

DOTA Construction Site Runoff & PBMP Program Updates

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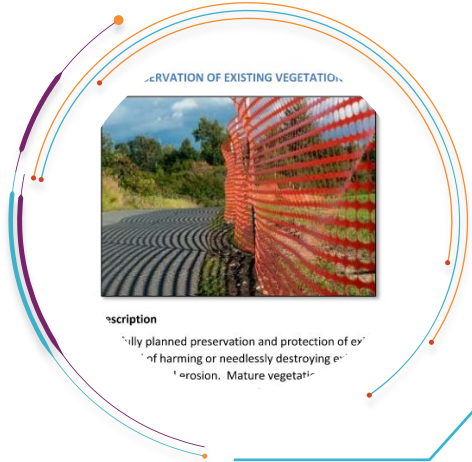


DOTA Construction Activities Best Management Practice Manual Updates

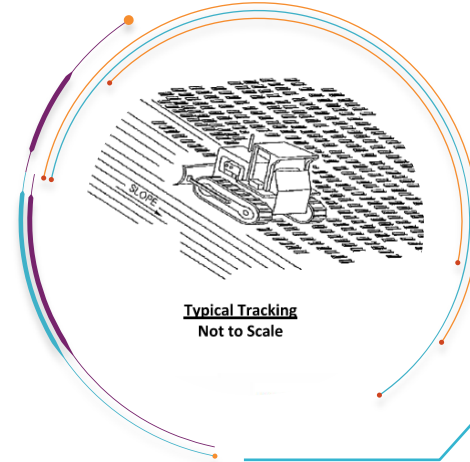
The latest updates to the DOTA Construction Activities
BMP Manual have been released.



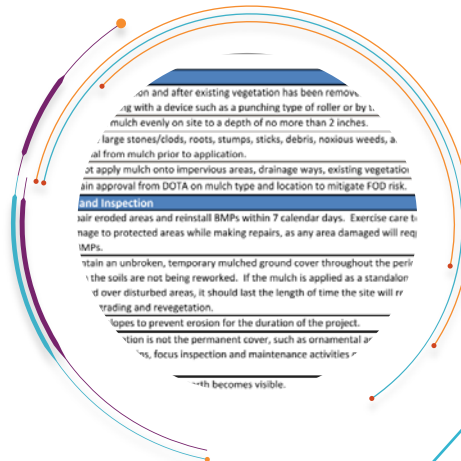
DOTA Construction Activities BMP Manual Updates



**Representative photos
provided for each BMP.**



**Additional typical details
added for enhanced clarity.**



**Clearer, more consistent
language throughout.**

DOTA Construction Activities BMP Manual Updates

- The previous manual used unique identifiers; the updated version aligns with **standard industry identifiers** for easier reference and consistency.
- The new manual introduces **several new construction BMPs** that were not previously included.

Erosion Control (EC)		
EC-0	Employee and Subcontractor Training	NEW BMP
EC-1	Scheduling	
EC-2	Preservation of Existing Vegetation	NEW BMP
EC-3	Hydromulch	NEW BMP
EC-5	Soil Binders	NEW BMP
EC-7	Geotextiles and Mats	
EC-8	Mulching	NEW BMP
EC-9	Temporary Earth Dikes and Swales	
EC-10	Velocity Dissipation Devices	NEW BMP
EC-11	Slope Drains	NEW BMP
EC-12	Streambank Stabilization	NEW BMP
EC-13	Temporary Riprap and Gabion Inflow Protection	NEW BMP
EC-14	Grass and Planting	
EC-15	Slope Roughening and Terracing	NEW BMP
EC-16	Topsoil Management	
EC-17	Dust Control	

Sediment Control (SE)		
SE-1	Silt Fence	
SE-3	Sediment Trap	
SE-4	Check Dams	NEW BMP
SE-6	Gravel Bag Barrier	NEW BMP
SE-8	Sandbag Barrier	
SE-10	Storm Drain Inlet Protection	NEW BMP
SE-12	Potential Sediment Source Location	
SE-13	Level Spreader	NEW BMP
SE-15	Vegetated Buffer Strips and Channels	NEW BMP
SE-16	Compost Filter Berm or Sock	

