



Storm Water Management Program Plan

Daniel K. Inouye
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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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
AIR-EE	Supervisor	• Provides Program Oversight • Tracks and Analyzes Program Data • Facilitates Training and Education
AIR-EE	Environmental Engineer*	• Coordinates Erosion Control and Trash Reduction Projects
AIR-EE	Environmental Health Specialists*	• Provides Contract Oversight for MS4 Maintenance • Enters Maintenance Data in Database
AIR-E	Engineering Program Manager	• Approves Erosion Control and Trash Reduction Projects
AIR-OM	Maintenance Superintendent	• Requires Compliance with P2 Program • Facilitates Training and Education

Section	Title	Responsibilities
AIR-OMF	Baseyard Supervisor	• Ensures Maintenance BMPs Implemented • Ensures Chemical Application BMP Implemented • Oversees Permanent BMP Maintenance (Evaporation Ponds) • Oversees Street Sweeping Operations • Facilitates Reporting of Data to AIR-EE
AIR-OMF	Street Sweeper Operators	• Participates in Training • Logs Street Sweeping Data and Submit to Supervisor
AIR-OMF	Automotive Shop Personnel	• Participates in Training • Implements Maintenance BMPs
AIR-OMF	Landscape Personnel	• Participates in Training • Logs Pesticide, Herbicide, Fertilizer Use and Submit to Supervisor • Conducts Vegetation Maintenance, Including Erosion Control and LID Purposes
	Contractor	• Performs MS4 Maintenance • Reports Data to AIR-EE

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

1.2 Database

In 2007, 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 Daniel K. Inouye International Airport formerly known as Honolulu International Airport (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:
 - o Permanent structural and vegetative BMPs.
 - o Storm drain inlets and outfalls.
- Track data from maintenance and debris removal programs, including:
 - o Street sweeping program.
 - o Catch basin cleaning program.
 - o Green waste and accumulated sedimentation removal.
 - o 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

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, 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 has created 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

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. DOTA uses two different types of markings for MS4 structures depending upon their location.

2.2.1 EID Labels

Where possible, 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 are 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. 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, and trenches) 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, DOTA will make efforts to conduct inspections every six (6) months and, at a minimum, annually. Areas determined through inspections are prioritized using a high, medium, and low ranking based on the accumulation within the drains (i.e. storm drain structures that visually appear to have accumulated more will be inspected more frequently to keep the structure clean and functioning properly). The storm drains risk ranking as low, medium and high based on the debris accumulation within the drains.

2.3.1 MS4 Inspection and Maintenance Logs

The following information will be logged during the inspection of a storm drain 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. DOTA Maintenance Section (AIR-OMF) conducts sweeping operations at runways, taxiways, major streets, streets, and parking lots in industrial and commercial areas based on the following frequency:

- At least twice per month.
- More frequently if:
 - A public complaint is received;
 - FAA requests the cleaning of an area due to FOD concerns;
 - An area is identified as a hot spot for trash;
 - AIR-EE inspectors request that an area be swept where there is a potential threat of discharge to State waters; and/or

- o Operators fill two sweeper trucks and there is additional debris remaining on the ground.

2.4.1 Street Sweeping Logs

A Street Sweeping and Inspection Log or similar form shall be filled out by the sweeper operator for each swept area. Data recorded in the log shall include:

- Date.
- Description of area swept.
- Type of debris (e.g. trash categories).
- 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 Action Plan for Retrofitting Structural BMPs

The retrofit action plan is provided in the *SWMPP Section D, Attachment D.3*.

2.6 Trash Reduction Plan

On April 14, 2017, DOTA developed a Trash Reduction Plan (Attachment E.6) to assess HNL's trash load, 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 percent.
- 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,

3.0 CHEMICAL APPLICATION BMP PROGRAM

Construction and maintenance of landscaped areas within HNL require 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 stormwater 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, 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 Application 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 stormwater 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 Maintenance 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

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 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 (OWS) 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 in *SWMPP Section A*, includes annual Maintenance Baseyard personnel training on a variety of topics, including such as potential pollutants, BMPs, and permit requirements.

4.3 Maintenance Baseyard Inspection and Enforcement

Inspection and enforcement of the HNL Maintenance Baseyard will be conducted as stipulated in the HNL Maintenance Baseyard SWPCP and the *Airport Facility Inspection and Enforcement Standard Operating Procedure (SOP)*. Note that the HNL Maintenance Baseyard used to be inspected per the *NPDES Inspection and Enforcement Manual*, until it was updated from Version 6.0 to Version 7.0 to cover tenants only, not Maintenance Baseyards.

The frequency of Maintenance Baseyard inspections is semi-annual (twice a year) for Maintenance Baseyards with NPDES permits, and in accordance with their risk ranking for Maintenance Baseyards without NPDES permits (the risk ranking is determined following the procedures in the *Airport Tenant NPDES Inspection and Enforcement Manual*). The HNL Maintenance Baseyard will be inspected semi-annually (twice per year) after this document is submitted to DOH.

5.0 EROSION CONTROL BMP PROGRAM

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

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.). 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, 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. Refer to *SWMPP Section D* for more information on HNL's Permanent BMP Program.

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, 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

Erosional Area ID	Location Description	Longitude / Latitude	Approx. Size (acres)	Receiving Water	Permanent BMP Year	Permanent BMP	Temporary BMP*	Status
A1-1	Temporary vehicle storage lots south of Kalewa Street.	21°19'34.88" N 157°54'04.12" W	6.5	Keehi Lagoon	2016	Pavement	Jersey Barriers / Inlet protection for drains on Kalewa Street	Permanent BMP installed
E-1	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	Grass	Compost Berms along top of canal until seed sprouts	Permanent BMP installed
D10-1	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	Vegetation	Vegetation	Temporary BMP installed; planning Permanent BMP installation
D10-2	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	Vegetation	Vegetation	Temporary BMP installed; planning Permanent BMP installation

Erosional Area ID	Location Description	Longitude / Latitude	Approx. Size (acres)	Receiving Water	Permanent BMP Year	Permanent BMP	Temporary BMP*	Status
D14-2	Slight slope south of Kaloaloa Canal and immediately west of AOA perimeter road.	21°19'50.80" N 157°54'11.24" W	<0.5	Kaloaloa Canal	2019	Berm	Fill in Jersey Barrier Holes	Permanent BMP installed
D14-1	Unstabilized slope south of Kaloaloa Canal, between the AOA perimeter road and Lagoon Drive.	21°19'49.70" N 157°54'09.77" W	<0.5	Kaloaloa Canal	2020	Berm	Jersey Barriers	Temporary BMP installed
E-3	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	Geotextile	Vegetation	Vegetation fully stabilized the area, geotextile no longer needed
D10-3	Walls of Kaloaloa Canal south of DOTA Maintenance Baseyard.	21°19'51.02" N 157°54'24.70" W	<0.5	Kaloaloa Canal	2021	Geotextile	Vegetation	Temporary BMP installed
E-2	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	Geotextile	Vegetation	Temporary BMP installed

Notes: *Temporary BMP is in place if Permanent BMP not installed yet.

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: - MS4 structures and permanent BMPs by EID number and latitude / longitude. - Catch basin cleaning data. - Street sweeping data. - Green waste and accumulated soil removal.	Confirmation: All MS4 assets and maintenance data tracked.	Annual
			Tabulation: # of MS4 assets by type (inlet, manhole, trench drain, outfall, OWS, permanent BMP).	Annual
Section E, 2.1 & Section B, Attach B.1	MS4 Maps	Map drain inlets, outfalls, and permanent BMPs on GIS.	Confirmation: GIS layer created.	Initially and Update As Needed
Section E, 2.2	Drain Placards	Implement storm drain marking program. - Establish the purpose of drain marking and procedures for tracking placement. - Establish procedures for inspection and maintenance of markings. - Install public placards at 100% of designated drains.	Confirmation: Drain marking purpose and procedure established.	Initial
			Tabulation: % of designated drains with public placards.	4/14/19

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 2.3	MS4 Inspection and Maintenance	Conduct MS4 inspections and maintenance, where necessary. - Inspect 100% of the accessible MS4 catch basins, inlets, curb gutters, open ditches, and trenches, twice per year. - Conduct maintenance on all MS4 structures with accumulated debris. - Prioritize MS4 structures.	Confirmation: MS4 inspections and maintenance conducted.	Annual
			Tabulation: # of MS4 inspections conducted.	Annual
			Tabulation: # of MS4 structures per priority ranking (i.e. low, medium, high).	Annual
Section E, 2.4	Street Sweeping	Conduct street sweeping operations. - Establish thresholds for requiring sweeping activities. - Sweep all designated runways, taxiways, major streets, streets, and parking lots in industrial and commercial areas twice per month. - Review sweeping schedule annually.	Confirmation: Sweeping thresholds established.	Initial
			Tabulation: Total cubic feet of debris removed by sweeping.	Annual
			Confirmation: Sweeping schedule reviewed.	Annual
Section E, 2.5 and Section D, Attach D.3	Retrofit Action Plan	Develop a plan to implement retrofits. - Submit Retrofit Action Plan within one year of the effective date of the permit. - Complete at least ten (10) retrofit projects at a rate of 2 per year for 5 years.	Confirmation: Retrofit Action Plan submitted to DOH.	4/14/15
			Tabulation: # of retrofit projects completed.	Annual

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 2.6	Trash Reduction Plan	Develop a plan for reducing trash within the MS4. • Submit Trash Reduction Plan. • Establish baseline trash load discharging from the MS4. • Measure % of trash removed from MS4 discharge as compared to baseline. • Reduce trash by 50% compared to baseline in the short-term. • Reduce trash by 100% compared to baseline in the long-term.	Confirmation: • Trash Reduction Plan submitted to DOH.	4/14/17
			Tabulation: • Baseline Establishment: lbs of trash discharging from MS4 by type.	2021
			Tabulation: • % of trash removed from MS4 discharge as compared to baseline.	Annual After 2021
			Confirmation: • Re-evaluate the Trash Reduction Plan goals for reducing the trash within MS4.	After 2023
Section E, 3.1 & Section A, 2.1.4	Chemical BMP Training	Provide annual training to personnel applying fertilizers, pesticides, and herbicides.	Tabulation: • # of parties trained on chemical applications.	Annual
Section E, 3.2	Chemical Application BMPs	Develop and implement chemical application BMPs.	Confirmation: • Chemical application BMPs developed.	Initial
Section E, 4.1	Maintenance BMP Training	Provide annual training to personnel conducting maintenance activities.	Tabulation: • # of parties trained on maintenance BMPs.	Annual
Section E, 4.2	Maintenance BMPs	Develop and implement maintenance BMPs.	Confirmation: • Maintenance BMPs developed.	Initial

SWMPP Reference	BMP / Task	Measurable Standard / Milestones	Monitoring Effectiveness	Timeframe
Section E, 4.3	Maintenance Baseyard Inspection and Enforcement	Conduct Maintenance Baseyard inspection and enforcement as described in the <i>Airport Facility Inspection and Enforcement SOP</i> . - Conduct inspections. - Maintain inspection reports for 5 years. Track the number of deficiencies identified during tenant inspections by category.	Confirmation: # of Maintenance Baseyard inspections conducted.	Annual
			Tabulation: • # of deficiencies by category.	Annual
Section E, 5.1	Erosional Areas	Identify, stabilize, and maintain areas exhibiting signs of erosion. - Submit a list of erosional areas. - Submit an Action Plan for Erosional Outfalls. - Submit 401 WQC applications within one year of the effective permit date. - Develop a maintenance plan for vegetated areas associated with erosion control and LID.	Confirmation: • List of erosional areas submitted to DOH.	4/14/15
			Confirmation: • Action Plan for Erosional Outfalls submitted to DOH.	4/14/15
			Confirmation: • 401 WQC applications submitted, if required.	4/14/15
			Confirmation: • Vegetation Maintenance Plan developed.	Initial
		Identify, stabilize, and maintain areas exhibiting signs of erosion. - Install temporary BMPs or permanent solutions on 100% of identified sites within 18 months of effective permit date. - Complete 100% of permanent solutions within the timeframe beginning the 2nd year after the effective permit date and covering a 5 year period.	Tabulation: • % of erosional areas/outfalls with temporary or permanent BMPs.	10/14/15
			Tabulation: • % of erosional areas/outfalls with permanent solutions.	10/14/21

In Table 4, DOTA has set goals for the P2 Program above the minimum control measures listed in Table 3. These goals, presented in Table 4, 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. Install / replace public placards at 10 MS4 structures.	Tabulation: # of public placards installed.	1-2	Annual
Section E, 2.3	MS4 Inspection and Maintenance	Conduct MS4 inspections twice per year and maintain as necessary. - Track pounds of debris removed from inlets, catch basins, and trenches. - Track gallons of free product removed from OWS.	Tabulation: lbs of debris removed from MS4 maintenance.	1, 4	Annual
			Tabulation: Gallons of free product removed from OWS.	1, 4	Annual
Section E, 2.3	Surface Water Inspection and Maintenance	Conduct inspection and cleaning of surface waters (canals and shorelines). - Track pounds of debris removed by type. - Track number of sorbent booms used on surface waters.	Tabulation: lbs of debris removed by type (i.e. trash, green waste).	1, 4	Annual
			Tabulation: # of sorbent booms installed in the surface waters.	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. 2% reduction in the amount of herbicides used over the permit term.	Tabulation: % reduction in herbicides application.	1-4	3/13/19
Section E, 4.1	Maintenance BMP Training	Conduct training for maintenance personnel on BMPs. - Conduct one BMP related drill at the Maintenance Baseyard. - Baseyard personnel respond to and properly contain a spill at the Maintenance Baseyard within 15 minutes.	Confirmation: Drill conducted.	1-3	Annual
			Tabulation: Time Maintenance Baseyard personnel took to respond to spill in a drill scenario.	1-4	Annual
Section H	Stormwater Monitoring	Collect and analyze stormwater samples to determine concentrations of pollutants in the runoff.	Monitoring*: Analyze stormwater samples to evaluate pollutant sources and concentrations.	5, 6	Annual

*The collection of stormwater 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
DANIEL K. INOUE INTERNATIONAL AIRPORT
NPDES PERMIT No. HI S000005



MAINTENANCE BASEYARD FACILITY
2919 AOOLE STREET
HONOLULU, HAWAII 96819



Prepared For:
DEPARTMENT OF TRANSPORTATION, AIRPORTS DIVISION
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RECORD OF REVISION

Revision No.	Revision Date	Description	Sections Affected
1	May 2007	Version 1.0 – Initial Release	All
2	May 2012	Version 2.0 – Update	All
3	June 2014	Addition of Stormwater Monitoring	2.3, 6.0, Figure 2, 3, App III, IV
4	September 2018	Version 4.0 - Update	All

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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for false information, including the possibility of fine or imprisonment for knowing violations.

