

PERMANENT BEST MANAGEMENT PRACTICES (PBMPs) – INSPECTION & MAINTENANCE

FACT SHEET



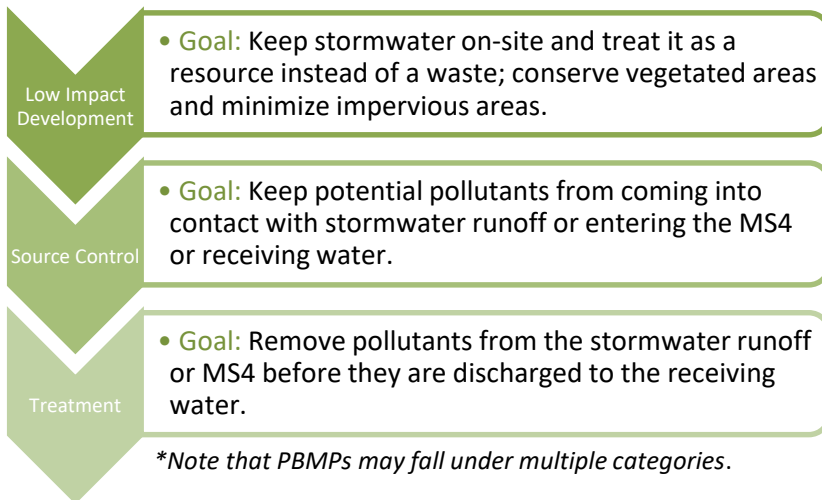
OVERVIEW

The purpose of permanent/post-construction best management practices (PBMPs) is to retain stormwater on-site, control the source of potential pollutants, and/or treat stormwater that enters the MS4.



Permeable pavement and grass swale at HNL Elliott Street parking lot

PBMPs can be categorized as low impact development (LID), source control, and treatment:



- Common types of PBMPs include:
- Oil water separators (OWS)
 - Hydrodynamic separators (HDS)
 - Drain inlet inserts
 - Permeable pavement
 - Grassed swales
 - Bioswales
 - Evaporation ponds
 - Infiltration beds
 - Retention basins
 - Dry wells

Inspect PBMPs annually and conduct maintenance as needed. DOTA is responsible to maintain PBMPs owned and operated by DOTA. Tenants are responsible for PBMPs situated on tenant leased or managed spaces.

DOTA developed a PBMP Operations & Maintenance (O&M) Manual, which has inspection forms for different types of PBMPs typically used at the airports.

PBMP maintenance is site-specific and dependent on the amount and quality of runoff delivered to the PBMP. Routine maintenance to remove sediment, trash, debris, and/or overgrown vegetation will help avoid costly rehabilitative maintenance to repair damages that may occur when the PBMPs are not maintained on a regular basis.



Cross section of a bioretention/grass swale

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REQUIREMENTS

If your facility has a PBMP and you are responsible for maintenance (not DOTA), **conduct inspections annually and perform maintenance as needed** to ensure proper function of the PBMP. Retain PBMP inspection and maintenance records on-site for five years.

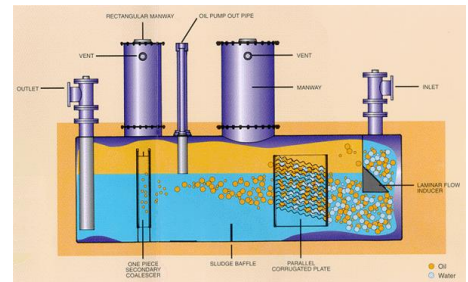
You may use your own forms, or there are example forms in the *PBMP O&M Manual* attached herein and online here: https://hidot.hawaii.gov/airports/files/2019/01/DOTA_PBMP_O_M_Manual_v2_FINAL.pdf

The PBMP O&M Manual also provides guidance on how to inspect different types of PBMPs. Note that it is not necessary to track trash categories (although the PBMP O&M Manual forms include them).

PBMP inspection records should be readily available as DOTA will verify them during tenant stormwater inspections of your facility. *Maintenance records are considered inspection records for OWS, HDS/CDS, and drain inlet inserts.*



Retention Basin at HFFC OGG



Cross section of a OWS

FORMS

PBMP Type	Inspection & Maintenance Form (PBMP O&M Manual)
<ul style="list-style-type: none"> OWS HDS/CDS Drain Inlet Inserts 	Treatment PBMP Inspection and Maintenance Form
<ul style="list-style-type: none"> Permeable Pavement Permeable Pavers 	Pervious Surface PBMP Inspection and Maintenance Form
<ul style="list-style-type: none"> Bioswale Grassed Swale 	Vegetated PBMP Inspection and Maintenance Form
<ul style="list-style-type: none"> Evaporation Pond Infiltration Bed Retention Basin Dry Well 	Evaporation Ponds / Infiltration Beds PBMP Inspection and Maintenance Form