Tracking Control (TR)		
TR-1	Stabilized Construction Entrance/Exit	
TR-2	Construction Road Stabilization	
TR-3	Street Sweeping	NEW BMP

Site Operations (SO)		
SO-1	Water Conservation and Usage Practices	NEW BMP
SO-2	Dewatering Operations	
SO-3	Milling and Paving Operations	
SO-4	Temporary Stream Crossing	NEW BMP
SO-5	Temporary Water Diversion	NEW BMP
SO-6	Illicit Discharge, Illegal Connection, Spill, and Leak Prevention and Control	
SO-8	Vehicle and Equipment Cleaning	
SO-9	Vehicle and Equipment Refueling	
SO-10	Vehicle and Equipment Operation, Storage, and Routine Maintenance	
SO-12	Concrete Curing	
SO-13	Structure Construction and Painting	
SO-14	Material Over Water	NEW BMP
SO-15	Demolition Adjacent to Water	NEW BMP
SO-16	Temporary Batch Plants	NEW BMP
SO-17	Hydrotesting Effluent Management	
SO-18	Water-Jet Wash and Hydro-Demolition Water Management	

Materials Handling and Waste Management (WM)		
WM-1	Material Delivery and Storage	
WM-2	Material Use	
WM-3	Protection of Stockpiles	
WM-5	Solid Waste Management - Debris	
WM-6	Solid Waste Management - Hazardous Waste	
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management	
WM-9	Sanitary/Septic Waste Management	
WM-10	Liquid Waste Management	NEW BMP

DOTA Construction Activities BMP Manual Updates

- Manual layout largely unchanged.

- Each BMP includes:

- Description
- Limitations
- (if applicable)
- Table with sections for practices and maintenance

- Tabular format retained for easy reference by designers, contractors, and inspectors.

SE-10 STORM DRAIN INLET PROTECTION



Description

Storm drain inlet protection consists of a sediment filter or an impounding area around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some configurations also remove sediment by filtering.

Select the storm drain inlet protection type most suitable to the site conditions. Acceptable storm drain inlet protection measures include, but are not limited to, the following (details presented below):

- Perimeter control: Appropriate for drainage basins with less than a 5 percent slope, sheet flows, and flows under 0.5 cubic foot per second.
- Excavated drop inlet sediment trap: An excavated area around the inlet to trap sediment. Appropriate for grubbed and graded areas.
- Gravel bag barrier: Used to create a small sediment trap upstream of storm drain inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cubic foot per second, and where flow must pass over the barrier to prevent flooding.
- Gravel and wire mesh filter: Used on curb or drop inlets where construction equipment may drive over the inlet.
- Sediment control with supports: Suitable for curb inlets to prevent sediment control BMPs from becoming displaced or falling into a storm drain inlet. Supports must not compromise the effectiveness of sediment controls.
- Temporary geotextile insert: Fabric measures installed across the opening of a curb or grated inlet, held in place by the grate or other securement around the full perimeter of the inlet opening. Application dependent on type and manufacturer.

Limitations

- Storm drain inlet protection must not create a potential hazard to traffic and pedestrians.
- Drainage area shall not exceed 1 acre. For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows (SE-3 Sediment Traps).
- Runoff may bypass protected storm drain inlets on slopes.
- Ponding may occur at a protected inlet, with possible short-term flooding.
- Straw bales are NOT effective storm drain inlet protection.