Ross Higashi
Deputy Director – Airports
State of Hawaii
Department of Transportation

Date

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LIST OF ACRONYMS

ARFF	Aircraft Rescue and Fire Fighting
AST	Aboveground Storage Tank
BMP	Best Management Practice
CWB	State of Hawaii, 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
HAR	Hawaii Administrative Rules
HEER	Hazard Evaluation and Emergency Response
HNL	Daniel K. Inouye International Airport
IWDP	Industrial Wastewater Discharge Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
OWS	Oil Water Separator
PMID	Property Management Identification Number
SDS	Safety Data Sheet
SOP	Standard Operating Procedure
SWMPP	Storm Water Management Program Plan
SWPCP	Storm Water Pollution Control Plan
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

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 Small Municipal Separate Storm Sewer System (MS4) Permit No. HI S000005 requires that the Maintenance Baseyard for the Daniel K. Inouye International Airport previously known as Honolulu International Airport (HNL) be provided with a Storm Water Pollution Control Plan (SWPCP) for stormwater associated with industrial activities. The purpose of the regulations is to protect water quality by reducing the amount of pollutants in stormwater runoff caused by covered industrial activities.

1.1 SWPCP Implementation

The stormwater management controls of this plan will become a DOTA procedure and an up-to-date copy of the SWPCP shall be maintained at the Maintenance Baseyard office. DOTA management staff, maintenance personnel, and contractor staff 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. DOTA developed an Airport Facility Inspection and Enforcement Standard Operating Procedures (SOP) that will be used as a guide for inspection and enforcement at the Maintenance Baseyard.

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 Best Management Practice (BMP) failures, spill events, changes in Maintenance Baseyard and wash rack/pad 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, the Environmental Section will post the SWPCP on their website for public review and comments and then provide a copy of the updated SWPCP to the Maintenance Baseyard. HNL Small MS4 Permit HI S000005 Part A.6 requires the permittee to make the SWPCP available on DOTA website for a minimum of 30 calendar days for public review and comment. The permittee shall address the comments received within 30 calendar day period and provide both comments and responses to DOH with its submittal of the Plan.

2.0 SITE DESCRIPTION

DOTA owns the HNL Airport, which 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 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 convergence of Kaloaloa Canal and another unnamed drainage ditch (Figure 2) and occupies property management identification number (PMID) HNL.003.003.01.05. The Maintenance Baseyard includes a maintenance shop, fueling area, paint shop, vehicle and material storage, landscaping nursery, and offices used to ensure the airport remains operational (Appendix I, Figure 2). A six-foot-high chain link fence surrounds the Maintenance Baseyard and a private contractor provides 24-hour security.

The maintenance shop is located on the northeastern portion of the Maintenance Baseyard. Batteries, solvents, oils, and other lubricants are stored within the maintenance shop. The solvent is used in a contained parts washer. Additionally, a 100-gallon underground oil water separator (OWS) (environmental identification number [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.

New and used oil is stored in 55-gallon drums within a spill pallet located outside the maintenance shop until it can be deposited via forklift into the 280-gallon used oil aboveground storage tank (AST) (EID 09372), which contractors dispose of as needed. There are three storm drain inlets in the fueling area, which are equipped with Safe Drain installations, preventing any oil product or stormwater 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 (USTs); one 2,300-gallon diesel UST (EID 03123) and two 2,300-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 Maintenance Baseyard. Aggregate piles are stored within concrete masonry unit walls on the western portion of the Maintenance 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 (Appendix IV). 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 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 stormwater 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 BMP (Appendix III).

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 that enters HNL Baseyard.

2.3.1 Drainage Area 01 (Outfall 3917)

Stormwater 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 stormwater 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 backside of Paint Shop. All industrial activities in this drainage area are performed undercover and protected from contact with stormwater runoff.

2.3.2 Drainage Area 02 (Outfall 3909)

Stormwater 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 stormwater 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 stormwater runoff.

2.3.3 Drainage Area 03 (Outfall 10203)

Stormwater runoff through Drain Inlets 5496 and 5498 is collected from the west end of the HNL Baseyard and flows to the Kaloaloa 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)

Stormwater 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. Five grate inlet filters with a multi-layer filter cartridge were installed in 2017 to reduce levels of dissolved and particulate metals in the effluent. The fueling area and maintenance shop are also located within this drainage area. Three drain inlets located near the fuel pump have Safe Drains® installed which allow them to be closed quickly in the event of a spill. The discharge from this Area is directed south to the Kaloaloa Canal (Base Outfall 04 – EID 4576). DOTA conducts stormwater monitoring at this location (HNL Small MS4 Monitoring Point HNL 003).

TABLE 1: LIST OF DRAIN INLETS WITH RETROFITS AT THE MAINTENANCE BASEYARD

<u>Drain Inlet No.</u>	<u>Retrofit</u>
05499	Filter media basket to assist with removal of metals from stormwater runoff.
05500	Filter media basket to assist with removal of metals from stormwater runoff.
05502	Filter media basket to assist with removal of metals from stormwater runoff and Safe Drain®
05503	Filter media basket to assist with removal of metals from stormwater runoff and Safe Drain®.
05504	Filter media basket to assist with removal of metals from stormwater runoff and Safe Drain®.

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 used neither as a drinking water source, nor 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⁻ per liter of water) and a low vulnerability to contamination.

3.0 POTENTIAL POLLUTANTS IN STORMWATER

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 Maintenance Baseyard Supervisor as well as to the DOTA Environmental Health Specialist (EHS) for containment/evaluation.

TABLE 2: 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/Break Pads/Galvanized Steel Buildings & Fences
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

3.2 Recent Spill of Pollutants

There have been no reportable spills of pollutants at the HNL Maintenance Baseyard during the last five years that have left the property boundary. Any spills that may occur in the future will be reported to the DOTA Environmental Section for recordkeeping purposes and necessary regulatory agencies in accordance with the Spill Response BMP in Appendix III. A form for documenting spills is attached (Appendix IV).

4.0 NON-STORMWATER CONTROL

The only source of non-stormwater 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 IV. 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

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 stormwater system. BMPs and evaluation checklists are in Appendix III. 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 stormwater by minimizing exposure of such materials to stormwater. 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.

As defined in HAR Chapter 11-45-1-6, any spill, leak or release of petroleum products greater than 25 gallons (for petroleum products), and 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 CWB, National Response Center (NRC), and U.S. Coast Guard, District 14. In the event of a large or uncontrolled release, the Maintenance Baseyard Supervisor shall act as the Emergency Coordinator (EC).

TABLE 3: EMERGENCY CONTACT INFORMATION

CONTACT	TELEPHONE NUMBER
Code 22 The Code 22 should be notified of all spills or releases that occur on the Subject Property.	(808) 836-6434
DOTA Environmental Health Specialist 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 recordkeeping purposes.	(808) 838-8656
Maintenance Baseyard Supervisor The Maintenance Baseyard Supervisor should be notified immediately of all spills, leaks, and releases that occur on the Subject Property.	(808) 836-6490
Airport Duty Manager 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.	(808) 839-6411
ARFF Station (24 hours) The ARFF Station should be notified of all spills, leaks and releases that occur at HNL for safety concerns.	(808) 836-6507
NRC 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.	(800) 424-8802
Local Emergency Planning Committee (LEPC) The EC should notify the LEPC of any reportable quantity spill. After business hours, leave a message including name, phone number, time of spill, what was spilled, and quantity of spill.	(808) 723-8960
U.S. Coast Guard, District 14 The U.S. Coast Guard should be notified of any quantity spill that reaches the ocean.	(800) 331-6176 or (808) 842-2600
Hawaii Emergency Management Agency The EC should notify the Oahu Civil Defense of any reportable quantity spill.	(808) 733-4300
DOH HEER Office (Oahu) The EC should notify the HEER office of any chemical spill of a reportable quantity.	(808) 586-4249 (808) 247-2191 (after hours)
DOH CWB (Oahu) 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.	(808) 586-4309

6.0 STORMWATER MONITORING PROGRAM

DOTA conducts a Stormwater 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 Annual Monitoring Plan, Section H, Part 2*.

7.0 PROCEDURES FOR IMPLEMENTATION

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

7.1 Employee and Tenant Training

Training programs are used to inform Maintenance Baseyard 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 3: SUMMARY OF MAINTENANCE PERSONNEL TRAINING PROGRAM

Training Topic	Trainee	Responsibility	Frequency
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	Semi-Annual

7.2 Protocol for Site Inspections

The HNL EHS or designated personnel will perform semi-annual inspections during the term of the HNL Small MS4 permit to ensure that BMPs are in place and in proper working order (Appendix V). DOTA EHS personnel will inspect the facility in accordance with the latest version of the Airport Facility Inspection and Enforcement SOP.

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 stormwater 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 Maintenance Baseyard with maintenance duties will be informed 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.

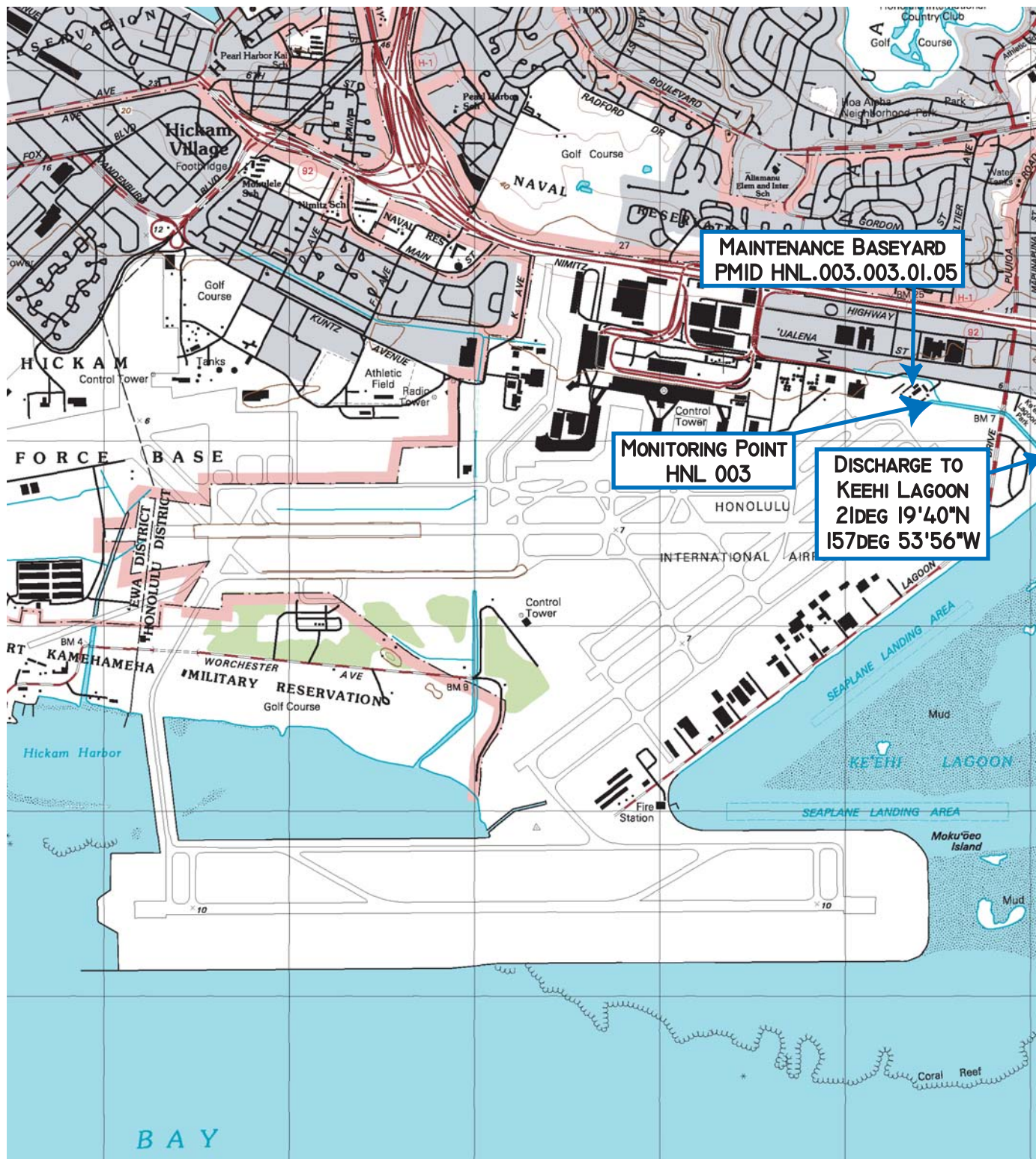
A copy of this SWPCP shall also be made available to personnel as a reference in the same location that Safety Data Sheets (SDS) and other safety information are maintained and located in the Airfield, & Ground Maintenance Unit Supervisor's office at the Maintenance Baseyard.

