/>	M5.2	Properly maintain sweepers. Adjust broom heights frequently to maximize efficiency of sweeping operations.
<input type="checkbox"/>	M5.3	Properly transport, store, and dispose of sweeper wastes when sweeper is full and when day of sweeping completed. Empty sweepers in designated area to capture solid material and minimize windblown materials.
<input type="checkbox"/>	M5.4	Clean sweepers with clean water only in a contained area where water is properly treated and disposed of.
<input type="checkbox"/>	M5.5	Keep logs of locations swept, tonnage of material swept, and disposal method of debris – include log with Annual Report (see attached sample log).

## Maintenance Best Management Practices

### Paving and Repairs: Roadway, Runway, and Taxiway Maintenance

#### Description

Roadway, runway, and taxiway maintenance includes crack/ joint repair, pothole repair, and repaving of asphaltic or concrete surfaces. Proper maintenance of paved areas reduces the amount of road surfacing materials and contaminants entering the storm water drainage systems and improves safety for ground vehicles and aircraft.

#### Limitations

Applying BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	M6.1	Respond to notification of roadway problems in a timely manner. Assess safety and pollution potential in assigning priority for repair.
<input type="checkbox"/>	M6.2	When possible, perform crack and joint repair during dry weather periods.
<input type="checkbox"/>	M6.3	Protect drain inlets, the storm drainage system, canals, and ocean from loose asphalt concrete, concrete materials, and sealants using sandbags, booms, or other device. Remove protective measures once maintenance complete.
<input type="checkbox"/>	M6.4	For concrete paving, create concrete wash area and prevent wash water from contacting storm drainage system.
<input type="checkbox"/>	M6.5	Use berms around stockpiled material and locate stockpile down slope and away from drain inlets and waterways.
<input type="checkbox"/>	M6.6	During resurfacing activities, collect excavated material and recycle. Avoid work during rain.
<input type="checkbox"/>	M6.7	Repair potholes and ruts as soon as possible.
<input type="checkbox"/>	M6.8	Resurface roadways, runways, and taxiways as needed.
<input type="checkbox"/>	M6.9	If work cannot be completed within one day, address/provide for protection from pollution and safety hazards before leaving site for the day.
<input type="checkbox"/>	M6.10	Place drip pans and/or absorbent materials under paving equipment when not in use.
<input type="checkbox"/>	M6.11	Remove and properly dispose of litter and debris from the work zone, nearby storm drainage system, and adjacent areas before, during, and after roadway maintenance activities.
<input type="checkbox"/>	M6.12	Park equipment and store supplies at locations where leaks, leaching, or runoff are contained in a localized area away from waterways and storm drain inlets.

## Best Management Practices Construction Maintenance

### Description

Maintenance activities at the airport may require several different types of construction activities, including saw cutting of paved areas, concrete work, curb and gutter replacement, and buried utility repair. The majority of this type of work will be conducted by contractors; however, all workers should adhere to these BMPs to reduce the pollutants that may be generated during these activities.

### Limitations

Applying BMP will be controlled by weather, air and surface traffic, controlled area access, and maintenance worker safety considerations.

Practice		
<input type="checkbox"/>	M7.1	Use filters on saw cutting equipment to capture fine material that may be generated during the activity. Ensure these fines are disposed of in a designated container.
<input type="checkbox"/>	M7.2	Place containment devices around storm drain inlets to prevent material from impacting the MS4.
<input type="checkbox"/>	M7.3	Prevent slurry material from entering catch basing openings, maintenance holes, and storm drain inlets to the extent possible during wet cutting, and where feasible, collect captured flow for proper disposal. Wet slurry may be stored with concrete washout.
<input type="checkbox"/>	M7.4	Store saw cutting and concrete materials away from drainage areas to prevent storm water pollution, or implement other equally effective BMPs.
<input type="checkbox"/>	M7.5	Avoid mixing excess amounts of concrete/cement on site.
<input type="checkbox"/>	M7.6	For on-site washout: <ul style="list-style-type: none"> <li>• Locate washout area at least 50 ft. 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;</li> <li>• Wash out wastes into a temporary pit or container where the concrete can set, be broken up, and then disposed of properly.</li> <li>• Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.</li> <li>• Cover concrete washout areas prior to a forecasted rain event.</li> <li>• Ensure container or pit is not filled to more than 70% of the capacity.</li> </ul>
<input type="checkbox"/>	M7.7	For curb and/or gutter replacement: <ul style="list-style-type: none"> <li>• Ensure that BMPs are placed in downstream drainage structures to prevent the discharge of debris or concrete material.</li> <li>• Remove any accumulated debris from the curb or gutter.</li> <li>• Revegetate any disturbed areas.</li> </ul>
<input type="checkbox"/>	M7.8	For buried utility repair: <ul style="list-style-type: none"> <li>• Ensure that nearby drainage structures and surface waters are protected.</li> <li>• Locate stockpiled soil on the upstream side of the utility trench so that runoff will carry any loose material back into the trench.</li> <li>• If contaminated soil is encountered, refer to SWMPP Section G.</li> <li>• After repairs, replace and stabilize the disturbed soil by revegetating, paving, or other method.</li> </ul>
<input type="checkbox"/>	M7.9	Clean up spills from equipment and activities; dispose properly.

## Best Management Practices Painting

### Description

Painting activities such as runway striping or building painting may generate pollutants as a result of storing the paints, the activity itself, and/or through clean-up and disposal. This BMP is designed to provide guidance for the proper management of paints to prevent the discharge of pollutants to the MS4.

### Limitations

There are no limitations to paving best management practices.

Practice		
<input type="checkbox"/>	M8.1	Store paint materials indoors or under cover. Ensure that containers are in good condition, properly labeled, and stored closed when not in use. Consider storing paints on secondary containment.
<input type="checkbox"/>	M8.2	Mix paints over a drip pan or other containment device to capture any releases that may occur. Only mix quantities necessary for the designated painting activity.
<input type="checkbox"/>	M8.3	Use tarps or other containment device to capture drips that may occur when painting.
<input type="checkbox"/>	M8.4	Clean painting equipment in a designated solvent washer or into another contained area. Ensure that paint washout is not discharged to the storm drain system.
<input type="checkbox"/>	M8.5	Dispose of residual paint properly according to applicable regulations. Water based paints may typically be solidified and disposed of with the general refuse; while oil based paints may need to be handled as hazardous wastes.

## Maintenance Best Management Practices Spill Prevention and Response

### Description

Spills of materials used and stored at the airport can contaminate storm water runoff. The procedures outlined in this BMP are intended to prevent spills from occurring and to outline procedures to be followed in the event of a spill.

Small spills of oil (less than 25 gallons) which are capable of being cleaned up within 72 hours and that do not threaten ground or surface waters will be cleaned up using absorbent materials or other acceptable practices and disposed properly, without disrupting airport operations. All the tenants and/or their contractors are requested to report any spills (irrespective of the size) to DOTA Airport Duty Manager or HNL Ramp Control. 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 owner or manager of the tenant facility shall act as the Emergency Coordinator (EC). Large spills of oil (greater than 25 gallons or spills which cannot be contained and remediated within 72 hours of spill) and spills of hazardous substances in quantities equal to or exceeding their Reportable Quantities (RQ) shall be reported to National Response Center and State of Hawaii, Department of Health (DOH) - Office of Hazard Evaluation & Emergency Response (HEER).

### Limitations

There are no major limitations to the implementation of this BMP.