SE-10 STORM DRAIN INLET PROTECTION

Practice

SE-10.P1	Protect every storm drain inlet with the potential to receive runoff from disturbed areas, either by covering the inlet with a sediment filter or promoting sedimentation around or directly upstream of the inlet.
SE-10.P2	Filter fabric must be of sufficient strength and permeability to allow stormwater to pass through while retaining sediment. Filter fabric must be anchored such that the fabric will not fall into the drain when the grate is removed for maintenance.
SE-10.P3	For proprietary devices, install and secure storm drain inlet protection per manufacturer's specifications.
SE-10.P4	Provide area around the inlet for water to pond without flooding structures and property.

Maintenance and Inspection

SE-10.M1	Repair damaged storm drain inlet protection devices by the end of the same workday that the damage was observed.
SE-10.M2	Remove, clean, or replace sediment protection measures as sediment accumulates, the filter becomes clogged, or performance is compromised by the end of the same workday that the sediment, clogging, or other issues were observed.
SE-10.M3	Where there is evidence of sediment accumulation adjacent to the storm drain inlet protection measure or along the runoff flow pattern toward the inlet, such as within a concrete gutter or swale, remove the deposited sediment by the end of the same workday that the sediment was observed.
SE-10.M4	Report any storm drain inlet protection failures and pollutant discharges (including sediment) into the storm drains to AIR-EE immediately after the failure or discharge is observed.
SE-10.M5	Remove storm drain inlet protection measures when: <ul style="list-style-type: none"> • Directed by Airport Manager or other DOTA entity in anticipation of forecasted rain events with a potential threat to public safety, loss of property, or significant erosion. • Apparent flooding concerns develop that pose an immediate threat to public safety, loss of property, or significant erosion. Restore storm drain inlet protection devices immediately following notice from DOTA or the cessation of flooding concerns.
SE-10.M6	Prior to removing or replacing storm drain inlet protection measures for maintenance or flooding prevention, remove sediment and debris that has accumulated on the storm drain inlet protection device and adjacent to the storm drain inlet to prevent it from falling into the drain. Prior to re-installing storm drain inlet protection measures, inspect storm drain inlet and remove any debris or sediment from the drain inlet.
SE-10.M7	Provide training for personnel detailing the location and BMP storm drain protection from sediment discharge and construction site contaminants.

DOTA Post-Construction Best Management Practice Manual Updates

The latest updates to the DOTA PBMP Manual have been released.



DOTA PBMP Manual Comparison



The old DOTA PBMP manual was 280 pages, while the new version is only 126 pages - a 55% reduction in length.



The new manual has been streamlined and simplified, removing unnecessary information to focus on the core technical requirements.



The technical details remain largely the same, but with more clarity and conciseness in the new manual layout.

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PBMP Categories in Order of Preference



Low Impact Development

Biofilter
Bioretention
Bioswale
Harvesting/Reuse
Dry Well/Drainage Well

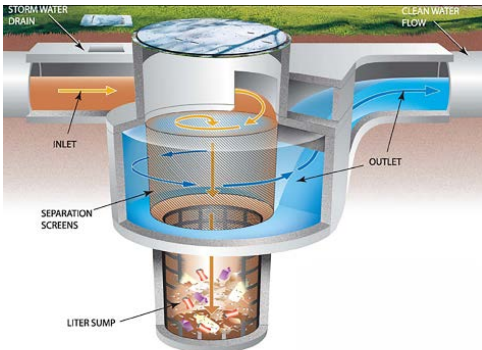
Infiltration Basin
Permeable Pavement
Subsurface Infiltration
Vegetated Buffer Strip
Vegetated Swale



Source Control

Dispersion
Fueling Area Design
Loading/Unloading Area Design
Maintenance Area Design

Material Storage Area Design
Triturator Facility Design
Washing Area Design
Waste Management Area Design