8.0 REFERENCES

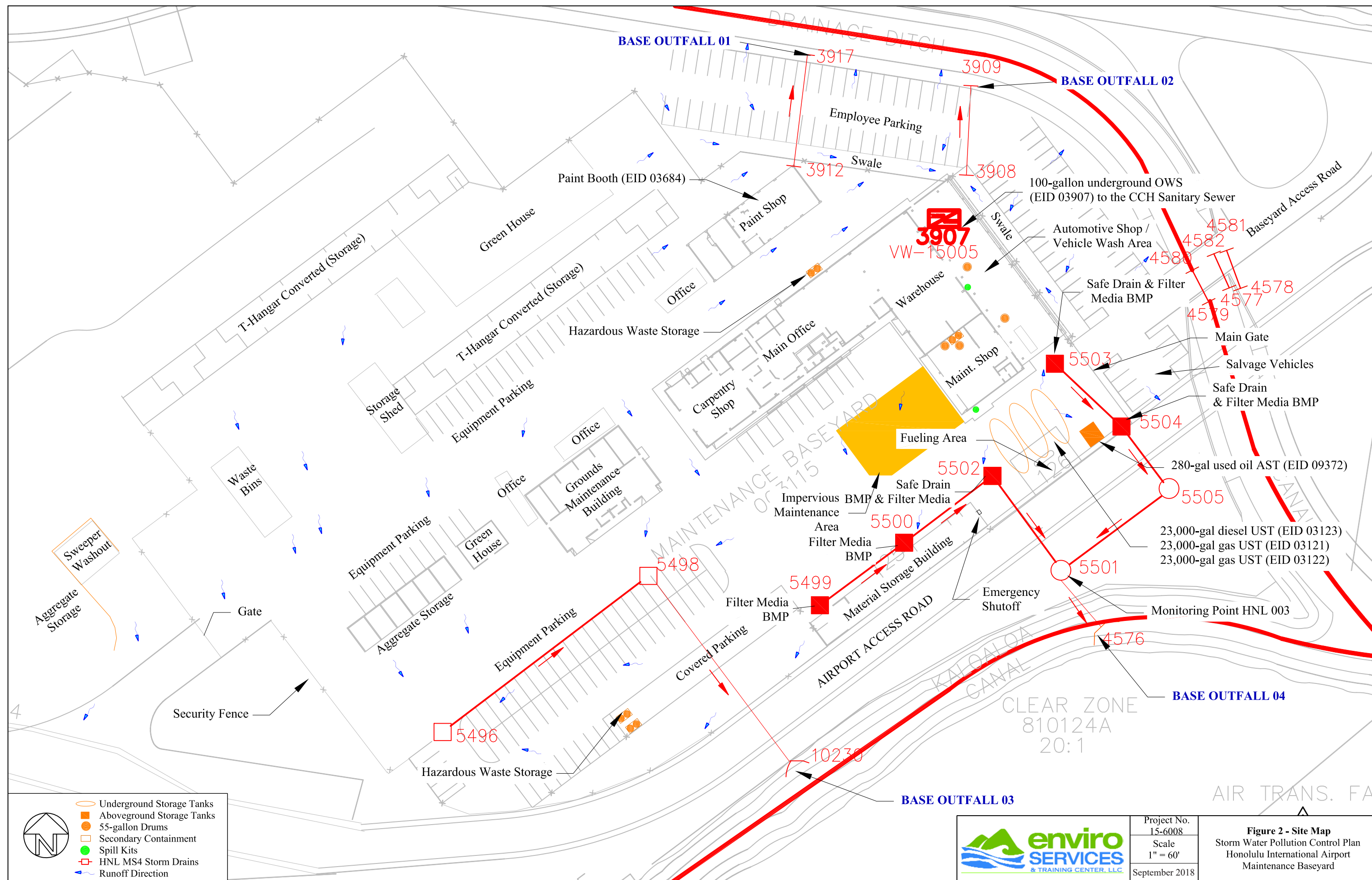
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- U.S. Department of Agriculture Soil Conservation Service. 1972. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*.
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Appendix I

Figures



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



**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 ft³/sec

Flow Rate ≈
0.08 ft³/sec

Flow Rate ≈
0.29 ft³/sec

Flow Rate ≈
0.14 ft³/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
September 2018

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

Appendix II

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.



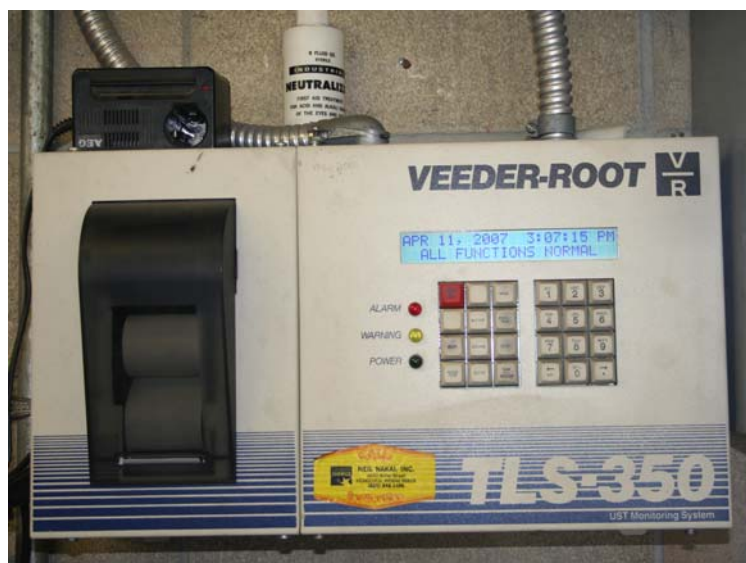
Photograph 12: Covered fueling Area.



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

Appendix III

Best Management Practices

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

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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		
☐	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.
☐	2	Remove and properly dispose of debris from all areas daily.
☐	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.
☐	4	Maintain ample spill clean-up supplies and keep them in proper physical condition.
☐	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.
☐	6	Inspect storm drain inlets regularly for illicit discharge such as sediment runoff or debris accumulation. Clean and remove debris as necessary.
☐	7	Identify storm drains and waterways in each work area and prevent non-storm water discharges into the storm drainage system.
☐	8	Perform daily facility inspections to ensure good housekeeping practices are being followed by facility personnel.
☐	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.

Practice		
☐	1	DOTA maintenance personnel 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.
☐	2	Properly maintain sweepers. Adjust broom heights frequently to maximize efficiency of sweeping operations.
☐	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.
☐	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.
☐	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		
☐	1	Maintain vehicles and equipment used at the facility in good operating condition.
☐	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.
☐	3	Inspect damaged vehicles and equipment for fluid leaks and repair as soon as possible. Use drip pans as necessary and empty when full.
☐	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.
☐	5	Transfer removed vehicle fluids to designated storage container as soon as possible.
☐	6	Use drip pans, tarps, or any other drainage control whenever removing fluids to capture any releases of oil, fluids, and solvent.
☐	7	When not in use, store drums/containers of liquid material or waste indoors or under cover and within secondary containment pallets.
☐	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.
☐	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.
☐	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.
☐	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		
☐	1	Wash vehicles and equipment in designated washing areas using minimal water. Use DOTA approved biodegradable detergents.
☐	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.
☐	3	Follow posted directions for wash rack or wash area use.
☐	4	See Solid Waste Storage and Disposal BMP for OWS maintenance.
☐	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.
☐	6	Washing of personal vehicles are prohibited.
☐	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		
☐	1	Perform fueling of aircraft, vehicles, and equipment in designated areas, away from storm drain inlets, drainage channels, or receiving waters.
☐	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.
☐	3	No topping off or no unattended fueling.
☐	4	Post proper fueling and cleanup instructions in fueling areas.
☐	5	Do not hose off fueling area. Use absorbents.
☐	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.
☐	7	Ensure that safe drains in drain inlets 5502, 5503, and 5504 are closed during fueling operations.
☐	8	Check for proper operation of automatic shut off controls on fuel dispensing nozzles. Repair as needed.
☐	9	Test, monitor, and maintain fuel storage tanks as required by all applicable federal, state and local laws.
☐	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.
☐	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		
☐	1	Store materials in their original or appropriate containers as recommended by the manufacturer. Store small containers of flammable materials within flammable storage lockers.
☐	2	Ensure that all containers are closed, secured to prevent movement, fastened, stored neatly, and properly labeled.
☐	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.
☐	4	Store materials and containers indoors or in covered areas. Containers holding liquid materials should also be within secondary containment.
☐	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.
☐	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.
☐	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.
☐	8	Maintain an ample supply of spill clean-up materials near storage areas.
☐	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.
☐	10	Sweep or vacuum up spilled materials immediately.
☐	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.
☐	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		
☐	1	Use materials only where and when needed to complete the work.
☐	2	Minimize use of hazardous materials on-site. Use less hazardous, alternative materials where possible.
☐	3	Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
☐	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.
☐	5	Conduct regular dry sweeping of the loading or unloading areas.
☐	6	Application of fertilizers, herbicides, or pesticides: • Do not over apply. • Prepare only the amount needed. • Follow the recommended usage instructions. • Except on steep slopes, till fertilizer into the soil rather than surface spreading or spraying it. • Apply surface dressings in several smaller applications, as opposed to one large application to allow time for infiltration and to avoid excess material being carried off-site by runoff. • Do not apply these chemicals just before it rains or in high winds. • Log material use for reporting purposes (see attached log sheets).
☐	7	Carpentry Operations: • Use tools that have a vacuum or filter system to reduce airborne saw dust, whenever possible. • Sweep the area frequently to prevent saw dust from leaving the shop. • Dispose of saw dust sweepings in a covered waste bin.

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

☐	8	Painting Operations: • Conduct painting indoors or in the paint booth whenever possible. ◦ 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. • Ensure that paints are stored in sound containers to prevent leaks. • Use tarps or other containment devices to prevent paint drips from impacting the storm drains or surface waters. • 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. • Properly segregate and label waste paints for disposal according to the Solid Waste BMP. Note: oil based paints are hazardous wastes.
☐	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		
☐	1	Use the entire product before disposing of the container. Minimize use of hazardous materials on-site. Use less hazardous, alternative materials where possible.
☐	2	Do not remove the original product label; it contains important safety and disposal information.
☐	3	Inspect containers regularly and transfer waste from damaged containers into containers that are intact.
☐	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
☐	5	Only purchase and store required quantities of hazardous materials.
☐	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.
☐	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)**

☐	8	Designate an indoor or covered hazardous waste collection area.
☐	9	Hazardous wastes should be stored in secure, covered containers, and protected from damage. Place hazardous waste containers in secondary containment.
☐	10	Label hazardous waste containers clearly with the words “Hazardous Waste” and the date when the hazardous waste accumulation began.
☐	11	Do not mix waste, this can cause chemical reactions, make recycling impossible, and complicate disposal.
☐	12	Arrange for regular hazardous waste collection before containers reach capacity.
☐	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.
☐	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.
☐	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.
☐	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.
☐	17	Place spill cleanup materials where it will be readily accessible.
☐	18	If containers do spill, clean up immediately – follow procedures in Spill Prevention and Response BMP.
☐	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.
☐	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		
☐	1	Stop work.
☐	2	Shut down equipment and secure work operations.
☐	3	Determine the source of the release and any hazards present.
☐	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.
☐	5	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: 1. Your name, location, and how you may be reached. 2. Location of the release. 3. Type, quantity, and description of the release. 4. Hazards of the release. 5. Type of media affected (soil, asphalt, concrete, etc.). 6. Rate of the release. 7. Migratory direction of the release. 8. Potential for fire or explosion. 9. Potential for human exposure. 10. Potential for migration to surface water (ocean, storm drains, etc.).

Best Management Practices
Spill Prevention and Response Practices
(continued)

☐	6	Keep non-essential employees and visitors away from the spill area.
☐	7	Prevent vehicles and equipment from driving through the spill area.
☐	8	Remove all injured persons from the area of danger and render first aid.
☐	9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
☐	10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
☐	11	Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
☐	12	Remove or isolate ignitable and incompatible materials from the area of the release if the spill is of a flammable substance.
☐	13	Locate, stop, and contain the source of the release.
☐	14	Confine the release to prevent further migration using drainage controls, including but not limited to methods from the following list: ▪ Diking and berming using sand, soil, or other inert material; ▪ Sealing storm drains with plastic and sandbags; ▪ Placing granular absorbent or absorbent pads and booms; ▪ Diverting the chemicals from entering drains, manholes, streams, etc.; and ▪ Implementing retention techniques.
☐	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.
☐	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)

☐	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.
☐	18	If the release is not readily and easily controlled, evacuation may be necessary.
☐	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.
☐	20	Call the facility spill response contractor to handle the clean-up of the spilled material.
☐	21	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: ▪ National Response Center - (800) 424-8802 ▪ U.S. Coast Guard - (808) 842-2606 ▪ DOH HEER office - (808) 586-4249 or after hours (808) 247-2191 ▪ DOH Clean Water Branch (CWB) – (808) 586-4309 (only if spill reaches state waters) The following information should be provided: 1) Caller Name, location, organization, and telephone number 2) Name, address, and telephone number of the facility owner 3) Name, address, and telephone number of the facility contact person 4) Date, time, and duration of the release 5) Date and time the release was discovered 6) Name of the chemical spilled and the approximate quantity released 7) Location of the release 8) Type of media affected (e.g. soil, asphalt, concrete, etc.) 9) Measures taken in response to the release 10) Danger or threat posed by the release or spill 11) Number and type of injuries (if any) 12) Weather conditions at the incident location 13) Any other information that may help emergency personnel respond to the incident
☐	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 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

ATTACHMENT II
SUMMARY OF FEDERAL AND STATE REGULATIONS
FOR SOLID WASTE MANAGEMENT

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

Hazardous Waste Generator Status	Quantity of Hazardous Waste Generated Per Calendar Month	Onsite Accumulation Time
Large Quantity Generators (LQG)	• $\geq 1,000$ kg (approximately 2,200 lbs.); • > 1 kg (approximately 2.2 lbs.) of acute hazardous waste; and • > 100 kg (approximately 220 lbs.) residue or contaminated soil from cleanup of acute hazardous waste spill. • No accumulation limits.	≤ 90 days
Small Quantity Generators (SQG)	• >100 kg (approximately 220 lbs.) and $<1,000$ kg (approximately 2,200 lbs.); • Never accumulate more than 6,000 kg (approximately 13,200 lbs.) at any one time.	≤ 180 days or ≤ 270 days (for Hawaii, since hazardous waste is shipped 200 miles or more)
Very Small Quantity Generator (VSQGs)	• ≤ 100 kg (approximately 220 lbs.) • < 1 kg (approximately 2.2 lbs.) of acute hazardous waste; • ≤ 100 kg (approximately 220 lbs.) residue or contaminated soil from cleanup of acute hazardous waste spill; and Never accumulate more than 1,000 kg (approximately 2,200 lbs.) at any one time.	None.