Practice		
<input type="checkbox"/>	M9.1	Stop work.
<input type="checkbox"/>	M9.2	Shut down equipment and secure work operations.
<input type="checkbox"/>	M9.3	Determine the source of the release and any hazards present.
<input type="checkbox"/>	M9.4	Notify the EC, Airport Duty Manager (836-6670), and ARFF. Notify and alert others of the incident via: (1) voice; (2) hand-held radios; and/or (3) other effective communication.
<input type="checkbox"/>	M9.5	<p>The EC 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:</p> <ol style="list-style-type: none"> <li>1. Your name, location, and how you may be reached.</li> <li>2. Location of the release.</li> <li>3. Type, quantity, and description of the release.</li> <li>4. Hazards of the release.</li> <li>5. Type of media affected (soil, asphalt, concrete, etc.).</li> <li>6. Rate of the release.</li> <li>7. Migratory direction of the release.</li> <li>8. Potential for fire or explosion.</li> <li>9. Potential for human exposure.</li> <li>10. Potential for migration to surface water (ocean, storm drains, etc.).</li> </ol>

**Best Management Practices  
Spill Prevention and Response Practices  
(Continued)**

<input type="checkbox"/>	M9.6	Keep non-essential employees and visitors away from the spill area.
<input type="checkbox"/>	M9.7	Prevent vehicles and equipment from driving through the spill area.
<input type="checkbox"/>	M9.8	Remove all injured persons from the area of danger and render first aid.
<input type="checkbox"/>	M9.9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
<input type="checkbox"/>	M9.10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
<input type="checkbox"/>	M9.11	<ul style="list-style-type: none"> <li>• Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.</li> </ul>
<input type="checkbox"/>	M9.12	<ul style="list-style-type: none"> <li>• Remove or isolate ignitable and incompatible materials from the area of the release if the spill is of a flammable substance.</li> </ul>
<input type="checkbox"/>	M9.13	<ul style="list-style-type: none"> <li>• Locate, stop, and contain the source of the release.</li> </ul>
<input type="checkbox"/>	M9.14	<ul style="list-style-type: none"> <li>• Confine the release to prevent further migration using drainage controls, including but not limited to methods from the following list: <ul style="list-style-type: none"> <li>▪ Diking and berming using sand, soil, or other inert material;</li> <li>▪ Sealing storm drains with plastic and sandbags;</li> <li>▪ Placing granular absorbent or absorbent pads and booms;</li> <li>▪ Diverting the chemicals from entering drains, manholes, streams, etc.; and</li> <li>▪ Implementing retention techniques.</li> </ul> </li> </ul>
<input type="checkbox"/>	M9.15	<ul style="list-style-type: none"> <li>• Call the facility spill response contractor for cleanup and removal of accumulated product resulting from the release. Ensure that the contractor collects and containerizes the spilled materials, affected media, used decontamination solutions, and disposable PPE in proper containers. The contractor will transport and properly dispose of the hazardous waste in accordance with applicable state and federal regulations.</li> </ul>
<input type="checkbox"/>	M9.16	<ul style="list-style-type: none"> <li>• Implement proper decontamination procedure on vehicles, pavement, PPE, equipment, and other affected media to prevent the spilled material from being tracked into a larger area.</li> </ul>
<input type="checkbox"/>	M9.17	<ul style="list-style-type: none"> <li>• Clean any stained pavement by placing a berm for containment around the stained area, scrubbing the area using detergent or cleaning agent, and rinsing. The detergent and rinse water must be collected in the bermed area around the spill and removed.</li> </ul>
<input type="checkbox"/>	M9.18	<ul style="list-style-type: none"> <li>• If the release is not readily and easily controlled, evacuation may be necessary.</li> </ul>

**Best Management Practices  
Spill Prevention and Response Practices  
(Continued)**

<input type="checkbox"/>	M9.19	If the EC decides on the "flight" option, the EC is to immediately alert and evacuate all personnel to a safe distance upwind from the spill in a designated assembly area.
<input type="checkbox"/>	M9.20	Call the facility spill response contractor to handle the clean-up of the spilled material.
<input type="checkbox"/>	M9.21	<ul style="list-style-type: none"> <li>• DOTA personnel will assist the EC in determining whether the spill is of a reportable quantity. If the spill is of a reportable quantity, the following agencies should be notified: <ul style="list-style-type: none"> <li>▪ National Response Center - (800) 424-8802</li> <li>▪ U.S. Coast Guard - (808) 842-2606</li> <li>▪ DOH HEER office - (808) 586-4249 or after hours (808) 247-2191</li> <li>▪ DOH Clean Water Branch (CWB) – (808) 586-4309 (only if spill reaches state waters)</li> </ul> </li> </ul> <p>The following information should be provided:</p> <ol style="list-style-type: none"> <li>1) Caller Name, location, organization, and telephone number</li> <li>2) Name, address, and telephone number of the facility owner</li> <li>3) Name, address, and telephone number of the facility contact person</li> <li>4) Date, time, and duration of the release</li> <li>5) Date and time the release was discovered</li> <li>6) Name of the chemical spilled and the approximate quantity released</li> <li>7) Location of the release</li> <li>8) Type of media affected (e.g. soil, asphalt, concrete, etc.)</li> <li>9) Measures taken in response to the release</li> <li>10) Danger or threat posed by the release or spill</li> <li>11) Number and type of injuries (if any)</li> <li>12) Weather conditions at the incident location</li> <li>13) Any other information that may help emergency personnel respond to the incident</li> </ol>
<input type="checkbox"/>	M9.22	If the spilled material is of a reportable quantity, a written notification must also be submitted to the DOH HEER no later than thirty (30) days following the discovery of the release. A copy of this report must be provided to the DOH CWB if the spilled material reached the state waters.

# ***Attachment E.4***

## ***Action Plan for Erosional Outfalls***

# ACTION PLAN FOR EROSIONAL OUTFALLS



HONOLULU INTERNATIONAL AIRPORT  
NPDES PERMIT No. HI S000005



Prepared For:  
**DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION**  
Honolulu International Airport  
400 Rodgers Boulevard, Suite 700  
Honolulu, Hawaii 96819-1880

June 2015

Version 1.0

## TABLE OF CONTENTS

<b>1.0 ACTION PLAN.....</b>	<b>1</b>
1.1 INTRODUCTION .....	1
1.2 SELECTION OF EROSIONAL OUTFALLS .....	1
1.3 IDENTIFIED EROSIONAL OUTFALLS .....	1
1.4 IMPLEMENTATION SCHEDULE .....	2

### **ATTACHMENT – HNL Outfall Summary**

## 1.0 ACTION PLAN

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### 1.1 Introduction

The State of Hawaii Department of Transportation, Airports Division (DOTA) has completed this action plan for addressing erosion at its storm drain system outfalls within the Honolulu International Airport (HNL) in accordance with the National Pollutant Discharge Elimination System (NPDES) Small Municipal Separate Storm Sewer System (MS4) permit HI S000005, Part D.1.f.(3)(iv). The purpose of this plan is to reduce erosion from the outfalls that have a significant potential for water quality impacts by implementing appropriate permanent best management practices (BMP) or repairs. This plan includes the justification for the selection of erosional outfalls, identification of erosional outfalls, and an implementation schedule for correction.

### 1.2 Selection of Erosional Outfalls

In accordance with the *Storm Drain Outfall Inspection & Field Screening Plan* dated April 2009, an inspection was conducted for outfalls within HNL on June 2 and 4, 2015. All outfalls were inspected with the exception of 4388, 4387, and 4390 due to construction in the area. These outfalls have been previously inspected and were observed to connect directly from the main terminal parking garage to the underground MS4 pipeline; therefore, it is not anticipated that they would cause erosion. A summary of the outfalls inspected is provided in Attachment I.

Erosion at the outfalls was defined as the significant movement of soil particles due to the flow of water. Outfalls were determined to have significant potential for water quality impacts if evidence of erosional rilling or gullying was observed immediately below the outfall structure or if downstream areas had evidence of sediment transport and/or accumulation that could be attributed to that outfall.

### 1.3 Identified Erosional Outfalls

As a result of completed outfall inspections, adjacent outfalls 4555 and 4556, located at 21°19'58.8"N, 157°54'35.5"W, were identified to have erosion (photo below). EID 4555 is an approximately 6 inch diameter corrugated metal pipe and EID 4556 includes two approximately 6 inch diameter polyvinyl chloride (PVC) pipes encased in concrete. Both outfalls discharge into the Aolele Street canal, which flows to Keehi Lagoon, a Class A Embayment Water.



#### **1.4 Implementation Schedule**

Outfalls 4555 and 4556 will be studied in 2016 to determine the best course of action to remedy the erosion and final stabilization of the area will be completed no later than 2021.