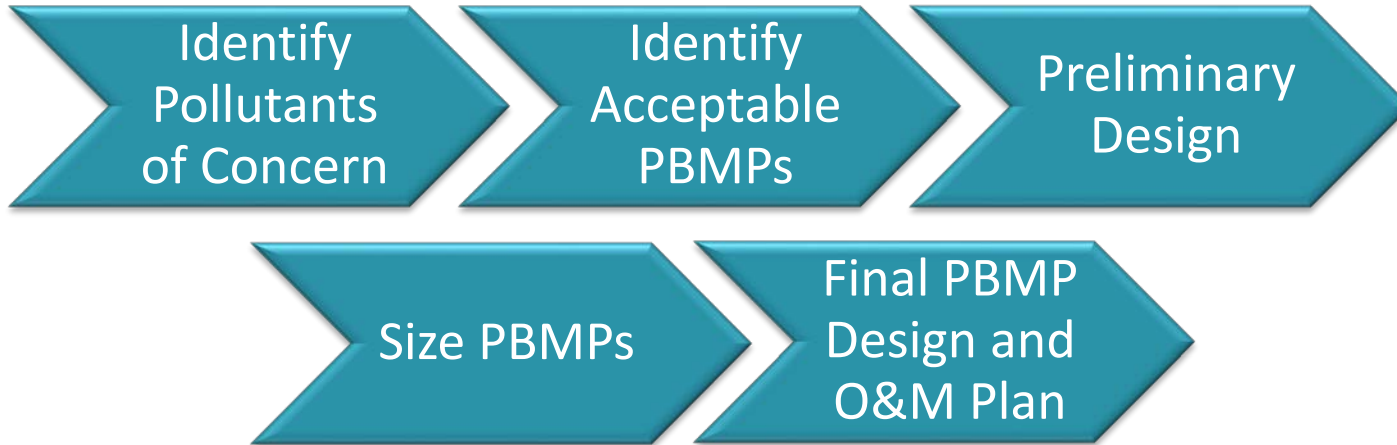


Treatment Control

Alternative Wetland
Dry Detention Basin
Evaporation Pond
Hydrodynamic Separator

Drain Inlet Insert
Oil Water Separator
Sand Filter
Subsurface Detention

PBMP Design Process



Pollutants of Concern for Site Activities at DOT Airports

Site Activity	Bacteria	Metals	Nutrients	Oil & Grease	Organic Compounds	Pesticides	Sediment	Trash
Aircraft, Vehicle, or Equipment Parking Area or Travel Corridor (e.g., roadway, runway, taxiway)		X		X	X		X	X*
Aircraft, Vehicle, or Equipment Fueling		X		X	X			X
Aircraft, Vehicle, or Equipment Maintenance and Repair		X		X	X			X
Aircraft, Vehicle, or Equipment Washing		X	X	X	X		X	X
Outdoor Loading and Unloading of Materials		X	X	X	X	X	X	X
Outdoor Container Storage of Liquids		X	X	X	X	X		
Outdoor Storage of Raw Materials			X	X	X	X	X	X
Waste Handling and Disposal	X	X	X	X	X	X	X	X
Buildings	X		X				X	X
Landscaping	X		X			X	X	X

* If outside of the AOA, otherwise not expected.

PBMP	Bacteria	Metals	Nutrients	Oil & Grease	Organic Compounds	Pesticides	Sediment	Trash	Volume Reduction
LC-1 Biofilter	X	X	X		X		X	X	
LC-2 Bioretention	X	X	X		X	X	X	X	X
LC-3 Bioswale		X	X				X	X	
LC-4 Harvesting/Reuse							X	X	X
LC-5 Dry Well/Drainage Well*									X
LC-6 Infiltration Basin	X	X	X		X	X	X	X	X
LC-7 Infiltration Trench	X	X	X		X	X	X	X	X
LC-8 Permeable Pavement		X	X	X	X	X	X		X
LC-9 Subsurface Infiltration		X	X		X	X	X	X	X
LC-10 Vegetated Buffer Strip		X			X		X	X	
LC-11 Vegetated Swale		X			X		X		
TC-1 Alternative Wetland	X	X	X		X		X	X	
TC-2 Dry Detention Basin	X						X	X	X
TC-3 Evaporation Pond	X				X		X	X	X
TC-4 Hydrodynamic Separator				O			X	X	
TC-5 Drain Inlet Insert		O		O			X	X	
TC-6 Oil Water Separator				X			X	X	
TC-7 Sand Filter	X	X			X		X	X	
TC-8 Subsurface Detention	X				X		X	X	X

Acceptable PBMPs to Target Pollutants of Concern

Notes:

X = PBMP is acceptable to target this pollutant of concern.