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 very 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 (3) 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 IV

Spill Log

HNL MAINTENANCE BASEYARD SPILL LOG

[illegible]

Appendix V

Facility Inspection Checklist



Airport Facility Stormwater BMP Inspection Checklist



Date:		Time:		Weather:	
Facility:		Address:		PMID:	SIC Code:
Representative:			Contact:		
Type of Inspection: ☐ Routine ☐ Follow-up ☐ Complaint ☐ Other:					
Previous Enforcement: ☐ Written Warning ☐ Investigation Report ☐ Notice of Finding & Violation ☐ Summons/Citation					
Facility Description:					
Facility Operations: ☐ Vehicle and/or Equipment Maintenance and Repair ☐ Vehicle and/or Equipment Fueling ☐ Vehicle and/or Equipment Washing				☐ Material Storage & Handling ☐ Waste Handling & Disposal ☐ Hazardous Material Storage	
NPDES Compliance: NPDES Permit: ☐ Yes ☐ No ☐ N/A NGPC / CNEE Permit Number: _____ Expiration Date: _____ SWPCP or BMP Plan: ☐ Yes ☐ No ☐ N/A Date: _____ SWPCP Training Current? ☐ Yes ☐ No ☐ N/A Recent Training Date: _____ DMR Compliance (if applicable): ☐ Yes ☐ No ☐ N/A Last Round of Sampling: _____					
SPCC Compliance: SPCC Plan: ☐ Yes ☐ No ☐ N/A Date: _____ Reflects Current Assets? ☐ Yes ☐ No ☐ N/A AST/UST Inspection Records: ☐ Yes ☐ No ☐ N/A					
Records Review: Discharge Permit with DOTA: ☐ Yes ☐ No ☐ N/A Permit Issuance Date: _____ Annual Permanent BMP Inspections: ☐ Yes ☐ No ☐ N/A Last Inspection Date: _____ PBMP Maintenance: ☐ Yes ☐ No ☐ N/A Waste Generator Status (RCRA): _____ Waste Disposal Records (incl. OWS): ☐ Yes ☐ No ☐ N/A EPA ID No.: _____ Secondary Containment Disposal Log: ☐ Yes ☐ No ☐ N/A IWDP Permit No. & Exp. Date: _____					
Asset & Material Inventory (*provide GPS Coordinates for each Asset):					

Appendix VI

Industrial Wastewater Discharge Permit

EE 17.0056

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>

KIRK CALDWELL
MAYOR



LORI M.K. KAHIKINA, P.E.
DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

JEROME ABABA, P.E.
ACTING ASSISTANT CHIEF

IN REPLY REFER TO:
EQ 17-181

August 23, 2017

State Department Of Transportation
Airport Division
Honolulu International Airport
300 Rodgers Blvd.
Honolulu, Hawaii 96819

IWDP No. 20172246829

Gentlemen:

Subject: Automatic Renewal Industrial Wastewater Discharge Permit

This letter serves as an automatic renewal for the Industrial Wastewater Discharge Permit Number 20120341 previously issued to your business. Your new Industrial Wastewater Discharge Permit Number is **20172246829** effective September 4, 2017 and will expire September 3, 2022.

This letter shall be kept on file with your permit at your place of business and is not transferable without written consent. **You are required to provide written notification within thirty (30) days, to the City, of any changes to your contact information (e.g. business name, mailing address, contact person/number) and process modifications that may affect the nature and character of your wastewater discharge. Failure to provide notification of such changes may result in escalating enforcement action including permit suspension, revocation and/or fines.** It is your responsibility to ensure that all waste from your operation is properly collected, recycled, or disposed in accordance with all applicable regulations.

If you have any questions, please contact Dawn Farinas of our Regulatory Control Branch at (808)768-4108.

Sincerely,

A handwritten signature in black ink, appearing to read "Jerome Ababa", is written over a horizontal line.

Jerome Ababa, P.E.
Acting Assistant Chief

Attachment: IWDP Renewal (Pages 1 and 2)

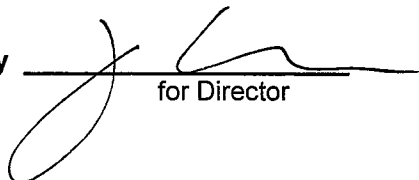
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

CITY AND COUNTY OF HONOLULU DEPARTMENT OF ENVIRONMENTAL SERVICES

Permit No. 20172246829

Expiration Date 09/03/2022

Issued By


for Director

Effective Date 09/04/2017

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 (PETROLEUM ONLY)

HAULING USED MECHANICAL / HAZARDOUS 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

Attachment E.2

Chemical Applications BMPs



Best Management Practices

Chemical BMP Program Plan



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



September 2018

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SPILL PREVENTION AND RESPONSE PRACTICES.....6

Chemical Program Best Management Practices General Vegetation Management Guidelines

Description

Proper vegetation management is a BMP that applies to routine landscape maintenance at HNL. 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		
☐	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.
☐	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.
☐	CP1.3	Properly locate chemical mixing and equipment rinsing stations in designated areas only.
☐	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.
☐	CP1.5	Store all chemicals in closed containers within covered areas. Provide secondary containment in the event of spills.
☐	CP1.6	Maintain accurate inventory of all chemicals and have material safety data sheets on file for all hazardous chemicals.
☐	CP1.7	Review work area requirements to determine areas where chemical application is not needed to minimize chemical application.
☐	CP1.8	Use weed blocking geotextile where feasible.
☐	CP1.9	Mow/cut grass and landscaping covers to appropriate height.
☐	CP1.10	Trim trees and shrubs regularly to prevent overgrowth, eliminate traffic hazards, maintain a neat appearance, and to maintain healthy growth.
☐	CP1.11	Do not apply fertilizers or herbicides preceding rainy weather.
☐	CP 1.12	Do not spray chemicals during high winds.
☐	CP1.13	Upon mobilizing to a work site identify storm drainage inlets.
☐	CP1.14	Identify areas for waste material collection and stockpiling. Prevent grass, other vegetative materials, sediment, or chemicals from entering storm drains.
☐	CP1.15	Clean storm drainage facilities before leaving work areas.
☐	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 within HNL 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. All DOTA maintenance personnel and contractors will follow this BMP for fertilizer application.

Limitations

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

Practice		
☐	CP 2.1	Perform soil analysis for each landscaped area wherever possible to determine need and composition of fertilizer required. ▪ use fertilizer only when needed ▪ base fertilizer type and composition upon soil analysis and site conditions
☐	CP 2.2	Consider natural versus manufactured fertilizers, such as the following: ▪ manure, grass clippings, potash, milorganite, ringer, or sustane
☐	CP2.3	Use only State of Hawaii; Department of Agriculture approved fertilizers and chemicals.
☐	CP2.4	Store fertilizers in clean, sealed, and properly labeled containers.
☐	CP2.5	Store fertilizer containers in covered areas, protected from rain and wind.
☐	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.
☐	CP2.7	Do not apply fertilizer to slopes greater with grade larger than 3:1.
☐	CP2.8	Follow all manufacturers' instructions for fertilizer application.
☐	CP2.9	Do not apply fertilizers during or preceding heavy rainfall.
☐	CP2.10	Do not spray fertilizers during high winds.
☐	CP2.11	Maintain a log of the amount, type, and locations where fertilizers applied (see attached log sheets). Report annual fertilizer application amount (pounds) in End-of-Year Report.

Chemical Program Best Management Practices Pesticide Application for Vegetation Control

Description

Maintaining landscaping at HNL 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 at HNL 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. All DOTA maintenance personnel and contractors will follow this BMP for pesticide application.

Limitations

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

Practice		
☐	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.
☐	CP3.2	Use only State of Hawaii, Department of Agriculture approved pesticides.
☐	CP3.3	Keep chemicals in their original containers, properly sealed, and with readable labels (re-label 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.
☐	CP3.4	Store pesticide containers in enclosed sheds or building that have secondary containment structures.
☐	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.
☐	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.
☐	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.
☐	CP3.8	Apply pesticides according to manufacturers' instructions.

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

☐	CP3.9	Properly locate chemical mixing and equipment rinsing stations in designated areas only.
☐	CP3.10	Do not apply pesticides or herbicides during or preceding heavy rainfall. Do not apply pesticide sprays in high winds.
☐	CP3.11	Protect treated areas from storm water sheet-flows. Place diversion berms or implement other control measures to prevent contact of storm runoff with pesticide.
☐	CP3.12	Rinse empty tanks and containers three (3) times before reuse or disposal. Reuse rinse water if possible or dispose according to the manufacturers' instructions.
☐	CP3.13	Maintain a log of the amount, type, and locations where pesticide applied (see attached log sheets). Report annual pesticide application amount (gallons) in the End-of-Year Report.

Chemical Program 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 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		
☐	1	Stop work.
☐	2	Shut down equipment and secure work operations.
☐	3	Determine the source of the release and any hazards present.
☐	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.
☐	5	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: 1) Your name, location, and how you may be reached. 2) Location of the release. 3) Type, quantity, and description of the release. 4) Hazards of the release. 5) Type of media affected (soil, asphalt, concrete, etc.). 6) Rate of the release. 7) Migratory direction of the release. 8) Potential for fire or explosion. 9) Potential for human exposure. 10) Potential for migration to surface water (ocean, storm drains, etc.).

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

☐	6	Keep non-essential employees and visitors away from the spill area.
☐	7	Prevent vehicles and equipment from driving through the spill area.
☐	8	Remove all injured persons from the area of danger and render first aid.
☐	9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
☐	10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
☐	11	• Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
☐	12	• Remove or isolate ignitable and incompatible materials from the area of the release if the spill is of a flammable substance.
☐	13	• Locate, stop, and contain the source of the release.
☐	14	• Confine the release to prevent further migration using drainage controls, including but not limited to methods from the following list: ▪ Diking and berming using sand, soil, or other inert material; ▪ Sealing storm drains with plastic and sandbags; ▪ Placing granular absorbent or absorbent pads and booms; ▪ Diverting the chemicals from entering drains, manholes, streams, etc.; and ▪ Implementing retention techniques.
☐	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.
☐	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.
☐	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.
☐	18	• If the release is not readily and easily controlled, evacuation may be necessary.

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

☐	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.
☐	20	Call the facility spill response contractor to handle the clean-up of the spilled material.
☐	21	• 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: ▪ National Response Center - (800) 424-8802 ▪ U.S. Coast Guard - (808) 842-2606 ▪ DOH HEER office - (808) 586-4249 or after hours (808) 247-2191 ▪ DOH Clean Water Branch (CWB) – (808) 586-4309 (only if spill reaches state waters) The following information should be provided: ▪ Caller Name, location, organization, and telephone number ▪ Name, address, and telephone number of the facility owner ▪ Name, address, and telephone number of the facility contact person ▪ Date, time, and duration of the release ▪ Date and time the release was discovered ▪ Name of the chemical spilled and the approximate quantity released ▪ Location of the release ▪ Type of media affected (e.g. soil, asphalt, concrete, etc.) ▪ Measures taken in response to the release ▪ Danger or threat posed by the release or spill ▪ Number and type of injuries (if any) ▪ Weather conditions at the incident location ▪ Any other information that may help emergency personnel respond to the incident
☐	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.

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:

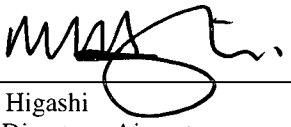
- Dispose of leftover pesticides according to the instructions on the label. Preferably on the targeted pest or vegetated area.
- Triple rinse all empty containers. Use the rinsate in the next batch or apply to target area.
- Puncture, cut or crush all triple rinsed containers unless otherwise directed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

7.0 Storage Procedures

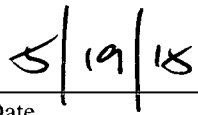
Follow these procedures for storing pesticide / herbicide containers:

- 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



Date

Department of Transportation, Airports Division
Landscape Chemical Application Sheet

Airport: _____

Date:	Name:	Amount (lbs):			
Location Applied:		Type (circle):	Pesticide	Herbicide	Fertilizer
Pesticide / Herbicide BMP Questions		Yes	No	N/A	
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

Date:	Name:	Amount (lbs):			
Location Applied:		Type (circle):	Pesticide	Herbicide	Fertilizer
Pesticide / Herbicide BMP Questions		Yes	No	N/A	
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

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
KOA & ITO - Stefan Borduz, stefan.borduz@hawaii.gov
JRF & HDH - Michael Goshima, michael.goshima@hawaii.gov
HNL & OGG - Joy Masuda, joy.masuda@hawaii.gov

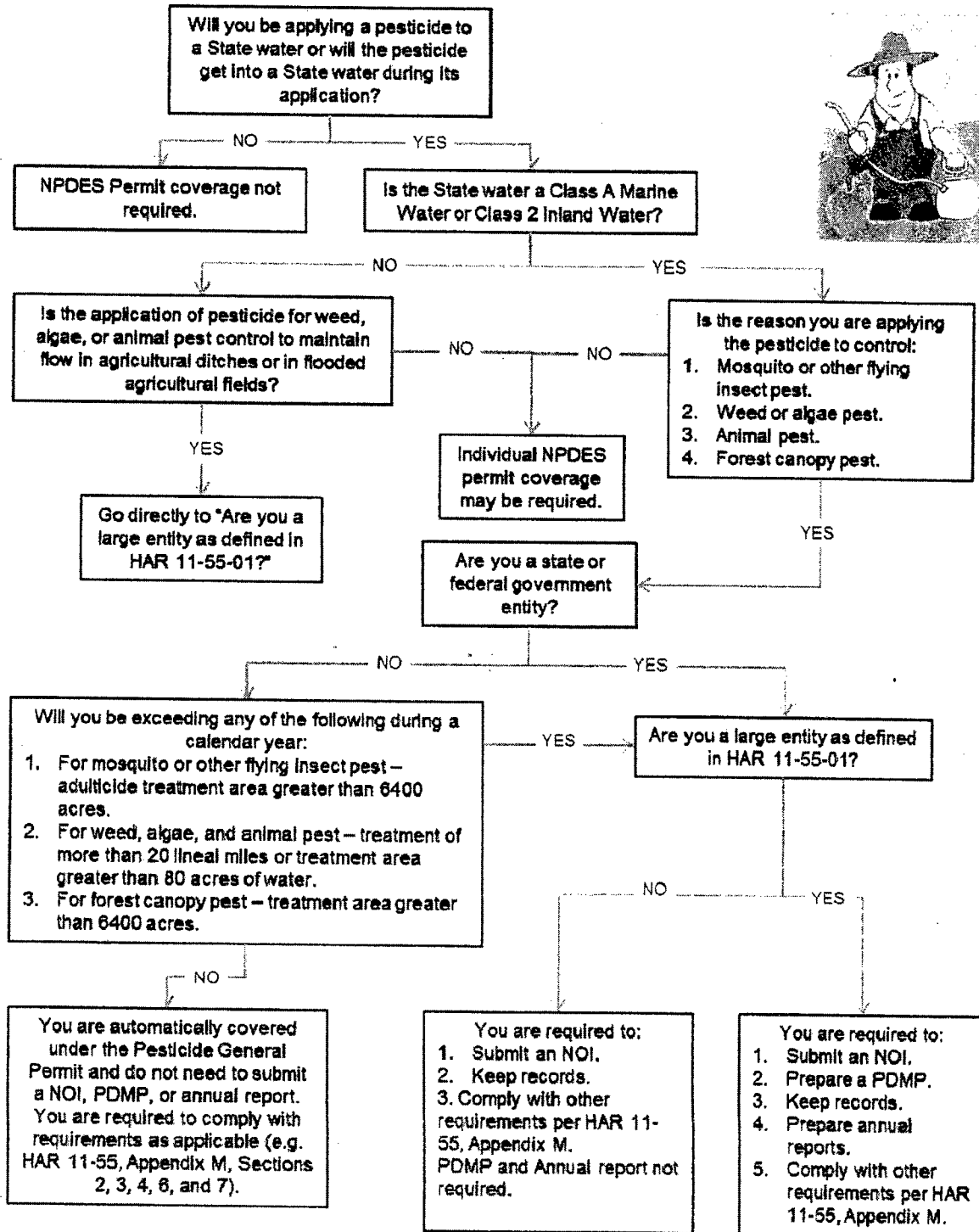
Attachment 1: Flow chart from Department of Health

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



Attachment E.3

Maintenance Activities BMP Program Plan



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



September 2018

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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		
☐	M1.1	Train maintenance field personnel in preventative measures and good housekeeping practices annually.
☐	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).
☐	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.
☐	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.
☐	M1.5	Ensure maintenance vehicles have ample spill clean-up and containment supplies.
☐	M1.6	Promptly clean spills with rags or absorbent material, and properly dispose of clean up materials.
☐	M1.7	For non-hazardous spills within the HNL MS4: • Respond promptly • Set up traffic controls • Block drainage systems with sandbags, booms, and/or other appropriate runoff diversion devices/techniques • Promptly absorb spills with rags or absorbent material, and properly transport and dispose of used absorbents • Assist tenants in cleanup, as needed
☐	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		
☐	M2.1	Schedule litter removal by DOTA maintenance personnel 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.
☐	M2.2	Clean up any reported litter problems or areas within three days of receiving notification or public complaint.
☐	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.
☐	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.
☐	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 the filled bags. DOTA maintenance personnel and/or contractors shall promptly pick up litter collected.
☐	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 trench drains require inspection twice per year and cleaning if needed.