# **ATTACHMENT I**

## *HNL Outfall Summary*

Honolulu International Airport Outfalls

Basin	EID	POI Location	POI Inspection Date	POI Outfall Risk Ranking	POI Latitude	POI Longitude
A1	4641	OUTFALL INTO KEEHI LAGOON	06/02/2015	Medium	[21 deg 19' 33.8" N]	[157 deg 54' 3.2" W]
A10	4105	OUTFALL BY ARFF #2 TO KEEHI LAGOON	06/02/2015	Medium	[21 deg 18' 44.2" N]	[157 deg 55' 11.3" W]
A10	4750	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 38.1" N]	[157 deg 55' 6.9" W]
A10	4761	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 38.1" N]	[157 deg 55' 6.9" W]
A10	4764	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 37.6" N]	[157 deg 55' 1.7" W]
A10	4765	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 37.7" N]	[157 deg 54' 54.9" W]
A10	4766	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 37.7" N]	[157 deg 54' 47.9" W]
A10	4767	KEEHI LAGOON ABOVE TWY "RA"	06/02/2015	Medium	[21 deg 18' 37.8" N]	[157 deg 54' 41.4" W]
A10	7626	KEEHI LAGOON ABOVE TWY RA	06/02/2015	Medium	[21 deg 18' 37.7" N]	[157 deg 54' 30.8" W]
A10	12039	ARFF 2	06/02/2015	Low	[21 deg 18' 40.96" N]	[157 deg 55' 11.99" W]
A2	4695	LAGOON DRIVE ENTRANCE	06/02/2015	Medium	[21 deg 19' 27.8" N]	[157 deg 54' 13.3" W]
A2	4771	LAGOON DRIVE ENTRANCE	06/02/2015	Medium	[21 deg 19' 22.3" N]	[157 deg 54' 19.6" W]
A3	4622	OUTFALL INTO KEEHI LAGOON NEAR IOLANA PLACE	06/02/2015	Medium	[21 deg 19' 17.1" N]	[157 deg 54' 27.5" W]
A4	4728	KEEHI LAGOON BELOW CORPORATE AIR	06/02/2015	Medium	[21 deg 19' 7.3" N]	[157 deg 54' 41.6" W]
A4	4734	KEEHI LAGOON BELOW TAXILANE 2	06/02/2015	Medium	[21 deg 19' 8.9" N]	[157 deg 54' 38.5" W]
A6	4710	KEEHI LAGOON BELOW FEDERAL EXPRESS	06/02/2015	Medium	[21 deg 18' 59.1" N]	[157 deg 54' 53.6" W]
A6	4715	KEEHI LAGOON BELOW FEDERAL EXPRESS	06/02/2015	Medium	[21 deg 19' 1.1" N]	[157 deg 54' 50.5" W]
A6	4717	KEEHI LAGOON BELOW UPS	06/02/2015	Medium	[21 deg 19' 3.9" N]	[157 deg 54' 46.1" W]
A6	5751	KEEHI LAGOON BELOW FEDEX	06/02/2015	Medium	[21 deg 18' 56.6" N]	[157 deg 54' 56.6" W]
A7	4686	KEEHI LAGOON BELOW CONTINENTAL	06/02/2015	Medium	[21 deg 18' 53.1" N]	[157 deg 55' 1.2" W]
A8	4678	KEEHI LAGOON BELOW HCC	06/02/2015	Medium	[21 deg 18' 50.3" N]	[157 deg 55' 6.4" W]
A8	4679	KEEHI LAGOON BELOW CHELSEA	06/02/2015	Medium	[21 deg 18' 51.2" N]	[157 deg 55' 4" W]
A8	4687	KEEHI LAGOON BELOW LSG	06/02/2015	Medium	[21 deg 18' 54.8" N]	[157 deg 54' 59.9" W]
A8	5731	OUTFALL IN KEEHI LAGOON	06/02/2015	Medium	[21 deg 18' 48.5" N]	[157 deg 55' 7.8" W]
A9	4658	OUTFALL INTO KEEHI LAGOON	06/02/2015	Medium	[21 deg 18' 47.6" N]	[157 deg 55' 9.9" W]
A9	4756	SOUTH RAMP AREA END OF LAGOON DRIVE	06/02/2015	Low	[21 deg 18' 38.3" N]	[157 deg 55' 20.6" W]
A9	4757	SOUTH RAMP AREA END OF LAGOON DRIVE	06/02/2015	Low	[21 deg 18' 38.2" N]	[157 deg 55' 20.5" W]
B12	9709	MANUWAI CANAL FROM HA & AQ MAINTENANCE	06/02/2015	Low	[21 deg 19' 57.9" N]	[157 deg 55' 45.2" W]
B13	5061	DRAIN FROM HAWAIIAN AIR CARGO AND IIT RAMP	06/02/2015	Low		
B15	6461	AREA BEHIND ARFF #1	06/02/2015	Low	[21 deg 19' 52.4" N]	[157 deg 55' 49.8" W]
B16	12040	Ewa Hardstands	06/02/2015	Low	[21 deg 19' 40.15" N]	[157 deg 56' 2.09" W]
B3	4221	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4744	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4805	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4807	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4808	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4810	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4811	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B3	4815	AHUA POND	06/02/2015	Low	[21 deg 18' 36.3" N]	[157 deg 56' 4.2" W]
B3	4818	AHUA POND	06/02/2015	Low	[21 deg 18' 36.5" N]	[157 deg 56' 11.9" W]
B4	4747	AIRFIELD NEAR T HANGAR BUILDING	06/02/2015	Low	[21 deg 18' 42.4" N]	[157 deg 55' 34.7" W]
B6	9177	EVAPORATION POND SOUTH	06/02/2015	Low	[21 deg 19' 20" N]	[157 deg 55' 20.3" W]
B6	9180	EVAPORATION POND SOUTH	06/02/2015	Low	[21 deg 19' 19.9" N]	[157 deg 55' 20.1" W]