Evaporation Pond at OGG Washrack



Drain inlet insert

ATTACHMENTS

PBMP Inspection and Maintenance Forms

Treatment PBMP Inspection and Maintenance Form

Pervious Surface PBMP Inspection and Maintenance Form

Vegetated PBMP Inspection and Maintenance Form

Evaporation Ponds / Infiltration Beds Inspection and Maintenance Form



Treatment PBMP Inspection and Maintenance Form



Section 1: Background Data

Inspector(s):	Date:	Time:	EID #:
Tenant Leased Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, PMID #:		Tenant Name:
Ownership: <input type="checkbox"/> DOTA <input type="checkbox"/> Tenant	Latitude:	Longitude:	Weather:
Land Use Drainage Area (Check all that apply): <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Open Space <input type="checkbox"/> DOTA Common Use Area (e.g., ramp or runway) <input type="checkbox"/> Other:			
Type of Inspection: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annual <input type="checkbox"/> Re-inspection <input type="checkbox"/> Other		PBMP Category: <input type="checkbox"/> LID <input type="checkbox"/> Source Control <input type="checkbox"/> Treatment	
Type of PBMP: <input type="checkbox"/> OWS <input type="checkbox"/> HDS/CDS <input type="checkbox"/> Drain Inlet Inserts <input type="checkbox"/> Other:			

Section 2: Visual Inspection

Maintenance Item	S	U	NA	Comments / Actions Required:
Pretreatment				
Sediment Accumulation				
Trash and Debris				
Inlets				
Structural Condition				
No Blockage				
Oil Containment Chamber				
Oil Volume				
Oil-absorbing Pad Condition				
Sediment Collection Chamber				
Sediment Volume				
Sludge Accumulation				
Outlets				
Structural Condition				
Sediment, Trash, Debris Accumulation				
Erosion				
Other				
Spills or Leaks Evident				
No Excessive Ponding				
Water Conveyed Through System Properly				

S – Satisfactory; U – Unsatisfactory; NA – Not applicable

Section 3: Corrective Actions

Maintenance Needed? Yes No (Review O&M Manual for specific PBMP maintenance requirements)

Date Corrected: _____

Explanation of Maintenance Activities: _____

Section 4: Trash/Debris Removed

Date	Single Use Plastics (bags, bottles, straws, cutlery, packaging), Styrofoam, Rubber (lb)	Metal (nuts/bolts, rust chips, cans), Glass, Fiberglass, Paper, Cardboard (lb)	Cigarette Butts, other misc. man-made trash (lb)	Green Trash (landscaping debris, cut wood, plant/grass clippings) (lb)	Green Natural Waste (vegetation, branches, leaves, algae, seaweed) (lb)	Sediment, Sand, Rock, Aggregate, Asphalt Debris (lb)	Total Debris (lb)	Comments



Treatment PBMP Inspection and Maintenance Form



PHOTOGRAPHS

Photo 1:	Photo 2:
Photo 3:	Photo 4:



Pervious Surface PBMP Inspection and Maintenance Form



Section 1: Background Data

Inspector(s):	Date:	Time:	EID #:
Tenant Leased Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, PMID #:		Tenant Name:
Ownership: <input type="checkbox"/> DOTA <input type="checkbox"/> Tenant	Latitude:	Longitude:	Weather:
Land Use Drainage Area (Check all that apply): <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Open Space <input type="checkbox"/> DOTA Common Use Area (e.g., ramp or runway) <input type="checkbox"/> Other:			
Type of Inspection: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annual <input type="checkbox"/> Re-inspection <input type="checkbox"/> Other		PBMP Category: <input type="checkbox"/> LID <input type="checkbox"/> Source Control <input type="checkbox"/> Treatment	
Type of PBMP: <input type="checkbox"/> Permeable Pavement <input type="checkbox"/> Permeable Pavers <input type="checkbox"/> Other:			

Section 2: Visual Inspection

Maintenance Item	S	U	NA	Comments / Actions Required:
General BMPs				
Structural Appearance				
Unauthorized Modification				
Trash and Debris				
Contamination (evidence of oil, gasoline, etc.)				
Odor				
Vegetation Management				
Weeds				
Structure				
Damaged Areas				
Obstructions (overflow device obstructed or debris has collected)				
Clogged Pores				
Sediment				
Sediment Accumulation				
Standing Water				
No Excessive Ponding				

S – Satisfactory; U – Unsatisfactory; NA – Not applicable

Section 3: Corrective Actions

Maintenance Needed? Yes No *(Review O&M Manual for specific PBMP maintenance requirements)*

Date Corrected: _____

Explanation of Maintenance Activities: _____

Section 4: Trash/Debris Removed

Date	Single Use Plastics (bags, bottles, straws, cutlery, packaging), Styrofoam, Rubber (lb)	Metal (nuts/bolts, rust chips, cans), Glass, Fiberglass, Paper, Cardboard (lb)	Cigarette Butts, other misc. man-made trash (lb)	Green Trash (landscaping debris, cut wood, plant/grass clippings) (lb)	Green Natural Waste (vegetation, branches, leaves, algae, seaweed) (lb)	Sediment, Sand, Rock, Aggregate, Asphalt Debris (lb)	Total Debris (lb)	Comments