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		
☐	M3.1	Do not clean storm drain facilities during storms or when storm systems are predicted at HNL.
☐	M3.2	Remove litter, sediment, and other debris from around all drain inlets and keep vegetation adjacent to inlets trimmed.
☐	M3.3	At minimum semi-annually, inspect each storm drainage catch basin, inlet, gutter, open ditch, and trench to determine if maintenance is required. Keep a log of storm drain system inspections and maintenance – report in HNL MS4 Annual Report.
☐	M3.4	If maintenance of storm drainage system is required, clean structure(s) using a vacuum truck and/or hand tools – prevent any runoff downstream using sand bags, booms, or other appropriate diversion devices/techniques.
☐	M3.5	Areas determined through monitoring and inspections to be the highest pollutant loading area(s) could be inspected more frequently (see SWMPP Section E).
☐	M3.6	Properly transport, store and dispose of removed debris. Keep a log of quantity and type of debris removed from storm drainage structures – report in HNL MS4 Annual Report.
☐	M3.7	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 stencils 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. Inspection and maintenance requirements for OWSs are also included in the SWMPP Section D.

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		
☐	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.
☐	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 st).
☐	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.
☐	M4.4	Replace any removed fluid with clean water to help prevent carry-over of oily water through outlet pipe.
☐	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		
☐	M5.1	DOTA maintenance personnel 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.
☐	M5.2	Properly maintain sweepers. Adjust broom heights frequently to maximize efficiency of sweeping operations.
☐	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.
☐	M5.4	Clean sweepers with clean water only in a contained area where water is properly treated and disposed of.
☐	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		
☐	M6.1	Respond to notification of roadway problems in a timely manner. Assess safety and pollution potential in assigning priority for repair.
☐	M6.2	When possible, perform crack and joint repair during dry weather periods.
☐	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.
☐	M6.4	For concrete paving, create concrete wash area and prevent wash water from contacting storm drainage system.
☐	M6.5	Use berms around stockpiled material and locate stockpile down slope and away from drain inlets and waterways.
☐	M6.6	During resurfacing activities, collect excavated material and recycle. Avoid work during rain.
☐	M6.7	Repair potholes and ruts as soon as possible.
☐	M6.8	Resurface roadways, runways, and taxiways as needed.
☐	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.
☐	M6.10	Place drip pans and/or absorbent materials under paving equipment when not in use.
☐	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.
☐	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		
☐	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.
☐	M7.2	Place containment devices around storm drain inlets to prevent material from impacting the MS4.
☐	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.
☐	M7.4	Store saw cutting and concrete materials away from drainage areas to prevent storm water pollution, or implement other equally effective BMPs.
☐	M7.5	Avoid mixing excess amounts of concrete/cement on site.
☐	M7.6	For on-site washout: • 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; • Wash out wastes into a temporary pit or container where the concrete can set, be broken up, and then disposed of properly. • Do not wash out concrete trucks into storm drains, open ditches, streets, or streams. • Cover concrete washout areas prior to a forecasted rain event. • Ensure container or pit is not filled to more than 70% of the capacity.
☐	M7.7	For curb and/or gutter replacement: • Ensure that BMPs are placed in downstream drainage structures to prevent the discharge of debris or concrete material. • Remove any accumulated debris from the curb or gutter. • Revegetate any disturbed areas.
☐	M7.8	For buried utility repair: • Ensure that nearby drainage structures and surface waters are protected. • Locate stockpiled soil on the upstream side of the utility trench so that runoff will carry any loose material back into the trench. • If contaminated soil is encountered, refer to SWMPP Section G. • After repairs, replace and stabilize the disturbed soil by revegetating, paving, or other method.
☐	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		
☐	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.
☐	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.
☐	M8.3	Use tarps or other containment device to capture drips that may occur when painting.
☐	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.
☐	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		
☐	M9.1	Stop work.
☐	M9.2	Shut down equipment and secure work operations.
☐	M9.3	Determine the source of the release and any hazards present.
☐	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.
☐	M9.5	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: 1. Your name, location, and how you may be reached. 2. Location of the release. 3. Type, quantity, and description of the release. 4. Hazards of the release. 5. Type of media affected (soil, asphalt, concrete, etc.). 6. Rate of the release. 7. Migratory direction of the release. 8. Potential for fire or explosion. 9. Potential for human exposure. 10. Potential for migration to surface water (ocean, storm drains, etc.).

Best Management Practices
Spill Prevention and Response Practices
(Continued)

☐	M9.6	Keep non-essential employees and visitors away from the spill area.
☐	M9.7	Prevent vehicles and equipment from driving through the spill area.
☐	M9.8	Remove all injured persons from the area of danger and render first aid.
☐	M9.9	Never subject yourself or other personnel to unreasonable risk of illness or injury.
☐	M9.10	If the decision is to "fight," spill response personnel are to don the appropriate PPE.
☐	M9.11	• Eliminate all possible sources of ignition/detonation such as vehicle engines, welding and grinding operations, and smoking.
☐	M9.12	• Remove or isolate ignitable and incompatible materials from the area of the release if the spill is of a flammable substance.
☐	M9.13	• Locate, stop, and contain the source of the release.
☐	M9.14	• Confine the release to prevent further migration using drainage controls, including but not limited to methods from the following list: ▪ Diking and berming using sand, soil, or other inert material; ▪ Sealing storm drains with plastic and sandbags; ▪ Placing granular absorbent or absorbent pads and booms; ▪ Diverting the chemicals from entering drains, manholes, streams, etc.; and ▪ Implementing retention techniques.
☐	M9.15	• 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.
☐	M9.16	• 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.
☐	M9.17	• 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.
☐	M9.18	• If the release is not readily and easily controlled, evacuation may be necessary.

Best Management Practices
Spill Prevention and Response Practices
(Continued)

☐	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.
☐	M9.20	Call the facility spill response contractor to handle the clean-up of the spilled material.
☐	M9.21	• 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: ▪ National Response Center - (800) 424-8802 ▪ U.S. Coast Guard - (808) 842-2606 ▪ DOH HEER office - (808) 586-4249 or after hours (808) 247-2191 ▪ DOH Clean Water Branch (CWB) – (808) 586-4309 (only if spill reaches state waters) The following information should be provided: 1) Caller Name, location, organization, and telephone number 2) Name, address, and telephone number of the facility owner 3) Name, address, and telephone number of the facility contact person 4) Date, time, and duration of the release 5) Date and time the release was discovered 6) Name of the chemical spilled and the approximate quantity released 7) Location of the release 8) Type of media affected (e.g. soil, asphalt, concrete, etc.) 9) Measures taken in response to the release 10) Danger or threat posed by the release or spill 11) Number and type of injuries (if any) 12) Weather conditions at the incident location 13) Any other information that may help emergency personnel respond to the incident
☐	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

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ATTACHMENT – HNL Outfall Summary

1.0 ACTION PLAN

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

Daniel K. Inouye
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



September 2018

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1.0 INTRODUCTION

The Daniel. K. Inouye International Airport formerly known as 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 contractors 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 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, VM1: Vegetated Areas and Aircraft Safety.

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, see Table 1 for a listing of these targeted vegetation areas. Other vegetated areas at HNL that are not designed to provide stormwater quality treatment are not covered under this plan and have subsequently been removed from Table 1.

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 updated list of erosional areas will be included in the HNL Annual Report. An EID will be assigned to the permanent BMPs that were designed to provide water quality. Any erosional areas that are addressed as a non-vegetative permanent BMPs will be deactivated from this listing below.)

TABLE 1: HNL MS4 TARGETED VEGETATED AREAS

EID	Basin	Location Description	Receiving Water	Latitude / Longitude	Approx. Size (acres)
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
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
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
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 the Maintenance 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 Maintenance Baseyard.	Aolele Canal	21°19'57.2" N 157°54'20.6" W	<0.5
(D10-1)	D10	Walls of Access A Canal from Aolewa Place to the diamond head hardstands.	Access A Canal	21°19'49.03" N, 157°54'49.17" W	<0.5
(D10-2)	D10	Slight slope between Access A Canal and the diamond head hardstands.	Access A Canal	21°19'48.74" N, 157°54'45.39" W	<0.5

EID	Basin	Location Description	Receiving Water	Latitude / Longitude	Approx. Size (acres)
(D14-2)	D14	Slight slope south of Kaloaloe Canal and immediately west of AOA perimeter road.	Kaloaloe Canal	21°19'50.80" N, 157°54'11.24" 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
(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
(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
15335	B	Bioswale at Elliot Street pervious pavement parking lot.	Manuwai Canal	21° 19' 49.8" N 157° 55' 48.5" W	<1
15336	A	Bioswale at Kalewa Street parking lot.	Keehi Lagoon	21° 19' 34.4" N 157° 54' 5.6" W	1
15337	D	Bioswale at Mokulele Airlines.	N/A (infiltrates)	21° 19' 53.76" N 157° 54' 38.93" W	<0.5

3.0 BEST MANAGEMENT PRACTICES (BMPS)

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 Storm Water Pollution Control Plan

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 Maintenance 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 *Maintenance Baseyard SWPCP* is available in the *SWMPP Section E, 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 Section E, 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.

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.



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

PRACTICES		
☐	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.
☐	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.
☐	VM1.3	Avoid the creation of areas of dense cover where birds may roost. Tree canopies should be thinned out in accordance with VM4.
☐	VM1.4	Consider using synthetic turf to stabilize soil and minimize attractiveness to wildlife.
☐	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.
☐	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

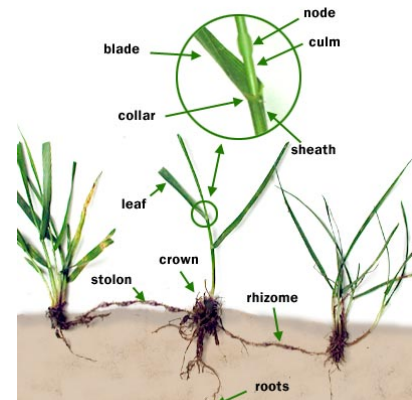
Mowing is the most required vegetation maintenance job. It consists of the mechanical trimming of turf, weeds, and other vegetation. Mowing to the required standards helps limit erosion, control weed invasion, enhances the natural beauty of the vegetated areas, and limits the roosting or nesting of hazardous 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"> • St. Augustine = 2-3 inches • Centipede grass = 1½-2 inches • Common Bermuda = 1½-2 inches • El Toro zoysia = 1-1½ inches | <ul style="list-style-type: none"> • Seashore paspalum = 1/2-1 inch • Emerald zoysia = 1/2-1 inch • Hybrid Bermuda = 1/2-3/4 inch • Wedelia = 1-3 inches |
|---|--|



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

Limitations

None

PRACTICES		
☐	VM2.1	Schedule mowing of turfgrass before it reaches 3 feet high.
☐	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.
☐	VM2.3	Do not mow when grass is wet.
☐	VM2.4	Remove all litter and debris before mowing.
☐	VM2.5	Consider placing berms around and/or covering storm drain inlets in the area when mowing.
☐	VM2.6	When mowing on slopes steeper than 1:3, use a side-mounted mower or a weed wacker.
☐	VM2.7	Edge cutting should be no more than ¼ inch wide.
☐	VM2.8	Trim and edge grass around sprinkler heads and valve boxes as needed to maintain a clean appearance and good irrigation coverage.
☐	VM2.9	Do not mow areas with excessive invasive weeds until they have been eradicated (see VM5).
☐	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.
☐	VM2.11	Sweep or otherwise remove all clippings from hard surfaces such as runways, taxiways, road, and parking lots.
☐	VM2.12	Ensure that green waste is stored in a contained area until disposal.
☐	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.

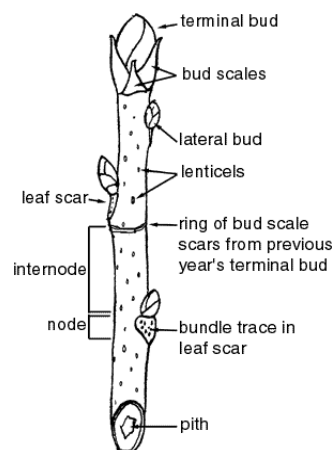
Definitions

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		
☐	VM3.1	Recommended vertical height of vegetation: • 6 feet near runways and taxiways. • 17 feet for overhanging vegetation above roadways. • 7 feet canopy clearance above sidewalks (i.e. Lagoon Drive).
☐	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.
☐	VM3.1	Do not prune more than 25% of the canopy at one time.
☐	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.
☐	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.
☐	VM3.1	For palm trees, remove fronds, fruit, seedpods and fruit stalks carefully without damaging the trunk or fronds that are to be retained.
☐	VM3.1	Do not remove live, healthy fronds from palm trees except where encroaching on utilities or structures.
☐	VM3.1	Avoid the use of spikes for trees; use aerial lifts where practical.
☐	VM3.1	For hedges and shrubs, remove dead stems and remove or cut back stems that extend far beyond the edge of the crown.
☐	VM3.1	Reduce 1/3 of remaining stems (oldest third) to about 4-6 inches inside the crown of the shrub.
☐	VM3.1	Hedges should be pruned wider at the base than at the top, allowing more sunlight to reach the base.
☐	VM3.1	Naupaka and Bougainvillea: maintain large groupings of naupaka as formal hedges by shearing.
☐	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.