Honolulu International Airport Outfalls

Basin	EID	POI Location	POI Inspection Date	POI Outfall Risk Ranking	POI Latitude	POI Longitude
B6	9181	EVAPORATION POND SOUTH	06/02/2015	Low	[21 deg 19' 20.1" N]	[157 deg 55' 22.5" W]
B6	10272	OUTFALL END OF RWY 4L	06/02/2015	Low	[21 deg 19' 7.9" N]	[157 deg 55' 28.1" W]
B6	10274	OUTFALL AT SOUTH FENCE BY CONTROL TOWER	06/02/2015	Low	[21 deg 19' 11.7" N]	[157 deg 55' 32.4" W]
B6	10275	SERVICE ROAD AT BACK OF RWY 4L	06/02/2015	Low	[21 deg 19' 6.3" N]	[157 deg 55' 34" W]
B6	10276	SERVICE ROAD AT BACK OF RWY 4L	05/14/2010	Low	[21 deg 19' 5.4" N]	[157 deg 55' 36.4" W]
B7	9176	EVAPORATION POND NORTH	06/02/2015	Low	[21 deg 19' 22.2" N]	[157 deg 55' 20.3" W]
B7	9178	EVAPORATION POND NORTH	06/02/2015	Low	[21 deg 19' 21.8" N]	[157 deg 55' 22.4" W]
B7	9179	EVAPORATION POND NORTH	06/02/2015	Low	[21 deg 19' 22.2" N]	[157 deg 55' 20.1" W]
B7	9957	MANUWAI CANAL NEAR TWY A	06/02/2015	Low	[21 deg 19' 36.3" N]	[157 deg 55' 45.5" W]
B9	6456	MANUWAI CANAL	06/02/2015	Low	[21 deg 19' 40.6" N]	[157 deg 55' 46" W]
B9	7681	MANUWAI CANAL NEAR ARFF #1	06/02/2015	Low	[21 deg 19' 41" N]	[157 deg 55' 46.7" W]
C1	4812	OUTFALL SOUTH OF REEF RUNWAY	06/02/2015	Medium	[21 deg 18' 28.6" N]	[157 deg 56' 16" W]
C2	4785	MAMALA BAY	06/02/2015	Low	[21 deg 18' 56.1" N]	[157 deg 56' 49.9" W]
C2	4786	AHUA POND	06/02/2015	Low	[21 deg 18' 57.8" N]	[157 deg 56' 45.8" W]
C2	4787	MAMALA BAY	06/02/2015	Low	[21 deg 18' 55.2" N]	[157 deg 56' 49" W]
C2	4788	AHUA POND	06/02/2015	Low	[21 deg 18' 58.1" N]	[157 deg 56' 45.9" W]
C2	4789	MAMALA BAY	06/02/2015	Low	[21 deg 18' 53.3" N]	[157 deg 56' 48.9" W]
C2	4790	AHUA POND	06/02/2015	Low	[21 deg 18' 53.6" N]	[157 deg 56' 45.7" W]
C2	4791	MAMALA BAY	06/02/2015	Low	[21 deg 18' 50.8" N]	[157 deg 56' 48.7" W]
C2	4792	AHUA POND	06/02/2015	Low	[21 deg 18' 51.7" N]	[157 deg 56' 45.3" W]
C2	4793	MAMALA BAY	06/02/2015	Low	[21 deg 18' 48.8" N]	[157 deg 56' 48.2" W]
C2	4794	AHUA POND	06/02/2015	Low	[21 deg 18' 49.8" N]	[157 deg 56' 44.9" W]
C2	4795	MAMALA BAY	06/02/2015	Low	[21 deg 18' 47.3" N]	[157 deg 56' 47.8" W]
C2	4796	AHUA POND	06/02/2015	Low	[21 deg 18' 47.8" N]	[157 deg 56' 44.8" W]
C2	4797	MAMALA BAY	06/02/2015	Low	[21 deg 18' 45.1" N]	[157 deg 56' 47.7" W]
C2	4798	AHUA POND	06/02/2015	Low	[21 deg 18' 46" N]	[157 deg 56' 44.5" W]
C2	4799	MAMALA BAY	06/02/2015	Low	[21 deg 18' 43.3" N]	[157 deg 56' 47.4" W]
C2	4800	AHUA POND	06/02/2015	Low	[21 deg 18' 43.7" N]	[157 deg 56' 44.2" W]
C2	4801	MAMALA BAY	06/02/2015	Low	[21 deg 18' 41.4" N]	[157 deg 56' 47.1" W]
C2	4802	AHUA POND	06/02/2015	Low	[21 deg 18' 41.5" N]	[157 deg 56' 43.9" W]
C2	4803	MAMALA BAY	06/02/2015	Low	[21 deg 18' 40.5" N]	[157 deg 56' 47" W]
C2	4804	AHUA POND	06/02/2015	Low	[21 deg 18' 38.8" N]	[157 deg 56' 43.3" W]
C2	9747	TWY RB & B	06/02/2015	Low	[21 deg 19' 20.5" N]	[157 deg 56' 34.5" W]
D10	4363	NW CARGO PARKING LOT	06/02/2015	Low	[21 deg 19' 49.3" N]	[157 deg 54' 53.2" W]
D10	4502	AOLEWA PLACE NEAR ACCESS A	06/02/2015	Medium	[21 deg 19' 49" N]	[157 deg 54' 51.4" W]
D10	4503	AOLEWA PLACE NEAR ACCESS A	06/02/2015	Low	[21 deg 19' 49.4" N]	[157 deg 54' 50.8" W]
D10	4572	KALOALOA CANAL NEAR BASEYARD	06/02/2015	Low	[21 deg 19' 50.7" N]	[157 deg 54' 25.5" W]
D10	4573	KALOALOA CANAL NEAR BASEYARD	06/02/2015	Low	[21 deg 19' 50.2" N]	[157 deg 54' 25.5" W]
D10	5425	NORTHWEST CARGO AREA	06/02/2015	Medium	[21 deg 19' 49.5" N]	[157 deg 54' 54.3" W]
D10	5464	WIKI WIKI WASH RACK AREA	06/02/2015	Medium	[21 deg 19' 48.6" N]	[157 deg 54' 47.2" W]
D11	3909	OUTLET FROM 3908 IN BASEYARD PARKING LOT	06/02/2015	Low	[21 deg 19' 56.1" N]	[157 deg 54' 22.6" W]
D11	3917	OUTFALL FROM 3912 IN BASEYARD PARKING LOT	06/02/2015	Low	[21 deg 19' 56.7" N]	[157 deg 54' 23.7" W]

Honolulu International Airport Outfalls

Basin	EID	POI Location	POI Inspection Date	POI Outfall Risk Ranking	POI Latitude	POI Longitude
D11	4570	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.2" N]	[157 deg 54' 26.4" W]
D11	4571	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.1" N]	[157 deg 54' 26.8" W]
D11	4576	OUTFALL KALOALOA CANAL	06/02/2015	Low	[21 deg 19' 52.9" N]	[157 deg 54' 21.3" W]
D11	7586	AOLELE STREET NEAR BASEYARD	06/02/2015	Low	[21 deg 19' 57.2" N]	[157 deg 54' 24.1" W]
D11	7594	AOLELE STREET NEAR BASEYARD FROM CB 7590	06/02/2015	Low	[21 deg 19' 57.3" N]	[157 deg 54' 25.1" W]
D11	15107	OUTFALL KALOALOA CANAL	06/02/2015	Low	[21 deg 19' 51.3" N]	[157 deg 54' 24.3" W]
D11	15108	OUTFALL KALOALOA CANAL	06/02/2015	Low	[21 deg 19' 52" N]	[157 deg 54' 23.3" W]
D13	10096	AOLELE STREET & LAGOON DRIVE PARKING LOT FROM 10146	06/02/2015	Low	[21 deg 19' 52.1" N]	[157 deg 54' 12.5" W]
D14	10105	KALOALOA CANAL BY PERIMETER ROAD	06/02/2015	Low	[21 deg 19' 50.9" N]	[157 deg 54' 13.7" W]
D14	10220	KALOALOA CANAL BY PERIMETER ROAD	06/02/2015	Low	[21 deg 19' 50.9" N]	[157 deg 54' 13.7" W]
D14	10263	KALOALOA CANAL BY PERIMETER ROAD	06/02/2015	Low	[21 deg 19' 50.9" N]	[157 deg 54' 13.7" W]
D14	10269	KALOALOA CANAL BY PERIMETER ROAD	06/02/2015	Low	[21 deg 19' 50.9" N]	[157 deg 54' 13.7" W]
D14	10270	KALOALOA CANAL BY PERIMETER ROAD	06/02/2015	Low	[21 deg 19' 50.9" N]	[157 deg 54' 13.7" W]
D15	4590	OUTFALL NEAR KALEWA STREET	12/27/2012	Low	[21 deg 19' 51" N]	[157 deg 54' 6.1" W]
D15	4595	OUTFALL VISIBLE KALEWA STREET	06/02/2015	Low	[21 deg 19' 47" N]	[157 deg 54' 3.9" W]
D16	4599	OUTFALL VISIBLE KALEWA STREET	06/02/2015	Low	[21 deg 19' 42.7" N]	[157 deg 54' 2.9" W]
D5	4388	MAIN TERMINAL PARKING DRAIN PIPE	11/29/2012	Low	[21 deg 19' 59.6" N]	[157 deg 55' 21.1" W]
D7	4387	MAIN TERMINAL PARKING DRAIN PIPE	11/29/2012	Low	[21 deg 19' 59.6" N]	[157 deg 55' 21.1" W]
D7	4390	MAIN TERMINAL PARKING DRAIN PIPE	11/29/2012	Low	[21 deg 19' 57.6" N]	[157 deg 55' 1" W]
E	4481	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 20' 2.2" N]	[157 deg 54' 53.3" W]
E	4482	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 20' 1" N]	[157 deg 54' 52.6" W]
E	4484	OUTFALL AT AOLELE STREET/PAIEA STREET FROM CB 4483	06/02/2015	Low	[21 deg 20' 0.4" N]	[157 deg 54' 52.4" W]
E	4487	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 20' 1" N]	[157 deg 54' 51.6" W]
E	4488	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 20' 0.5" N]	[157 deg 54' 50.2" W]
E	4489	OUTFALL FROM DI 4490 IN HAWAIIAN TELCOM	06/02/2015	Low	[21 deg 20' 0.9" N]	[157 deg 54' 48.8" W]
E	4492	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 59.7" N]	[157 deg 54' 47.1" W]
E	4494	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 59.5" N]	[157 deg 54' 45.5" W]
E	4496	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 59.3" N]	[157 deg 54' 44.1" W]
E	4498	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 59.4" N]	[157 deg 54' 42.3" W]
E	4500	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 59.3" N]	[157 deg 54' 40.6" W]
E	4505	OUTFALL FROM DI 4511 AT GROUND TRANSPORTATION	06/02/2015	Low	[21 deg 19' 59.7" N]	[157 deg 54' 42.5" W]
E	4506	OUTFALL AT AOLELE STREET NEAR GROUND TRANSPORTATION	06/02/2015	Low	[21 deg 20' 0" N]	[157 deg 54' 43.3" W]
E	4507	OUTFALL AT AOLELE STREET NEAR GROUND TRANSPORTATION	06/02/2015	Low	[21 deg 20' 0.6" N]	[157 deg 54' 43.1" W]
E	4508	OUTFALL FROM DI 4512 AT GROUND TRANSPORTATION	06/02/2015	Low	[21 deg 19' 59.7" N]	[157 deg 54' 40.8" W]
E	4509	OUTFALL FROM DI 4513 AT GROUND TRANSPORTATION	06/02/2015	Low	[21 deg 19' 59.5" N]	[157 deg 54' 39.5" W]
E	4553	ROOF DRAIN FROM 3069 UALENA STREET	06/02/2015	Low	[21 deg 19' 58.9" N]	[157 deg 54' 35.9" W]
E	4555	OUTFALL FROM 3059 UALENA STREET DRAIN 4568	06/02/2015	Low	[21 deg 19' 58.5" N]	[157 deg 54' 35.8" W]
E	4556	OUTFALL FROM PUNALUU BUILDERS ROOF DRAINS	06/02/2015	Low	[21 deg 19' 58.8" N]	[157 deg 54' 35.5" W]
E	4557	OUTFALL FROM PUNALUU BUILDERS ROOF DRAINS	07/02/2007	Low	[21 deg 19' 58.7" N]	[157 deg 54' 34.6" W]
E	4558	OUTFALL FROM AIRPORT CENTER BASEMENT DRAIN	06/02/2015	Low	[21 deg 19' 58.6" N]	[157 deg 54' 34.2" W]
E	4559	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 58.4" N]	[157 deg 54' 34.6" W]
E	4560	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 58" N]	[157 deg 54' 32.5" W]
E	4562	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.9" N]	[157 deg 54' 31.1" W]