O = Pollutant performance may vary depending on the type and model of the proprietary product selected.

** Dry Wells/Drainage Wells should only be used for volume reduction. Other PBMPs must be incorporated as pretreatment to target pollutants of concern while protecting groundwater.*

REVISED

Sizing Criteria



Volume Based



Flow Based

influence on C is the impervious area within the contributing drainage area.⁸ Schueler used a simple linear regression to derive an equation to calculate C based on the percent impervious cover. The volumetric runoff coefficient is calculated using the following equation for storms less than 2 inches in urban areas:⁷

$$C = 0.05 + 0.009(I)$$

Where: C = Volumetric Runoff Coefficient
 I = Impervious Cover (%)

Offsite existing impervious areas may be excluded from the calculation of the WQV by diverting any offsite flows to minimize the offsite runoff contribution to the new development or redevelopment construction project. When a new development or redevelopment construction project contains multiple drainage areas feeding to different PBMPs, the WQV volume shall be addressed for each drainage area.

4.5.3.2 Flow-Based Designs

Examples of flow-based designs include vegetated buffer strips, vegetated swales, subsurface infiltration systems, alternative wetlands, evaporation ponds, HDS units, MTDs, OWSs, and subsurface detention facilities.

The design must be able to accommodate a peak rainfall intensity of 0.4 inch per hour, based on the following equations:

$$WQF = CiA$$

Where: WQF = Water Quality Flow Rate (cubic feet per second)
 C = Runoff Coefficient
 I = Peak Rainfall Intensity (inch/hour)
 A = Drainage Area (acre)

For drainage areas containing multiple land use cover types, compute the composite weighted runoff coefficient using the following equation:

$$C_c = \left[\left(\sum_{i=1}^n C_i A_i \right) / A_t \right]$$

Where: C_c = Composite Weighted Runoff Coefficient
 $C_{1,2,...,n}$ = Runoff Coefficient for each Land Use Cover Type
 $A_{1,2,...,n}$ = Drainage Area for each Land Use Cover Type (acre)
 n = Number of Land Use Cover Types within the Drainage Area
 A_t = Total Drainage Area (acre)

Design Factsheets

Design Criteria Construction Considerations



LC-6 Infiltration Basin

An infiltration basin is an engineered shallow impoundment facility that collects and stores stormwater runoff, passes it through permeable soils, and infiltrates it through the basin bottom into native soils.



Kahala Airport
Source: Hawaii DOT

Construction Considerations

Design Criteria

Category	Table 1: Minimum Design Criteria and Guidelines	Table 2: Pretreatment Considerations
PBMP Footprint Area	7% to 20% of contributing impervious area	General
Media Layer	6-in sand layer may be placed at bottom	
Drawdown (drain) Time	48 hrs or less	
Minimum Soil Infiltration Rate	0.5 in/hr	
Maximum Interior Side Slope (length per unit height)	3:1	
Minimum Depth from Basin Invert to Groundwater Table	2 ft	
Minimum Freeboard Above Overflow Device	1 ft	
Outlet	<ul style="list-style-type: none"> Include an outlet structure and overflow spillway to convey peak flows. Include energy dissipaters at outlet to prevent erosion from the 30-yr storm velocity. 	
Basin Grading	Grade basin bottom as flat as possible for uniform ponding and infiltration.	
Flow Regulation	Use a flow regulator to divert runoff from large drainage areas, if needed.	
Embankment Design	If located in State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, Dam Safety Program jurisdiction, design to meet applicable requirements.	
Access	Consider including vehicle access to basin invert for maintenance.	
Observation Wells	Recommended for monitoring facility dewatering and functionality.	
Underdrains (Optional)	<ul style="list-style-type: none"> DOTA prefers no underdrains, if site conditions warrant using underdrains. Minimum 6-in perforated underdrain pipe in a gravel layer with permeable filter fabric between infiltration basin media and gravel layer. Include cleanout pipe tied into the end of all underdrain pipe runs. 	
Landscaping	<ul style="list-style-type: none"> Avoid vegetation that could be hazardous to airport operations (i.e., food sources for habitat for wildlife). Establish vegetation on side slopes and floor to naturally maintain higher infiltration rates. Select appropriate plantings considering site specific soils and hydraulic conditions. Design to facilitate regular mowing. Select plants based on local climate, water depth, native species, and pollutant tolerance. Consider irrigation during dry periods, if necessary. 	