Limitations

None

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

PRACTICES		
☐	VM4.1	Where possible, minimize disturbance of soil. If soil disturbance is necessary, replant disturbed areas with desirable vegetation.
☐	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.
☐	VM4.3	Report any new alien or target species in your area to the Pest Hotline (808) 643-7378 (PEST).
☐	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.
☐	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:

- The Coordinating Group on Alien Species— <http://www.hawaiiinvasivespecies.org/cgaps/>
- The Hawai'i Invasive Species Council— <http://www.hawaiiinvasivespecies.org/hisc/>
- Invasive Species Committees— <http://www.hawaiiinvasivespecies.org/iscs/>
- CTAHR Cooperative Extension Service— <http://www.ctahr.hawaii.edu/site/extprograms.aspx>
- U.S. Department of Agriculture— <http://www.invasivespeciesinfo.gov/unitedstates/hi.shtml>
- U.S. Fish and Wildlife Service— <http://www.fws.gov/pacificislands/invasives.html>
- The Outdoor Circle— http://www.outdoorcircle.org/protecting_hawaii
- Hawai'i Ecosystems at Risk— <http://www.hear.org>
- Hawai'i Department of Agriculture— <http://hawaii.gov/hdoa/>
- University of Hawai'i— <http://www.hawaii.edu>
- The Nature Conservancy— <http://www.nature.org/>
- The Sierra Club— <http://www.sierraclub.org/>

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		
☐	VM5.1	All old vegetation that is being replaced should be removed or mulched as appropriate.
☐	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.
☐	VM5.3	If plant was previously removed, the replacement plant(s) should be replaced as soon as possible or within four weeks of removal.
☐	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.
☐	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.
☐	VM5.6	Water root ball thoroughly by building a circular watering well around the edges of the root ball.
☐	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.
☐	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.
☐	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.
☐	VM5.10	Inspect tightness of straps frequently and adjust as necessary.
☐	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.
☐	VM5.12	Do not leave the staking in place for more than one year.
☐	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

- Federal Aviation Administration. July 2005. Wildlife Hazard Management at Airports, Second Edition.
- State of Hawaii, Department of Health. December 2013. Hawaii Administrative Rules, Chapters 11- 54 and 11-55.
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- State of Hawaii, Department of Transportation, Highways Division. April 2015. *Maintenance Plan for Vegetated Portions of the MS4*.

Attachment E.6

Trash Reduction Plan



Honolulu International Airport

Trash Reduction Plan



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

NPDES Permit No. HIS000005



April 2017

RECORD OF REVISION

[illegible]

Plan Approval:

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.

Ford N. Fuchigami
Director

State of Hawaii
Department of Transportation

4.19.17
Date

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APPENDICES

Appendix A: HNL Trash Generation Map

ACRONYMS

ACR	Annual Compliance Report
AIR-EE	DOTA, Engineering Branch, Environmental Section
AIR-OMF	DOTA, Oahu District, Airfield & Ground Maintenance Unit (Baseyard)
AOA	Air Operations Area
ARFF	Aircraft Rescue Fire Fighting Unit
BAT	Best Available Technology
BMP	Best Management Practice
CDS	Continuous Deflective Separation Units
COP	Continual Improvement, Obey Laws, Prevent Pollution
DOT	State of Hawaii Department of Transportation
DOTA	State of Hawaii Department of Transportation, Airports Division
EHS	Environmental Health Specialist
ENV	City and County of Honolulu Department of Environmental Services
FOD	Foreign Object Debris / Foreign Object Damage
IDDE	Illicit Discharge Detection and Elimination
USEPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
HAR	Hawaii Administrative Rules
HNL	Honolulu International Airport
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PSA	Public Service Announcement
SWMPP	Storm Water Management Program Plan
TRP	Trash Reduction Plan

1.0 INTRODUCTION

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. The airport consists of 4,520 acres of land on the southern portion of the island of Oahu. 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, a maintenance baseyard, and two aircraft rescue and firefighting (ARFF) stations.

DOTA is subject to the requirements under the National Pollutant Discharge Elimination System (NPDES) Program for storm water discharges. This Trash Reduction Plan (TRP) was submitted to comply with the conditions of the NPDES Permit No. HI S000005, effective April 14, 2014. The municipal separate storm sewer system (MS4 Permit, Part D.1.f.(1).(v) requires DOTA to develop and submit a TRP within three years of the effective date of the MS4 Permit (April 14, 2017).

1.1 DEFINITIONS, SOURCES, AND PATHWAYS

Trash that enters the MS4 at HNL is a result of activities that occur both outside and within the airports boundary. Numerous connections with adjacent storm water systems (Hawaii DOT and Honolulu City and County) represent outside pathways for trash to enter the MS4 at HNL. Trash that originates within the boundary of HNL may be generated by inadequate waste management practices such as overflowing receptacles, improper disposal, and poor landscaping practices.

The HNL MS4 Permit (HI S000005) defines **trash** as “improperly discarded waste material, excluding vegetation, except for yard/landscaping waste that is illegally disposed of in the storm drain system. Examples of trash include, but are not limited to, convenience food, beverage, and other product packages or containers constructed of aluminum, steel, glass, paper, plastic, and other natural and synthetic materials”. **Trash** is considered analogous to **litter**. For the purpose of this plan, **debris** includes rock, sediment, and vegetation in addition to items defined above as trash.

The “**BMP-Collected Trash Load**” is defined as the total amount of trash that is intercepted by all BMPs that would otherwise be discharged from the MS4. This is the sum of all trash that is collected via sweeping, permanent BMPs, booms, manual cleaning of the MS4 and canals, volunteer events, and other BMPS.

The “**MS4-Discharged Trash Load**” is defined as the total amount of trash that bypasses all BMPs and is discharged from the MS4 to the environment. The main objective of this TRP (Trash Reduction Plan) is to reduce this value to zero over a given amount of time.

The “**Generated Trash Load**” is defined as the sum of the MS4-discharged trash load and the BMP-Collected trash load (Equation 1).

EQUATION 1. GENERATED TRASH LOAD

Generated Trash Load = BMP-Collected Trash Load + MS4-Discharged Trash Load

2.0 CURRENT TRASH CONTROL MEASURES AT HNL

This section describes the control measures that DOTA has implemented at HNL to manage storm water runoff and MS4-related debris. Trash that is currently intercepted through these measures is thus considered BMP-Collected Trash. DOTA currently utilizes the following control measures:

- Institutional Control Measures
- Land-based Interception Control Measures
- MS4 Interception Control Measures

These BMP programs are implemented to reduce trash discharges from the DOTA MS4 to receiving water bodies. These control measures are also discussed in more detail in the comprehensive State of Hawaii Department of Transportation, Airports Division, *Storm Water Management Program Plan* (SWMPP).

2.1 Institutional Control Measures

Institutional control measures prevent or reduce the potential of trash to be deposited into the environment. DOTA implements both preventative and corrective institutional control measures.

2.1.1 Public Education, Outreach, and Training

DOTA places a high emphasis on their Public Education Program which increases the general public understanding those actions of individuals can have a significant cumulative impact on water quality. The goal of the Public Education Program is to raise awareness in targeted groups to cultivate greater behavioral and cultural changes to ultimately protect and improve water quality.

Training is vital to cultivate general awareness for targeted groups about environmental regulations, DOTA policies, the impact activities may have on water quality, and BMPs that can be implemented to reduce or eliminate impacts. Training is conducted in a variety of forms including, but not limited to classroom training, training videos, printed materials, and informal training (on-the-job, information during inspections, and public inquiry response).

Advertising is an effective means to generate awareness to a broader audience. DOTA has created educational signs placed within terminal public areas and has partnered with Leeward Community College to develop a public service announcement (PSA) that has been broadcasted on the community access TV channel Olelo.

All DOTA employees and contractors are required to watch a short video that discusses airport safety. The video also promotes environmental stewardship by reminding viewers it is everyone's responsibility to pick up trash within the HNL boundary in order to prevent trash from making its way to the MS4 and receiving waters.

The DOTA utilizes two logos and branding messages to represent both the DOTA storm water program as well as its connection with the Department of Transportation, Highways and Harbors Divisions storm water programs. The airport specific logo includes a concept developed in partnership with Radford High School graphic's class and reflects the Director of

Transportation’s environmental policy (COP: Continual Improvement, Obey Laws, Prevent Pollution). This logo allows for DOTA documents to be more readily identified and invokes greater ownership by personnel at the airport.

The shared DOT logo includes the state fish, a humuhumunukunukuapua’a, in the form of a rain drop as a reminder that our storm water runoff ultimately impacts the ocean wildlife. The message, “Protect Our Water,” is designed to remind individuals of their responsibility for water quality. Both branding messages are incorporated in training and educational materials.

2.1.2 Legislative Actions

Legislative actions influence societal behavior, improve enforcement, and enhance compliance with existing laws. DOTA trash reduction efforts benefit from several existing laws aimed at reducing the amount of trash entering the environment.

- Hawaii Pollution Prevention and Waste Minimization Program – Established in 1991 to reduce hazardous waste generation and promote environmental protection.
- Green Business Program – Established in 2003 – the program offers a variety of services to businesses interested in reducing their generation of waste and conserving resources.
- State of Hawaii Department of Environmental Services (ENV) – Provides island wide waste management system that protects the environment (Bulky item collection, curbside recycling, community recycling bins, condo recycling).
- HI-5 Program – Implemented in 2005 – beverage container deposit program placed a value on glass, aluminum, and plastic beverage containers. Although general public is not required to recycle beverage containers, all agencies, restaurants, and bar serving alcoholic beverages are required to recycle aluminum, glass, and plastic. *Airline and shipping companies that transport beverages to the state are not included.*
- City and County Commercial Recycling Ordinances – Recycling requirements and landfill bans put in place by the City and County of Honolulu. Office buildings with 20,000 square feet or more of office space are required to recycle paper, newspaper, and cardboard while city agencies are required to recycle newspaper, cardboard, office paper, aluminum, glass, and plastic. Additionally, the city is required to purchase recycled paper products (toilet paper, paper towels, copier paper, and computer paper) to support the recycle paper market. Hotels, restaurants, grocery stores, food courts, food manufactures/processors, and hospitals are required to recycle food waste and used cooking oil.

2.2 Land-Based Interception Control Measures

Trash that has entered the environment at HNL may be intercepted and removed through land-based interception control measures prior to reaching the MS4 network. This includes land-based trash clean ups and street sweeping. Table 1 shows the mass of debris removed from 2013-2016 by various land-based and MS4 cleaning activities.

TABLE 1. DEBRIS REMOVAL 2013- 2016

Reporting Year	MS4			
	Inspection & Debris Cleaning (lbs)*	Surface Water Trash (lbs)	Street Sweeping Debris (ft ³)*	FOD Walk Trash (lbs)
2013-2014	118,194	23,164	5,250	730
2014-2015	204,963	32,021	10,330	1,000
2015-2016	16,046	29,623	3,190	1,508

* Value includes green waste

2.2.1 Land Based Trash Clean Up Programs

The Airport EHS Department organizes Foreign Object Debris / Foreign Object Damage (FOD) walk-downs with tenants and employees. This annual volunteer event addresses the issues of FOD that threaten the safety of aircraft, airport vehicles, equipment, and passengers while bringing together the airport community and creating awareness (Table 1).

HNL's biannual Recycle Drive allows tenants to bring their infrequent waste items such as e-waste, tires, and other bulky objects in order to properly recycle, reuse, or dispose of these items to prevent illegal dumping or improper disposal while promoting awareness to participants. DOTA utilizes a third party contractor to recycle waste materials and used oil whenever practicable.

DOTA uses a third party contractor to conduct surface water cleaning in canals, the shoreline of the Reef Runway Pond, the shoreline along Lagoon Drive, and the shoreline near the Reef Runway Oceanside as a proactive measure to keep Hawaii's waters clean and free of trash (Table 1). The Reef Runway Pond (Ahua Pond), catches and contains trash that escapes via the Manuwai Canal. Trash accumulated along the shorelines of Keehi Lagoon generally originates from outside sources, not from DOTA's MS4 network; therefore, trash removed from these locations is not considered HNL-derived trash and will not be included in this plan.

2.2.2 Street Sweeping

Street sweeping is a cost effective method to remove litter, debris, and other pollutants from runways, taxiways, major streets, parking areas, and commercial and industrial streets. Street sweeping focuses on the removal of trash, green waste, sediment, and other large waste to reduce the potential of these items entering the MS4. DOTA tracks the amount of debris removed through all street sweeping operations. Based on data from 2015-2016 Annual Compliance Report (ACR), the street sweeping program removed 3,190 lbs of debris (Table 1).

2.3 MS4 Interception Control Measures

The Honolulu International Airport operates within 4,520 acres of land adjacent to Keehi Lagoon (Appendix A- HNL Trash Generation Map). Once trash enters the MS4, it may be intercepted

and removed through routine MS4 structure cleaning. The DOTA MS4 network at HNL consists of the following key structures:

- 2 Caps
- 33 Box Culverts
- 247 Catch Basins
- 10 Head Walls
- 837 Inlets
- 407 Manholes
- 3 Evaporation Ponds
- 102 Oil Water Separators
- 2 Continuous Deflective Separation Units (CDS)
- 69 Trench Drains
- 137 Outfalls
- Sorbant Booms in 3 Canals
- 2 Catch Basin Trash Trays
- 7 Hydrodynamic Separators
- 1 Infiltration Bed
- 19 Swales/Vegetated Filter Strips
- 1 Parking lot with pervious pavement

MS4 structures have been previously ranked according to the mass of trash removed during a reporting year. The most recent ranking information shown below was obtained from the 2015-2016 HNL Annual Compliance Report.