Honolulu International Airport Outfalls

Basin	EID	POI Location	POI Inspection Date	POI Outfall Risk Ranking	POI Latitude	POI Longitude
E	4564	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.6" N]	[157 deg 54' 30" W]
E	4566	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.4" N]	[157 deg 54' 27.9" W]
E	4567	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 57.5" N]	[157 deg 54' 27.6" W]
E	4574	OUTFALL FROM DI 4575 AT SW CORNER OF 3017 UALENA STREET	06/02/2015	Low	[21 deg 19' 58.4" N]	[157 deg 54' 31.8" W]
E	4585	OUTFALL INTO AOLELE STREET DITCH FROM DI 4586	06/02/2015	Low	[21 deg 19' 58.3" N]	[157 deg 54' 31.6" W]
E	4587	OUTFALL INTO AOLELE STREET DITCH	06/02/2015	Medium	[21 deg 19' 56.9" N]	[157 deg 54' 19.8" W]
E	4588	OUTFALL FROM BASEYARD DRAINAGE INLET 4569	06/02/2015	Low	[21 deg 19' 57.6" N]	[157 deg 54' 27.5" W]
E	5446	AOLELE STREET OUTFALL	06/02/2015	Low	[21 deg 19' 58.9" N]	[157 deg 54' 39.3" W]
E	7606	AOLELE STREET DITCH FROM DI 7602 AT DELTA AIR CARGO	06/02/2015	Low	[21 deg 19' 59.2" N]	[157 deg 54' 39.6" W]
E	9713	DRAINAGE DITCH ON AOLELE STREET NEAR PAIEA STREET	06/02/2015	Low	[21 deg 20' 0.6" N]	[157 deg 54' 52.1" W]

# ***Attachment E.5***

## ***Maintenance Plan for Vegetated Portions of the MS4***



# Storm Water Management Program Plan

## Honolulu International Airport

### Maintenance Plan for Vegetated Portions of the MS4



**PROTECT  
OUR WATER**  
MĀLAMA I KA WAI  
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

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

NPDES Permit No. HIS000005

June 2015



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**TABLE OF CONTENTS**

---

- 1.0 INTRODUCTION ..... 1**
  - 1.1 RESPONSIBLE PARTIES ..... 1
  - 1.2 IMPORTANCE OF VEGETATION ..... 1
  - 1.3 FAA VEGETATED MAINTENANCE GUIDELINES ..... 2
  
- 2.0 TARGETED AREAS ..... 3**
  
- 3.0 BEST MANAGEMENT PRACTICES (BMPS) ..... 5**
  - 3.1 MAINTENANCE BASEYARD SWPCP ..... 5
  - 3.2 CHEMICAL APPLICATION BMPS ..... 5
  - 3.3 VEGETATION MANAGEMENT BMPS ..... 5
    - VM1: Vegetated Areas and Aircraft Safety ..... 6*
    - VM2: Mowing and Edging..... 7*
    - VM3: Cutting Trees, Palms, Shrubs and Hedges ..... 8*
    - VM4: Invasive Species Management..... 9*
    - VM5: Restoring and Replanting Vegetation..... 11*
  
- 4.0 REFERENCES..... 12**

## 1.0 INTRODUCTION

The Honolulu International Airport (HNL) includes a Small Municipal Separate Storm Sewer System (MS4) that conveys storm water away from the airport facilities to the receiving waters. The discharge from this MS4 is permitted by the National Pollutant Discharge Elimination System (NPDES) as HIS000005, which requires the State of Hawaii, Department of Transportation, Airports Division (DOTA) to create a maintenance plan for vegetated areas necessary for erosion and sediment control as well as for Low Impact Development (LID) features (Part D.1.f.(3)(iii)). Maintaining these vegetated areas is vital to preventing sedimentation from negatively impacting storm water runoff and ultimately the receiving waters.

This plan includes best management practices (BMPs) that provide guidance on the cutting of vegetation, application of herbicide and fertilizers, controlling invasive species, restoring vegetation, and generally ensuring that the vegetation remains healthy in order to prevent erosion. The goal of this plan is to provide a set of principles that DOTA Baseyard Maintenance staff and vegetated service contactors may apply during the maintenance of vegetated portions of the MS4. However, in instances where the Designer has provided maintenance practices for an installed LID, erosion, or sediment control BMP, those site-specific practices shall take precedence over this plan.

### 1.1 Responsible Parties

Maintenance activities for vegetated areas are generally carried out by DOTA maintenance staff (AIR-OMF) or contractors. Specifically, DOTA has contracts for maintaining vegetation in and around HNL's canals and shorelines. Both parties will be responsible for adhering to this program.

### 1.2 Importance of Vegetation

Vegetated portions of the MS4 play an important role in erosion and sediment control and can also provide treatment for other types of pollutants that may be present in the storm water runoff. Specifically, as the storm water flows through vegetated areas, it provides the following benefits:

#### DEFINITIONS:

**Erosion** - Movement of soil particles from their original location by wind or water. May be visible as rilling or gulying.

**Sedimentation** - Deposition of soil particles by wind or water in a different location.

**Low Impact Development (LID)**- Site design that seeks to mimic predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating storm water runoff close to its source.

**Impervious Surface** - Material that limits the infiltration of storm water, such as rooftops, runways, taxiways, parking lots, or paved areas.