Pervious Surface PBMP Inspection and Maintenance Form



PHOTOGRAPHS

Photo 1:	Photo 2:
Photo 3:	Photo 4:



Vegetated PBMP Inspection and Maintenance Form



Section 1: Background Data

Inspector(s):	Date:	Time:	EID #:
Tenant Leased Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, PMID #:		Tenant Name:
Ownership: <input type="checkbox"/> DOTA <input type="checkbox"/> Tenant	Latitude:	Longitude:	Weather:
Land Use Drainage Area (Check all that apply): <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Open Space <input type="checkbox"/> DOTA Common Use Area (e.g., ramp or runway) <input type="checkbox"/> Other:			
Type of Inspection: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annual <input type="checkbox"/> Re-inspection <input type="checkbox"/> Other		PBMP Category: <input type="checkbox"/> LID <input type="checkbox"/> Source Control <input type="checkbox"/> Treatment	
Type of PBMP: <input type="checkbox"/> Bioswale <input type="checkbox"/> Grassed Swale <input type="checkbox"/> Other:			

Section 2: Visual Inspection

Maintenance Item	S	U	NA	Comments / Actions Required:
General				
Structural Appearance				
Unauthorized Modification				
Trash and Debris				
Contamination (evidence of oil, gasoline, etc.)				
Odor				
Irrigation				
Vegetation Management				
Grass Height (maintain 2-6 inches)				
Proper Vegetation Cover				
Dead / Diseased Vegetation				
Brush or Tree Growth				
Weeds				
Erosion				
Evidence of Erosion				
Sediment				
Sediment Accumulation				
Standing Water				
No Excessive Ponding				

S – Satisfactory; U – Unsatisfactory; NA – Not applicable

Section 3: Corrective Actions

Maintenance Needed? Yes No (Review O&M Manual for specific PBMP maintenance requirements)

Date Corrected: _____

Explanation of Maintenance Activities: _____

Section 4: Trash/Debris Removed

Date	Single Use Plastics (bags, bottles, straws, cutlery, packaging), Styrofoam, Rubber (lb)	Metal (nuts/bolts, rust chips, cans), Glass, Fiberglass, Paper, Cardboard (lb)	Cigarette Butts, other misc. man-made trash (lb)	Green Trash (landscaping debris, cut wood, plant/grass clippings) (lb)	Green Natural Waste (vegetation, branches, leaves, algae, seaweed) (lb)	Sediment, Sand, Rock, Aggregate, Asphalt Debris (lb)	Total Debris (lb)	Comments



Vegetated PBMP Inspection and Maintenance Form



PHOTOGRAPHS

Photo 1:	Photo 2:
Photo 3:	Photo 4:



Evaporation Ponds/Infiltration Beds PBMP Inspection and Maintenance Form



Section 1: Background Data

Inspector(s):	Date:	Time:	EID #:
Tenant Leased Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, PMID #:		Tenant Name:
Ownership: <input type="checkbox"/> DOTA <input type="checkbox"/> Tenant	Latitude:	Longitude:	Weather:
Land Use Drainage Area (Check all that apply): <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Open Space <input type="checkbox"/> DOTA Common Use Area (e.g., ramp or runway) <input type="checkbox"/> Other:			
Type of Inspection: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annual <input type="checkbox"/> Re-inspection <input type="checkbox"/> Other		PBMP Category: <input type="checkbox"/> LID <input type="checkbox"/> Source Control <input type="checkbox"/> Treatment	
Type of PBMP: <input type="checkbox"/> Evaporation Pond <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Other:			

Section 2: Visual Inspection

Maintenance Item	S	U	NA	Comments / Actions Required:
General				
Structural Appearance				
Unauthorized Modification				
Trash and Debris				
Contamination (evidence of oil, gasoline, etc.)				
Odor				
Vegetation Management				
Grass Height				
Proper Vegetation Cover				
Dead / Diseased Vegetation				
Brush or Tree Growth				
Weeds				
Erosion				
Evidence of Erosion				
Sediment				
Sediment Accumulation				
Standing Water				
No Excessive Ponding				
Inlets				
Structural Condition				
No Blockage				

S – Satisfactory; U – Unsatisfactory; NA – Not applicable

Section 3: Corrective Actions

Maintenance Needed? Yes No (Review O&M Manual for specific PBMP maintenance requirements)

Date Corrected: _____

Explanation of Maintenance Activities: _____

Section 4: Trash/Debris Removed

Date	Single Use Plastics (bags, bottles, straws, cutlery, packaging), Styrofoam, Rubber (lb)	Metal (nuts/bolts, rust chips, cans), Glass, Fiberglass, Paper, Cardboard (lb)	Cigarette Butts, other misc. man-made trash (lb)	Green Trash (landscaping debris, cut wood, plant/grass clippings) (lb)	Green Natural Waste (vegetation, branches, leaves, algae, seaweed) (lb)	Sediment, Sand, Rock, Aggregate, Asphalt Debris (lb)	Total Debris (lb)	Comments



Evaporation Ponds/Infiltration Beds PBMP Inspection and Maintenance Form



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