- High – 24 structures
- Medium – 387 structures
- Low – 676 structures

2.3.1 Inspection and Cleaning Program

DOTA's pollution prevention program is successful at capturing large amounts of debris that would otherwise discharge to the receiving water. DOTA's long term maintenance contracts ensure that all MS4 drains, oil water separators, and canal areas are routinely inspected and cleaned. Additionally, sorbent booms are placed in the two main discharge canals (Kaloaloa and Manuwai), which not only capture petroleum sheens, but also capture floating trash. In general, the MS4 cleaning program produces the most recovered debris (Table 1). Current contractors (as of 2017) and their responsibilities are described in Table 2.

TABLE 2: DOTA CONTRACTOR RESPONSIBILITIES (2017)

CONTRACTOR	INSPECTION AND CLEANING RESPONSIBILITY
Eckard Brandes, Inc.	• Maintains wet wells and catchment basins
EnviroServices & Training Center, LLC	• Waste materials, used oil, used batteries, old tires, and e-waste disposal services
Hawaii Industrial Services, Ltd.	• Drainage Canal Booms Maintenance for Ditch Pollution Control • Inspect and Clean HNL MS4 (drainage manholes, catch basins, inlets, box culverts, outfalls, head walls, and trench drains) • Oil water separator and evaporation pond maintenance • Storm drainage canal vegetative clearing & fugitive litter removal
Smalt & Co. Inc.	• Provides shoreline cleaning on Lagoon Drive, the Reef Runway Oceanside, and the Reef Runway Pond

2.3.2 Permanent BMP Program

HNL's *Storm Water Management Program Plan (SWMPP)*, Section D *Post-Construction Storm Water Management* requires that specified construction projects include permanent Best Management Practices (BMPs). DOTA considers BMPs in the following categories:

1. Low Impact Development Strategies (LID)
2. Source Control BMPs (Source Control)
3. Storm Water Treatment BMPs (Treatment)

DOTA completed an action plan for retrofitting permanent BMPs at HNL that strives to achieve the following performance goals:

1. Pollutant Removal
2. Reduce on-site trash and floatables
3. Reduce Runoff volume
4. Provide outdoor learning and community outreach opportunities at HNL

Additional information can be found in HNL's SWMPP, Section D.

3.0 CURRENT ESTIMATE OF THE BASELINE TRASH LOAD

To estimate the current baseline trash load, historical data from canal cleaning contracts was analyzed.

3.1 Available Data

All data collected by trash removal activities is accessible via the DOTA online database Enviance.

3.1.1 Trash Removed from Canals and Booms

Canals represent the last possible location to quantify trash before it is discharged to state waters. Since data collection began, 32,102 lbs of trash (not including landscaping waste) was removed from the canals and booms (Figure 1) over the course of 3 years (canal cleaning contracted ended 5/31/16). To estimate the current baseline MS4-discharged trash load, the last two years of data will be used. The average amount of trash removed from 7/3/14 to 5/31/16 was roughly 633 lbs per month or 7,598 lbs per year.

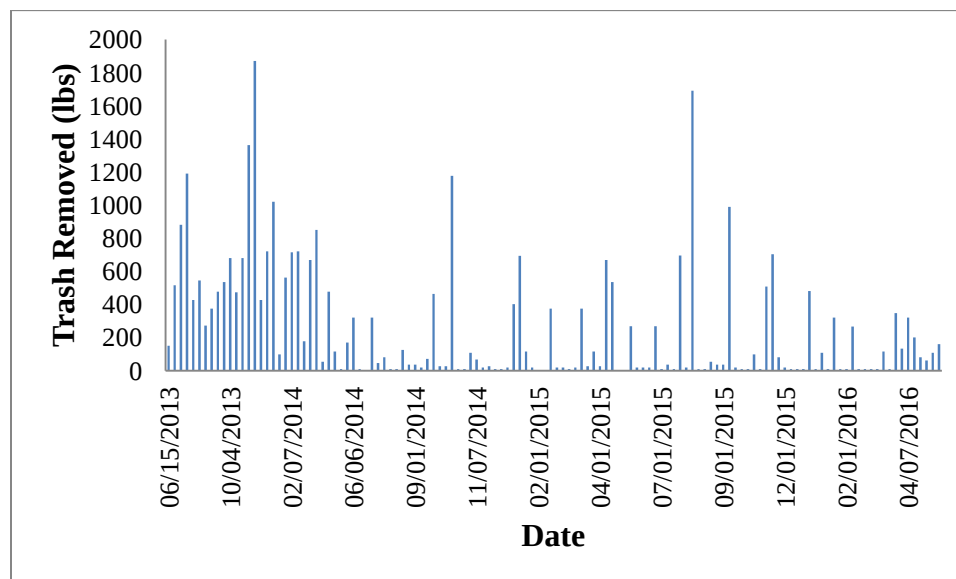


FIGURE 1. TRASH REMOVED FROM CANALS AND BOOMS (2013-2016)

3.1.2 Trash Removed From MS4 Cleaning, Sweeping, and Volunteer Events

Significant amounts of debris are regularly removed from surfaces and the MS4 via cleaning, sweeping, and volunteer events (Table 1), however the available data does not distinguish between types of debris. Therefore, the amount of trash removed during these events is unknown; this must be quantified in order to show increased trash capture and trash load reductions in the future.

3.2 Current Estimate of the Baseline MS4-Discharged Trash Load

MS4-discharged trash enters Keehi Lagoon and the Pacific Ocean from canals, Ahua pond, or directly from MS4 outfalls (Appendix A- HNL Trash Generation Map). As shown in Appendix A and Figure 2, 22 % (994 acres) of HNL areas drain to the Manuwai and Kalaoloa canals.

Approximately 10 % (452 acres) of the total HNL area is categorized as areas that generate trash and that discharge storm water directly Keehi Lagoon via outfalls; these outfalls are typically submerged. The remaining 68% (3,074 acres) of the total HNL area is categorized as non-trash generating due to the extremely limited activities that take place in these areas. Much of these non-trash generating areas are runways and taxiways (and associated grassy areas) that are frequently and thoroughly cleaned with sweepers to remove any FOD that would pose an aviation risk (Figure 2, Appendix A).

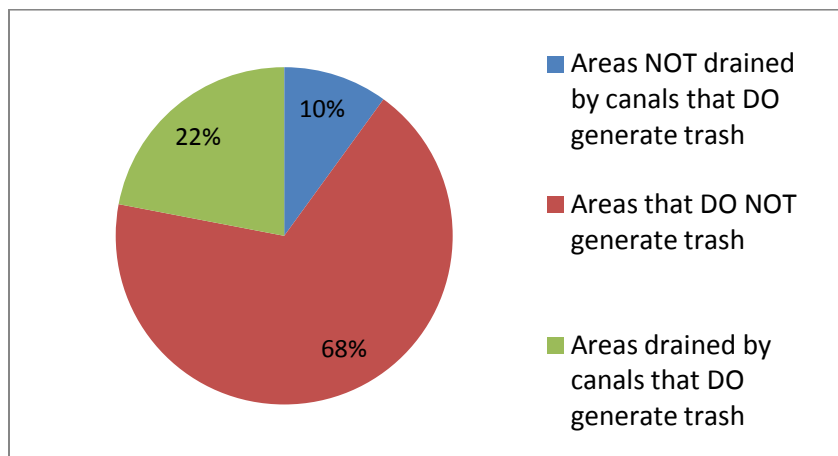


FIGURE 2. TRASH GENERATION FROM HNL AREAS

3.2.1 MS4-discharged trash from areas drained by canals

In order to estimate MS4-discharged trash for areas drained by canals (994 acres), it is assumed that an additional 10 % of all trash that was removed from canals (7,600 lbs per year) actually bypasses these BMPs and is discharged to the environment; therefore, approximately **760** lbs of trash is estimated to escape canals as MS4-discharged trash each year.

3.2.2 MS4-discharged trash from areas NOT drained by canals

As stated above, canals at HNL drain storm water from approximately 22 % (994 acres) of the airport areas that generate trash (Figure 2, Appendix A). MS4-discharged trash from the remaining 78 % of the airport must be estimated using a different method from that used in section 3.2.1.

Assumptions:

- 1) MS4-discharged trash from areas not drained by canals will be proportional (by area) to the amount of trash that enters canals (8,360 lbs).
- 2) Areas classified non-trash generating do not generate trash.

The amount of trash that enters canals can be estimated as the sum the mass of trash that is discharged from canals (760 lbs) and the mass of trash that is removed from canals (7,600 lbs). Therefore, it is estimated that 8,360 lbs of trash enter canals (but is not necessarily discharged to the environment). This is equal to 8.4 lbs per acre of trash from areas that generate trash and that

discharge storm water to canals. The estimated mass of MS4-discharged trash from areas not drained by canals (452 acres) is equal to **3,797 lbs** (8.4 lbs / acre X 452 acres).

3.2.3 *Total estimate for current baseline MS4-Discharged trash load*

The baseline MS4-discharged trash load is the sum of estimated MS4-discharged trash loads from section 3.2.1 and 3.2.2. HNL areas that drain to canals are estimated to discharge an average **760 lbs** of trash. HNL areas that do not drain to canals are estimated to discharge an average **3,797 lbs** of trash to state waters. Thus, the baseline MS4-Discharged trash load for HNL is **4,557 lbs**.

3.3 *Current Estimate of the Baseline BMP-Collected Trash Load*

The baseline BMP-Collected trash load is the total amount of trash removed from land surfaces and the MS4 system by all BMPs combined. Because historical data from street sweeping, FOD walks and MS4 cleaning activities did not quantify the amount of trash with respect to other debris, an estimate for the current baseline BMP-Collected Trash cannot be calculated. Estimation of a baseline for this parameter will be essential to quantifying future trash reductions.

3.4 *Current Estimate of the Baseline Generated Trash Load*

The baseline Generated Trash Load is the sum of the baseline BMP-Collected Trash Load (section 3.2) and baseline MS4-Discharged Trash Load (section 3.3). This value is the total estimated trash that is generated/arrives at the airport that has the potential to be discharged to receiving waters via the airports MS4 system. This does not include waste that is properly disposed or recycled at HNL. Because an estimate for the baseline BMP-Collected Trash Load is not available, an estimate for the baseline Generated Trash Load cannot be calculated. Estimation of a baseline for this parameter (Generated Trash Load) will be essential to quantifying trash reductions in the future.

4.0 BASELINE TRASH LOAD QUANTIFICATION AND CHARACTERIZATION STUDY

In order to meet future trash reduction goals outlined in this plan, it is essential to calculate an accurate estimate of the baseline Generated-Trash Load. To accomplish this, a baseline study that quantifies and characterizes both MS4-Discharged Trash and BMP-Collected Trash is essential. In addition, this study will provide insight into which airport activities (and sources) are associated with various types and amounts of trash. This approach will allow DOTA to focus trash reduction efforts on certain areas or activities in order to meet trash reduction goals in the future. In order to account for annual and seasonal variability, a three-year baseline study will be implemented.

4.1 Trash Quantification and Characterization Method

Debris that is removed from HNL areas will be quantified empirically and visually characterized. For a particular activity in a particular area (eg. Canal 1 cleaning), the volume and mass of items collected will be measured. A visual estimate of the percent of total volume will then be recorded for debris that falls into each of the categories below:

- a. Single-use plastics (bags, bottles, straws, cutlery, packaging etc.), polystyrene foam (Styrofoam), and rubber products
- b. Metal (nuts and bolts, rust chips, cans), glass and fiberglass, paper, and cardboard
- c. Cigarette butts and other misc. man-made trash
- d. Green trash (landscaping debris, cut wood, plant/grass clippings, etc.)
- e. Green waste (vegetation, branches, leaves, non-landscaping green waste, etc.)
- f. Sediment, sand, rock, aggregate, and asphalt debris

Per the definition given in section 1.1, trash includes the amount of debris that falls into categories a-d.

4.2 MS4-Discharged Trash Load Baseline

The total MS4-Discharged Trash Load is equal to the sum of the amount of trash (debris removed that falls into categories a-d) removed from the Baseline-Booms (section 4.2.1) and the estimate of MS4-Discharged Trash from areas not drained by canals (section 4.2.2). This value will be calculated annually for the three-year duration of this baseline study. To account for annual variability, the average of these values will represent the baseline value for MS4-Discharged Trash Load.

4.2.1 MS4-discharged trash from areas drained by canals

The most accurate way to estimate the actual MS4-Discharged Trash Load (trash that is currently bypassing all existing BMP and is discharged to state waters) is to install end-of-pipe full capture trash devices at all outfalls and canals. For areas that ultimately drain to canals, this will be achieved by the installation of an additional trash boom (with a submerged net to catch non-floatables) in both the Manuwai and Kalaoloa canals at a location near the canal mouth (or closest practical location). Debris that is removed from these “Baseline-Booms” will be quantified and categorized as above in section 4.1.

4.2.2 MS4-discharged trash from areas NOT drained by canals

The installation of end-of-pipe catchment devices may not be feasible for outfalls in areas that are not drained by canals due to high costs and logistical issues (the majority outfalls are submerged). Therefore, the baseline value for MS4-Discharged Trash from areas not drained by canals will be estimated using a similar method to that used in section 3.2.2. The baseline value for MS4-Discharged Trash from areas not drained by canals is equal to 10 % of trash removed from “Baseline-Booms” (section 4.2.1).

4.3 BMP-Collected Trash Load Baseline

Over the duration of this three-year study, trash removed via BMPs and activities such as MS4 and canal cleaning, FOD Walks, street sweeping, etc., will be quantified and categorized as shown in section 4.1. Only trash removed by BMPs within areas categorized as trash producing areas will be used in trash reduction calculations. To account for annual variability, the three year average of these values will represent the baseline value for the BMP-Collected Trash Load.

4.4 Total Generated Trash Load Baseline

During this three-year baseline study, both MS4-discharged and BMP-Collected trash loads will be calculated annually. The annual Generated Trash Load is the sum of both of these values (Eq. 1). To account for annual variability, the average of these values will represent the Baseline value for Total Generated Trash Load.

5.0 TRASH LOAD REDUCTION CALCULATION

The long term goal of this trash reduction plan is to increase the amount of BMP-Collected trash, through the implementation and enhancement of various control measures, until the amount of BMP-Collected trash in a given year is equal or greater than the baseline value of Total Generated Trash. Similarly, the goal is also to increase the amount of BMP-collected trash to a point where the increase in trash collected (above the baseline BMP-collected trash value) is equal to or greater than the baseline value for MS4-discharged trash.

Future trash load reductions will be calculated by comparing the BMP-collected trash in a given year to the baseline values as calculated in section 4. The following equation shows the calculation for the trash load reduction using the mass of trash (volume can also be used).