**Vegetated Area** - An area where the soil has been properly stabilized such that erosion is prevented by the roots of plants and other organic material.

1. Reduces runoff volume. Storm water runoff volume is reduced when it is absorbed by the plants and infiltrates into the soil. An overall reduction in volume reduces the quantity of potential pollutants that may be contributed to the MS4. Additionally, a reduced volume minimizes the amount of storm water that may be acting on unstablized areas and resulting in erosion.
2. Reduces runoff velocity. The velocity of storm water is reduced when it encounters the barriers created by the roots, stems, and other organic material present in vegetated areas. This reduced velocity aids in minimizing the erosional force of the storm water runoff.
3. Filtration. Vegetated areas include plants, soils, and microorganisms that can break down, absorb, or otherwise neutralize certain pollutants. Furthermore, various pollutants may bind to the soil particles, such as nitrogen, phosphorus, and metals. When sediment is retained in a vegetated area, those additional pollutants are also prevented from impacting the MS4 and receiving water. Therefore, the monitoring parameter total suspended solids (TSS) has been identified as an important measure of the total pollutant removal provided by vegetation.

### **1.3 FAA Vegetated Maintenance Guidelines**

Vegetated areas of the airport have the potential to attract wildlife which can be a danger to aircraft. Therefore, BMPs selected for this plan not only consider the best environmental practice, but also the best safety practice per the guidance provided in the Federal Aviation Administration (FAA) *Wildlife Hazard Management at Airports Manual* dated July 2005. Specific principles and practices for maintaining vegetated areas in regards to controlling hazardous wildlife can be found in Appendix I, VBMP1: Vegetated Areas and Hazardous Wildlife.

## 2.0 TARGETED AREAS

This plan covers sites where vegetation is required as part of the permanent BMP design and where areas of erosion have been identified within HNL's MS4 (Table 1). These may include, but are not limited to:

- Grassed swales, ditches, and filter strips.
- Vegetated channel walls and slopes.
- Trees, palms, shrubs, and hedges.

Although, several of the erosional areas identified in the table below (in parenthesis), do not currently have vegetation, these maintenance practices should be employed once stabilization has occurred. (\*Note: An EID will be assigned when stabilized and an updated list will be included in the HNL Annual Report.)

**TABLE 1: HNL MS4 VEGETATED AREAS**

<b>ID No. (EID)</b>	<b>Basin</b>	<b>Location Description</b>	<b>Receiving Water</b>	<b>Latitude / Longitude</b>	<b>Approx Size (acres)</b>
12019	A	Basin A Filter Strip. Vegetated filter strips around Runway 4L, 4R, and Taxiway C.	Manuwai Canal	21°19'22.2" N 157°54'56.8" W	1-2
12008	A	Lagoon Drive Filter Strips. Vegetated filter strips along Lagoon Drive (either side of the road and the median).	Keehi Lagoon	21°19'50" N 157°54'7.9" W	>1
12011	A3	Iolana Place Filter Strip. Vegetated filter strip between the parking areas on either side of Iolana Place.	Keehi Lagoon	21°19'21.5" N 157°54'29.4" W	<0.5
12010	A7	Pohakulana Place Filter Strip. Vegetated filter strip between FedEx and Pohakulana Place.	Keehi Lagoon	21°18'59.5" N 157°54'58.9" W	<0.5
12009	A8	Iako Place Filter Strip. Vegetated filter strip between HCC parking lot and Iako Place.	Keehi Lagoon	21°18'55.4" N 157°55'9.7" W	<0.5
12014	A8	Elliott Street Filter Strip. Vegetated filter strip between HCC parking lot and Iako Place.	Keehi Lagoon	21°18'55.4" N 157°55'9.7" W	<0.5
12020	B	Basin B Filter Strip. Vegetated filter strip located along the northern portion of Runway 8R.	Ahua Pond	21°19'31.04" N 157°55'21.6" W	1-2
12004	B4	Canal #4. Grassed channel west of the T-Hangars.	Ahua Pond	21°18'42.9" N 157°55'34.1" W	0.5 - 1

<b>ID No. (EID)</b>	<b>Basin</b>	<b>Location Description</b>	<b>Receiving Water</b>	<b>Latitude / Longitude</b>	<b>Approx Size (acres)</b>
12003	B6	Canal #3. Grassed channel south of Runway 4L near the control tower.	Ahua Pond	21°19'7.5" N 157°54'28.5" W	0.5 - 1
12002	B12	Canal #1. Grassed channel along Elliot Street between Hickam and the federal prison.	Manuwai Canal	21°20'4.5" N 157°55'40.5" W	<0.5
12001	B17	Grass swale located between Taxiway A and Runway 8L.	Manuwai Canal	21°19'36.2" N 157°55'47.5" W	<0.5
12021	C	Basin C Filter Strip. Vegetated filter strip located along Taxiway RB and the southern portion of Runway 8R.	Mamala Bay	21°18'19.4" N 157°55'50.55" W	>1
12022	D	Basin D Filter Strip. Vegetated filter strip located along Taxiways A, K, and H.	Manuwai Canal	21°19'39.2" N 157°54'47.6" W	>1
(D10-3)	D10	Walls of Kaloaloe Canal south of DOTA Maintenance Baseyard.	Kaloaloe Canal	21°19'51.02" N 157°54'24.70" W	<0.5
12005	D10	Canal #7. Grassed channel east of the terminal near Access A.	Access A Canal	21°19'49.9" N 157°54'55" W	<0.5
12006	D11	Canal #6. Grassed channel along Aolele Street, north of baseyard.	Aolele Canal	21°19'59.8" N 157°54'43.3" W	0.5 - 1
12007	D12	Canal #8. L-shaped grassed channel located along Aolele Street, east of the baseyard.	Aolele Canal	21°19'57.2" N 157°54'20.6" W	<0.5
(D14-1)	D14	Unstabilized slope south of Kaloaloe Canal, between the AOA perimeter road and Lagoon Drive.	Kaloaloe Canal	21°19'49.70" N 157°54'09.77" W	<0.5
(E-1)	E	Area along north side of Aolele Street canal between Paiea Street and the highway on-ramp.	Aolele Canal	21°20'01.0" N 157°54'49.6" W	<0.5
(E-2)	E	Walls of Aolele Street canal from the highway on-ramp to the Aolele Street bridge.	Aolele Canal	21°19'58.3" N 157°54'33.8" W	<0.5
(E-3)	E	Outfalls 4555 and 4556 from Ualena Street to Aolele Street canal.	Aolele Canal	21°19'58.8" N 157°54'35.5" W	<0.5
12012	E	Aolele Street Filter Strip. Vegetated filter strips on either side of Aolele Street.	Aolele Canal	21°19'54.7" N 157°54'8" W	0.5 - 1

### **3.0 BEST MANAGEMENT PRACTICES (BMPS)**

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Best Management Practices (BMPs) are schedules of activities, prohibitions or practices, maintenance procedures, and other management practices to prevent or reduce pollution from storm water runoff to the MS4 or receiving water. The following categories of BMPs should be reviewed for maintenance on vegetated portions of the MS4.

#### **3.1 Maintenance Baseyard SWPCP**

The HNL Maintenance Baseyard Storm Water Pollution Control Plan (SWPCP) includes BMPs that maintenance personnel may apply during their daily activities. Although the SWPCP was designed to be applied at the baseyard, many of the BMPs such as material use and spill response may also be applied when managing vegetated areas throughout the MS4. A copy of the Baseyard SWPCP is available in the SWMPP Attachment E.1.

#### **3.2 Chemical Application BMPs**

Chemicals such as herbicides and fertilizers may need to be applied to areas where unwanted or invasive species have been identified. BMPs for use of these chemicals are provided in SWMPP Attachment E.2.; however, where possible, application of these chemicals should be avoided in targeted areas (Table 1).

#### **3.3 Vegetation Management BMPs**

The following vegetation management BMPs are specifically for target areas (Table 1) and will aid in ensuring that the vegetation remains viable and able to stabilize the soil. The categories of these BMPs include:

- Vegetated Areas and Aircraft Safety.
- Mowing and Edging.
- Cutting Trees, Palms, Shrubs, and Hedges.
- Invasive Species Management.
- Restoring and Replanting Vegetation.