LIMITATIONS

- May be considered infeasible or impractical if:
 - Determined to be infeasible through the LID PBMP infeasibility & Water Screening step in Step 2.
 - Unstable soil stratum or soils with <25% clay content.
 - Slopes > 5%.
 - In the event of the underdrain layer is below the seasonally high groundwater table.
 - The amount of sunlight received by the site is inadequate or irrigation is infeasible to support vegetation.
 - The site lacks a sufficient hydraulic head to support operation by gravity.
 - Unable to operate off-line with bypass, and unable to operate in-line with a safe overflow mechanism.
 - Documented opinion that there is a potential on the site for soil pollutants, groundwater pollutants, or pollutants associated with industrial activities to be mobilized.

COMPACTION

- Use excavation holes to remove the original soil. Place backfill in 12- to 18-in lifts to minimize compaction; Use a primary tilling operation such as chisel plow, ripper, or subsoiler to refracture the soil profile through the 12-in compaction zone.
- Heavy equipment can be used around but not inside the perimeter of the infiltration basin facility to supply materials. Use wide track or marsh track equipment or light equipment with turf-type tires.
- Equipment with narrow tracks or tires, rubber tires with large logs, or high-pressure tires is unacceptable as it may cause excessive compaction and reduced infiltration rates.

UNDERDRAINS

- Place underdrains on a 3-ft wide section of the permeable filter fabric. Place pipe next, followed by the gravel bedding. Cap ends of underdrain pipes not terminating in an observation well.
- Construct the main collector pipe for underdrain systems with a minimum slope of 0.5 %. Provide observation wells or cleanout pipes (1 minimum per every 1,000 ft of surface area).

LANDSCAPING

- Include directions in the specifications for appropriate fertilizer and soil amendments based on soil properties determined through testing and landscaping needs.
- Landscaping should be done as soon as possible after soil stabilization of the upgradient area is completed and the ground is ready for planting.
- If soil tiles are used, place them so that there are no gaps between the tiles; stagger the ends of the tiles to prevent the formation of channels along the bioswale.
- Use a roller on the soil to verify no air pockets form between the soil and the soil.
- Per FAA Regulations, do not scatter or apply seeds through hydroseeding or within hydromulch in areas that could attract wildlife and cause safety concerns for aircraft operations. Use alternative methods such as sprigs. For areas that do not create safety concerns for aircraft operations, seeds may be used with explicit approval from Airport Management.

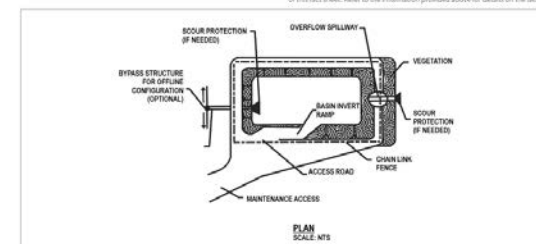
MISCELLANEOUS

- Install at the time of year when there is a reasonable chance of successfully establishing grass without irrigation; temporary irrigation may be required.
- Do not use as sediment control measures during construction.
- Removal of mature trees to construct a biovention facility may be infeasible and requires additional review and approval by DOT on a case-by-case basis.
- Prevent natural or fill soils from intermingling with the stone aggregate.
- Place excavated material so it cannot be washed back into the basin if a storm occurs during construction.
- Vertically excavated walls may be difficult to maintain in areas where soil moisture is high or where soft cohesive or cohesionless soils are dominant. These conditions may require laying back the side slopes to maintain stability.
- Do not establish until the contributing drainage area is stabilized.