EQUATION 2. CALCULATION OF PERCENT LOAD REDUCTION

$$\% \text{ Reduction} = \frac{(\text{Baseline Generated Load} - \text{Current BMP Collected Load})}{\text{Baseline MS4 Discharged Load}} \times 100$$

The following is an example of reduction calculations for year X; note the slight variability in values during the baseline study (years 1-3). The MS4-Discharged Load is not estimated after the baseline study (year 1-3) because baseline booms are considered permanent BMPs after year 3.

TABLE 3. TRASH REDUCTION CALCULATION EXAMPLE

Year	BMP-Collected Load (lbs)	MS4-discharged Load (lbs)	Generated Load (lbs)
Baseline 1	= 76	19	95
Baseline 2	= 80	20	100
Baseline 3	= 84	21	105
Average Baseline	= 80	20	100
Year X	= 88	N/A	88

Year X Reduction = (100 - 88) / 20 = 60 % Trash Reduction from Baseline

6.0 PLAN IMPLEMENTATION SCHEDULE

This section describes the implementation schedule, which consists of a Short-Term Plan and a Long-Term Plan to meet the trash reduction targets set at 50% by 2023 and 100% by 2036, respectively.

6.1 TRASH BASELINE LOAD

DOTA plans to install full capture trash devices wherever feasible as described in section 4 and initiate the three year baseline study as soon as possible. The exact start date will be determined by the date agree upon in new/revised contracts for the cleaning and sorting of debris from canals and MS4 structures.

6.2 SHORT-TERM PLAN

DOTA plans to adopt a variety of feasible control measures to efficiently meet the 50% reduction from the MS4-Discharged load by 2023. DOTA will benefit from implementing new control measures and enhancing those that are currently in place.

6.2.1 *Enhancement of Existing Control Measures*

DOTA intends to enhance the following control measures that have already been implemented.

Public Education: DOTA continuously holds tenant and airport employee training events and distributes educational handouts on storm water issues throughout the year. PSAs and educational signs have been created by DOTA which reaches a broader audience to educate and promote storm water awareness. In addition to continuing existing education and outreach activities, DOTA plans to increase the amount of educational signs displayed around the airport and educational materials sent to tenants and airport employees.

Permanent BMPs: There are currently 145 Permanent BMPs installed which function as trash capture devices. DOTA will continue to monitor, maintain, and evaluate the trash removal efficiency of the current Permanent BMPs to estimate potential future trash load reductions.

Cleaning Contracts: DOTA ensures that storm drainage structures such as catch basins, inlets, curb gutters, open ditches, canals, trenches, and evaporation ponds are inspected every six months to identify any maintenance or cleaning requirements. Cleaning of these structures is done on an as needed basis following inspection.

The full capture trash booms installed in canals as part of the baseline study will remain in place after the baseline study period to act as permanent BMPs. This alone will provide a



large reduction in the amount of trash that escapes the MS4. Because canals drain roughly 70 % of airport areas that generate trash (22 % of total HNL area), these trash booms are expected to play a large role in meeting the short goal of 50 % trash reduction.

Drainage structures in the movement area are classified as a low priority and have historically not required maintenance cleaning because the only activities conducted in this area are aircraft taxiing, take-off, and landing, which generally do not create debris.

DOTA will increase inspection and cleaning (if needed) of Ahua Pond. Trash resulting from potential cleaning activities along the shoreline of Keehi lagoon or the Pacific Ocean is not considered to have originated from HNL and thus will not be used in trash reduction calculations.

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. DOTA maintenance Section (AIR-OMF) conducts sweeping operations at runways, taxiways, major streets, and streets in industrial and commercial areas once per week or more frequently if a complaint is received. Sweeping is also initiated when the FAA requests cleaning the area due to FOD concerns, AIR-EE inspectors require that an area be swept where there is a potential threat of discharge to State waters, and/or if operators fill two sweeper trucks and there is additional debris remaining on the ground. DOTA will increase sweeping frequency in selected basin areas that are considered to be high priority or contain structures identified as hot spots based on previous data.

Recycling Programs: HNL's biannual Recycle Drive allows tenants to bring their infrequent waste items such as bulky items, papers, magazines, binders, general office equipment, scrap metal, carpet, appliances, and e-waste in order to properly recycle, reuse, or dispose items in order to prevent illegal dumping or improper disposal of these items. Sustainable HNL targets an increased recycling rate to 4% by 2020. This includes scrap metals, pallets, hazardous waste, office paper, newspaper, cardboard, green waste, and e-waste.

Clean-Up Events: HNL's FOD Walk program is an annual volunteer event that brings together the airport community while addressing the issues of Foreign Object Debris / Foreign Object Damage (FOD) that threatens the safety of aircraft, airport vehicles, equipment, and passengers at HNL. HNL's FOD Walk program will be expanded to multiple events per year that will focus on different areas and known hot spots.

Employee Responsibility: All airport employees must complete AOA training which promotes environmental stewardship and responsibility of all employees to pick up trash at HNL. Baseyard and street sweeper personnel are trained to be the "eyes and ears" for Illicit Discharge Detection and Elimination (IDDE).

Tenant and Construction Inspections: DOTA inspectors generally consist of AIR-EE, Environmental Health Specialists (EHS), and their consultants. They are required to receive annual training for Industrial and Commercial Tenant Site Inspections and Construction Site

Inspections. These inspections have been put in place to verify site conditions and ensure BMPs are properly maintained and effective in containing potential pollutants.

6.2.2 Future Control Measures

Future control measures are needed for DOTA to meet trash load reduction goals. Based on the findings of the baseline study, DOTA will prioritize management and implementation of suitable BMPS to address trash generated by specific activities in specific areas. The baseline characterization of trash will allow DOTA to identify the types of trash associated with specific areas of HNL. Several BMPs are available to meet the stated reduction targets:

Cigarette Butt Program: The goal of this future program is to increase educational signs and handouts in areas where smokers congregate to eliminate improper disposal. Increasing cigarette butt receptacles around the airport will further enhance the program goals.

Waste Receptacles: This future control measure will increase amount and visibility of proper waste and recycling receptacles throughout HNL. Improvements in trash bin and container management will also help to prevent dumping around bins/containers and overflow related issues.

Permanent BMP Retrofits: Baseline trash booms installed for the baseline study will remain in place as permanent BMPs. If possible, other full and partial capture devices will be installed at specific locations. In addition, DOTA has produced a Retrofit Action Plan (HNL SWMPP) that includes a tentative schedule for each Retrofit BMP Project as shown in Table 4.



TABLE 4. RETROFIT SCHEDULE

RETROFIT BMP PROJECT DESCRIPTION	BMP TYPE	YEAR 1 2015	YEAR 2 2016	YEAR 3 2017	YEAR 4 2018	YEAR 5 2019
New Employee Parking Lot	Pervious Concrete	X				
South Ramp Fuel Rack	OWS	X				
New Hawaiian Hangar	CDS Units		X			
Widening of Taxiways G&L, P1	CDS Units		X			
Diamond Head Site Improvement	CDS Units			X		
Diamond Head Commuter Terminal	CDS Units			X		
CONRAC Phase 2B (Rental Car Facility)	Detention Basin					X
New Mauka Concourse	Detention Basin					X
Various Storm Drains (Table 5)	Filtration Products				X**	
D10-1 Access "A" Canal	Canal Stabilization				X	
D14-1 Kaloaloe Canal	Canal Stabilization	To Be Determined				
Triturator	Redesign for Containment	To Be Determined				
A9-3 Lagoon Drive Parking Lot	Permeable Pavers	To Be Determined				

* Based on construction start dates and may be subject to change. Timeframes are based on calendar years.

** Storm Drain retrofits may also be included as an addition to other projects and will be subject to their construction schedule. At least one of the storm drain retrofits will be completed by this date.

6.3 LONG-TERM PLAN

In 2024, an assessment of data collected during implementation of the Short-Term Plan will be completed in order to verify the efficiency of trash control measures. This will allow an additional 16 years after completion of the Short-Term Plan to create new programs and alter existing ones. Throughout the duration of the Long-Term Plan, DOTA plans to enhance all successful control measures to meet the 100% trash load reduction from the baseline MS4-Discharged Trash Load by 2036.

The Long Term Plan may include these control measures:

- Install PBMPs and retrofits
- Install additional full catchment devices in canals and outfalls where feasible
- Stringent rules plastic bags and plastic bottles
- An ordinance to ban Styrofoam within HNL
- Implementation of monetary fine for tenants or individuals caught littering

6.3.1 Single-use Plastic Bag and Plastic Bottle Ordinances

Single-use plastic bags and plastic bottles have harmful effects on the environment and these items can compromise the functionality of the MS4. DOT-A will benefit from a municipal ordinance designed to reduce the environmental impacts of single-use plastic bags within HNL boundaries.

Prohibiting distribution of single-use carryout plastic bags at all restaurants/food service institutions and retail establishments will ultimately reduce the amount of waste generated at the airport and the risk of trash waste entering the MS4. Increased water bottle refill stations and a plastic bottle ban within the AOA will promote the use of re-useable bottles and reduce the risk of plastic water bottles entering the MS4.

6.3.2 *Polystyrene Foam Food Service Ware Ordinances*

Polystyrene foam is used as food ware in the food service industry and has the potential to impact human health, wildlife, and the aquatic environment (USEPA 2002). Prohibiting restaurants and food vendors from distributing polystyrene foam containers and replacing polystyrene with less hazardous, compostable or readily recyclable products will protect public health and safety at HNL, as well as the surrounding environment and waterways.

6.3.3 *Anti-Littering Enforcement*

Successful anti-littering and illegal dumping enforcement activities include laws and ordinances which prohibit littering or dumping. Laws are enforced by various municipal agency staff who issue citations in response to citizen complaints or other enforcement methods such as surveillance cameras or signs/barriers at illegal dumping “hot spots”. DOT-A will support local government actions that reduce illegal littering through enforcement, surveillance, and increasing visibility and distribution of proper waste and recycling receptacles.

7.0 TRASH LOAD REDUCTION MONITORING AND REPORTING

All data associated with trash collection, quantification, and characterization will be input to the online database system Enviance. Enviance will be configured to produce reports that automatically calculate annual trash reductions in addition to detecting “hot spot” locations for particular types of trash.

7.1 ANNUAL REPORTING

HNL’s annual report (due August 31st) will include a summary of its trash reduction actions (control measures and BMPs) including types of actions and levels of implementation. This will include total trash loads and dominant types of trash removed by specific trash reduction actions.

8.0 REFERENCES

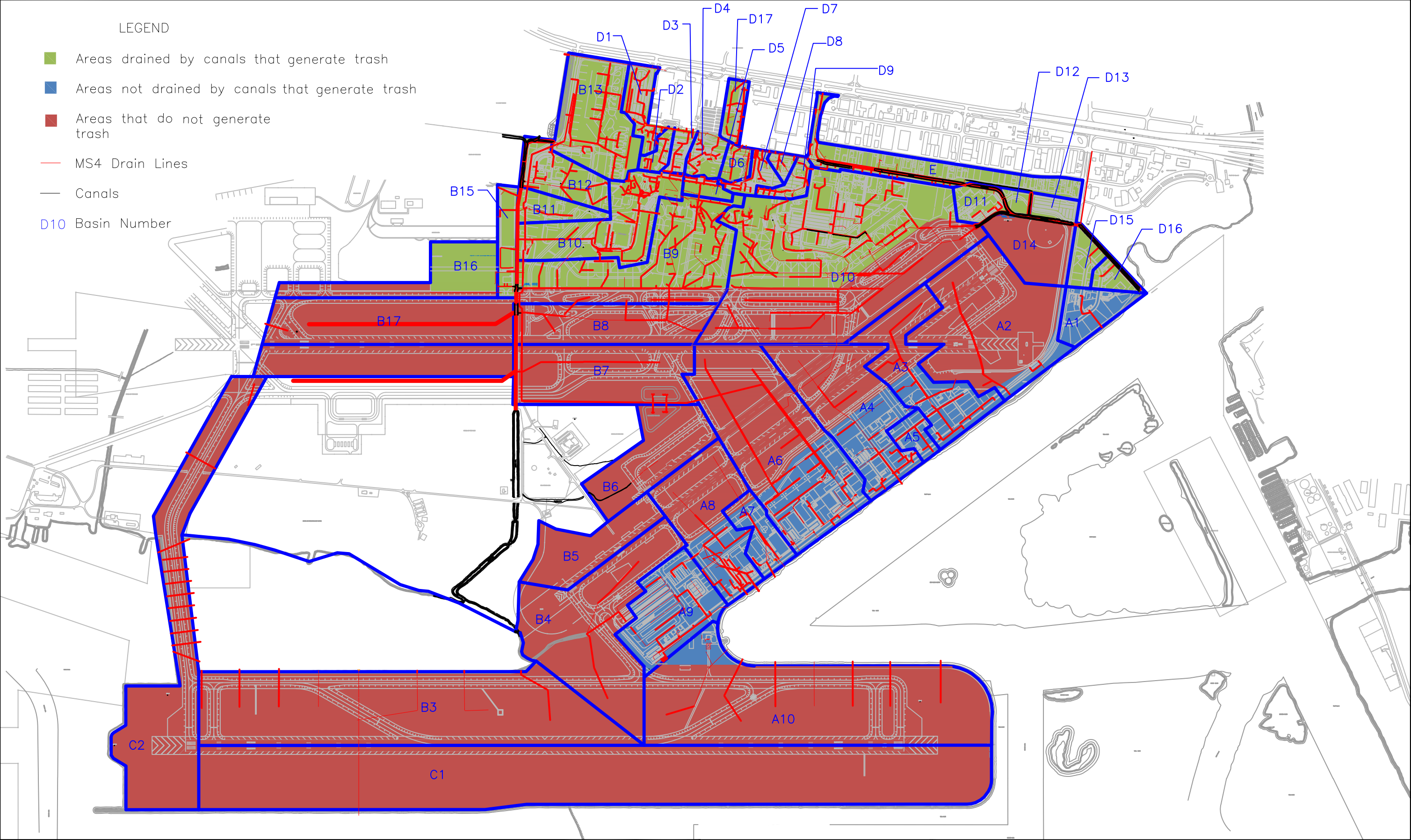
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Appendix A

HNL Trash Generation Map

LEGEND

- Areas drained by canals that generate trash
- Areas not drained by canals that generate trash
- Areas that do not generate trash
- MS4 Drain Lines
- Canals
- D10 Basin Number



HONOLULU INTERNATIONAL AIRPORT



Airports Division

Date: April 2017

HNL Trash Generation Map

Appendix
A