## Vegetation Management Best Management Practices VM1: Vegetated Areas and Aircraft Safety

### Description

Vegetated areas in and around the airport can attract wildlife, which can be hazardous to aircraft. These BMPs are designed to identify safety requirements from the FAA while balancing the need to maintain vegetation for storm water runoff concerns.



HAZARDOUS WILDLIFE AT FERIHEGY AIRPORT, BUDAPEST, HUNGARY.  
(FAA WILDLIFE HAZARD MANAGEMENT AT AIRPORTS MANUAL, JULY 2005)

### Limitations

Storm water BMPs such as evaporation ponds should be designed to drain within **48 hours** of a major storm event. Standing water is not permitted due to the attraction of hazardous wildlife. Where there is standing water, install bird net, balls, or other deterrent device.

PRACTICES		
<input type="checkbox"/>	VM1.1	Consider developing a preferred/prohibited plant species list, reviewed by a wildlife biologist, which has been designed to reduce the attractiveness to hazardous wildlife for landscaping airport property. For warm climates, such as Hawaii, FAA recommends wedelia and bermuda grass.
<input type="checkbox"/>	VM1.2	Avoid plants that produce fruits and seeds desired by birds. Where these have already been established, ensure they are cut before they begin to produce seeds.
<input type="checkbox"/>	VM1.3	Avoid the creation of areas of dense cover where birds may roost. Tree canopies should be thinned out in accordance with VM4.
<input type="checkbox"/>	VM1.4	Consider using synthetic turf to stabilize soil and minimize attractiveness to wildlife.
<input type="checkbox"/>	VM1.5	Where possible, do not allow trees or shrubs to grow within the runway safety area or near taxiways. For trees and shrubs that must remain in the area, trim to below 6 feet.
<input type="checkbox"/>	VM1.6	Monitor vegetated areas for the presence of hazardous wildlife should be conducted on a continuing basis.

- For more information, refer to Federal Aviation Administration. July 2005. *Wildlife Hazard Management at Airports, Second Edition*.

## Vegetation Management Best Management Practices VM2: Mowing and Edging

### Description

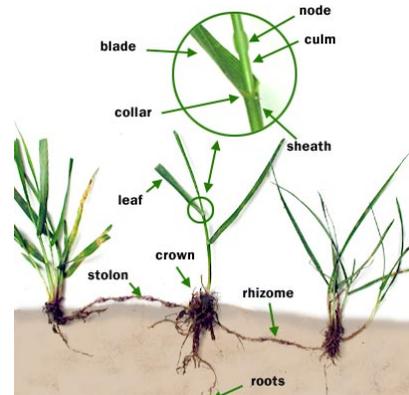
Mowing is the most required vegetation maintenance job. It consists of the mechanical trimming of turf, weeds, and other vegetation. Mowing to the required standards helps limit erosion, control weed invasion, enhances the natural beauty of the vegetated areas, and limits the roosting or nesting of hazardous wildlife.

### Mowing Standards

All turfgrasses grown in Hawaii are warm weather grasses. They can tolerate high temperatures with a high humidity but may stop growing and go dormant at certain times of the year depending on consistently low temperatures or long periods of drought.

Maintaining the recommended turfgrass height will help ensure that the root base remains healthy. Different grasses prefer different optimal leaf heights and the following are recommendations for common turf grasses:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• St. Augustine = 2-3 inches</li> <li>• Centipede grass = 1½-2 inches</li> <li>• Common Bermuda = 1½-2 inches</li> <li>• El Toro zoysia = 1-1½ inches</li> </ul> | <ul style="list-style-type: none"> <li>• Seashore paspalum = 1/2-1 inch</li> <li>• Emerald zoysia = 1/2-1 inch</li> <li>• Hybrid Bermuda = 1/2-3/4 inch</li> <li>• Wedelia = 1-3 inches</li> </ul> |
|---|--|



ANATOMY OF TYPICAL GRASS PLANT,  
WWW.TRIMMERASSIST.NET.

### Limitations

None

PRACTICES		
<input type="checkbox"/>	VM2.1	Schedule mowing of turfgrass before it reaches 3 feet high.
<input type="checkbox"/>	VM2.2	Use the <u>One-Third Rule</u> when mowing. Do not cut more than one-third of the turfgrass blade during any one mowing whenever possible.
<input type="checkbox"/>	VM2.3	Do not mow when grass is wet.
<input type="checkbox"/>	VM2.4	Remove all litter and debris before mowing.
<input type="checkbox"/>	VM2.5	Consider placing berms around and/or covering storm drain inlets in the area when mowing.
<input type="checkbox"/>	VM2.6	When mowing on slopes steeper than 1:3, use a side-mounted mower or a weed wacker.
<input type="checkbox"/>	VM2.7	Edge cutting should be no more than ¼ inch wide.
<input type="checkbox"/>	VM2.8	Trim and edge grass around sprinkler heads and valve boxes as needed to maintain a clean appearance and good irrigation coverage.
<input type="checkbox"/>	VM2.9	Do not mow areas with excessive invasive weeds until they have been eradicated (see VM5).
<input type="checkbox"/>	VM2.10	Rake or otherwise clear the area of excessive clippings after mowing. The removal of excessive clippings reduces the amount of green waste that may contribute pollutants to the MS4.
<input type="checkbox"/>	VM2.11	Sweep or otherwise remove all clippings from hard surfaces such as runways, taxiways, road, and parking lots.
<input type="checkbox"/>	VM2.12	Ensure that green waste is stored in a contained area until disposal.
<input type="checkbox"/>	VM2.13	When fueling equipment on-site, select a location away from storm drains and waterways and conduct the activity over a drip pan.

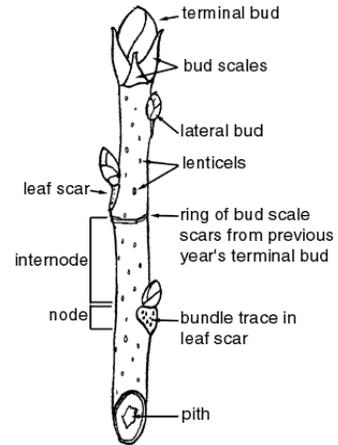
## Vegetation Management Best Management Practices VM3: Cutting Trees, Palms, Shrubs and Hedges

### Description

Trees, palms, shrubs, and hedges are beneficial to soil stabilization due to the extensive root systems associated with this vegetation. In order to maintain their health, specific maintenance practices such as cutting, pruning, or thinning of plant density may be required.

### Definitions

- Branch collar* – the swollen area at the base of the branch.
- Canopy* – one or more plant crowns growing in a given area.
- Crown* – the plant’s aboveground parts (stems, leaves, etc.).
- Node* – is the point on the stem where a leaf or bud is attached.



### Limitations

A certified arborist should be consulted prior to implementing these BMPs. Only a qualified line clearance arborist or line clearance arborist trainee shall be assigned to utility line clearance work in accordance with ANSI Z 133.1, 29CFR 1910.331-335.

PRACTICES		
<input type="checkbox"/>	VM3.1	Recommended vertical height of vegetation: <ul style="list-style-type: none"> <li>• 6 feet near runways and taxiways.</li> <li>• 17 feet for overhanging vegetation above roadways.</li> <li>• 7 feet canopy clearance above sidewalks (i.e. Lagoon Drive).</li> </ul>
<input type="checkbox"/>	VM3.1	Top cut trees to a height of at least 5 years of growth below the instrument or visual surface requiring protection. As a rule of thumb, use a growth rate of 2.5 feet per year.
<input type="checkbox"/>	VM3.1	Do not prune more than 25% of the canopy at one time.
<input type="checkbox"/>	VM3.1	When cutting, pruning cuts should be made just beyond the branch collar. By doing so, the tree will retain a protective zone allowing the tree to close over the open wound.
<input type="checkbox"/>	VM3.1	Do not allow trees to establish in areas where they can become a hazard. Stumps should be removed or treated to prevent re-growth.
<input type="checkbox"/>	VM3.1	For palm trees, remove fronds, fruit, seedpods and fruit stalks carefully without damaging the trunk or fronds that are to be retained.
<input type="checkbox"/>	VM3.1	Do not remove live, healthy fronds from palm trees except where encroaching on utilities or structures.
<input type="checkbox"/>	VM3.1	Avoid the use of spikes for trees; use aerial lifts where practical.
<input type="checkbox"/>	VM3.1	For hedges and shrubs, remove dead stems and remove or cut back stems that extend far beyond the edge of the crown.
<input type="checkbox"/>	VM3.1	Reduce 1/3 of remaining stems (oldest third) to about 4-6 inches inside the crown of the shrub.
<input type="checkbox"/>	VM3.1	Hedges should be pruned wider at the base than at the top, allowing more sunlight to reach the base.
<input type="checkbox"/>	VM3.1	Naupaka and Bougainvillea: maintain large groupings of naupaka as formal hedges by shearing.
<input type="checkbox"/>	VM3.1	Dispose of cutting by chipping for mulch or in another confined waste container until disposal.

## Vegetation Management Best Management Practices VM4: Invasive Species Management

### Description

Invasive species are alien species of a certain ecosystem whose introduction does or is likely to cause harm to the environment, the economy, or to human health. Prevention and early detection are essential in managing invasive species.

### Priority Weeds and Pests

Due to time constraints and budgetary limits, it may not be possible to fully eradicate all weeds from vegetated maintenance areas. Therefore priority weeds and pests have been identified by Federal and State agencies. Invasive species listed as priorities should be controlled before species not on these lists:

- United States Department of Agriculture - Federal Noxious Weed List
- State of Hawaii, Department of Agriculture – Noxious Weed Rules (HRS 4:6:68)
- State of Hawaii, Department of Agriculture – Seed Rules (HRS 4:6:67)
- Invasive Species Councils/Committees – species identified by such councils or committees in each county
- Plants identified by maintenance crews to be of local nuisances in vegetated maintenance areas



INVASIVE SPECIES IN HAWAII, CLOCKWISE FROM TOP LEFT: 1. YELLOW GINGER, 2. BANANA POKA, 3. STRAWBERRY GUAVA, 4. AUSTRALIAN TREE FERN, 5. POISON DEVIL'S PEPPER, 6. MICONIA, 7. KOSTER'S CURSE, 8. FOUNTAIN GRASS.

[WWW.KOHALAWATERSHED.ORG](http://WWW.KOHALAWATERSHED.ORG).

### Limitations

None

**Vegetation Management Best Management Practices  
VM4: Invasive Species Management (continued)**

PRACTICES		
<input type="checkbox"/>	VM4.1	Where possible, minimize disturbance of soil. If soil disturbance is necessary, replant disturbed areas with desirable vegetation.
<input type="checkbox"/>	VM4.2	Monitor and evaluate areas that require more effort to control invasive species. Keep records of control work to assist with monitoring invasive species.
<input type="checkbox"/>	VM4.3	Report any new alien or target species in your area to the Pest Hotline (808) 643-7378 (PEST).
<input type="checkbox"/>	VM4.4	Thoroughly clean equipment, vehicles, Personal Protection Equipment (PPE), and any other materials that are used in the vegetated maintenance areas. Cleaning can be done by either washing or dusting the equipment in a grassy area that limits runoff or in a designated wash rack.
<input type="checkbox"/>	VM4.5	Regular inspections of equipment, vehicles, and PPE should be conducted to ensure cleaning protocols are effective. If found ineffective, cleaning practices should be modified or repeated.

**Additional Invasive Noxious Weed and Pest Information:**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• The Coordinating Group on Alien Species—</li> <li>• The Hawai'i Invasive Species Council—</li> <li>• Invasive Species Committees—</li> <li>• CTAHR Cooperative Extension Service—</li> <li>• U.S. Department of Agriculture—</li> <li>• U.S. Fish and Wildlife Service—</li> <li>• The Outdoor Circle—</li> <li>• Hawai'i Ecosystems at Risk—</li> <li>• Hawai'i Department of Agriculture—</li> <li>• University of Hawai'i—</li> <li>• The Nature Conservancy—</li> <li>• The Sierra Club—</li> </ul> | <ul style="list-style-type: none"> <li><a href="http://www.hawaiiinvasivespecies.org/cgaps/">http://www.hawaiiinvasivespecies.org/cgaps/</a></li> <li><a href="http://www.hawaiiinvasivespecies.org/hisc/">http://www.hawaiiinvasivespecies.org/hisc/</a></li> <li><a href="http://www.hawaiiinvasivespecies.org/iscs/">http://www.hawaiiinvasivespecies.org/iscs/</a></li> <li><a href="http://www.ctahr.hawaii.edu/site/extprograms.aspx">http://www.ctahr.hawaii.edu/site/extprograms.aspx</a></li> <li><a href="http://www.invasivespeciesinfo.gov/unitedstates/hi.shtml">http://www.invasivespeciesinfo.gov/unitedstates/hi.shtml</a></li> <li><a href="http://www.fws.gov/pacificislands/invasives.html">http://www.fws.gov/pacificislands/invasives.html</a></li> <li><a href="http://www.outdoorcircle.org/protecting_hawaii">http://www.outdoorcircle.org/protecting_hawaii</a></li> <li><a href="http://www.hear.org">http://www.hear.org</a></li> <li><a href="http://hawaii.gov/hdoa/">http://hawaii.gov/hdoa/</a></li> <li><a href="http://www.hawaii.edu">http://www.hawaii.edu</a></li> <li><a href="http://www.nature.org/">http://www.nature.org/</a></li> <li><a href="http://www.sierraclub.org/">http://www.sierraclub.org/</a></li> </ul> |
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## Vegetation Management Best Management Practices

### VM5: Restoring and Replanting Vegetation

#### Description

In many cases vegetation maintenance involves restoring or reviving vegetation in order to sustain the functionality and aesthetics of the vegetated areas. Maintaining vegetative cover is critical in reducing erosion and sediment loss.

#### Limitations

Vegetation should be selected in accordance with VM1 and VM4.

PRACTICES		
<input type="checkbox"/>	VM5.1	All old vegetation that is being replaced should be removed or mulched as appropriate.
<input type="checkbox"/>	VM5.2	Replace a plant with the same species or with an appropriate non-invasive or native alternative that is ecologically and culturally appropriate for that location. The replacement plant should have a similar mature spread and height.
<input type="checkbox"/>	VM5.3	If plant was previously removed, the replacement plant(s) should be replaced as soon as possible or within four weeks of removal.
<input type="checkbox"/>	VM5.4	When planting replacement trees, top of root ball should be 10-20% above vegetated soil. Do not cover the root ball with soil or mulch.
<input type="checkbox"/>	VM5.5	Loosen soil around edges of planting hole, at least several feet. This allows for new roots to easily grow out of the root ball and into the native soil.
<input type="checkbox"/>	VM5.6	Water root ball thoroughly by building a circular watering well around the edges of the root ball.
<input type="checkbox"/>	VM5.7	Cover the walls of the water well and the loose soil outside the well with an approximate 3-inch thick layer of wood chip mulch.
<input type="checkbox"/>	VM5.8	Stake tree with at least 2 stakes driven into the undisturbed soil at least 1 foot from the trunk and do not drive stake into the root ball.
<input type="checkbox"/>	VM5.9	Secure the stakes to the trunk of the tree no more than half way up the trunk. The straps should be loose enough to allow for a few inches of movement of the trunk in all directions.
<input type="checkbox"/>	VM5.10	Inspect tightness of straps frequently and adjust as necessary.
<input type="checkbox"/>	VM5.11	Remove staking as soon as root ball is well anchored in soil and does not move in to the soil when the plant is pulled and pushed from side to side.
<input type="checkbox"/>	VM5.12	Do not leave the staking in place for more than one year.
<input type="checkbox"/>	VM5.13	Apply fertilizers in accordance with the Chemical Applications BMP Plan in order to restore levels of nutrients to the soil necessary for plant vitality.

#### 4.0 REFERENCES

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