Sizing Guidelines

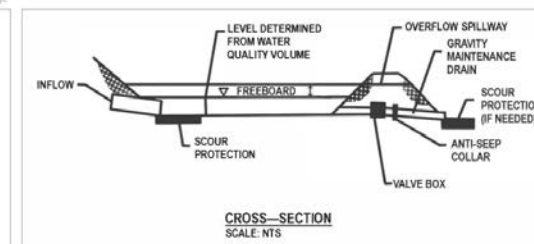
Cut Sheet Examples

Disclaimer: The example schematics provided below are intended for visual and purposes only and not for design purposes. The example schematics are not intended to be used as a design guide for the items, descriptions, and details (depths, etc.). The actual configuration will vary depending on specific site constraints and the design criteria of this fact sheet. Refer to the information provided above for details on the design.



Example Schematic of an Infiltration Basin with No Underdrain

Source: Storm Water BMP Guide for New and Redevelopment (ECHA, 2017). The source schematic was modified to remove design details that are not consistent with this Fact Sheet.



Sizing Guidelines

Step 1:

Use the procedure below to compute the volumetric runoff coefficient (C) and water quality design volume (WQV). The C should be calculated using the following equation:

$$C = 0.05 + 0.0009I$$

where C = Volumetric Runoff Coefficient

I = Impervious Cover (%)

The WQV is calculated using the following equation:

$$WQV = PCA + 3650$$

where WQV = Water Quality Design Volume (ft³)

P = Design Storm Rainfall Depth (in) (refer to Section 4.5.3.1)

C = Volumetric Runoff Coefficient

A = Tributary Drainage Area (ac)

Step 2:

Calculate the maximum water storage depth (d_m) using the underlying soil infiltration rate (k) and the required drawdown time (t):

$$d_m = kt / (F_s + 12)$$

where d_m = Maximum Storage Depth (ft)

k = Soil Infiltration Rate (in/hr)

t = Drawdown (drain) Time (hrs) (refer to Section 4.5.3.3)

F_s = Infiltration Rate Factor of Safety (refer to Section 3.3.1)

Step 3:

Select a ponding depth (d_p) no greater than the maximum water storage depth (d_m) calculated in Step 2:

$$d_p = d_m$$

where d_p = Ponding Depth (ft)

d_m = Maximum Storage Depth from Step 2 (ft)

Step 4:

Calculate the biovention facility bottom surface area (A_b):

$$A_b = WQV / (d_p + (kt / 12F_s))$$

where A_b = Bottom Surface Area (ft²)

WQV = WQV from Step 1 (ft³)

d_p = Total Effective Water Storage Depth from Step 3 (ft)

k = Soil Infiltration Rate (in/hr)

t = Fill Time (time for the PBMP to fill with water) (hrs)

(refer to Section 4.5.3.3)

F_s = Infiltration Rate Factor of Safety (refer to Section 3.3.1)

Step 5:

Select a biovention facility bottom or invert width (b_w), and calculate the biovention facility bottom or invert length (L_b) using the surface area (A_b) calculated from Step 4:

$$L_b = A_b / b_w$$

where L_b = Bottom or Invert Length (ft)

A_b = Bottom Surface Area from Step 4 (ft²)

b_w = Bottom or Invert Width (ft)

Step 6:

Calculate the total area occupied by the PBMP excluding pretreatment (A_{PMP}) using the biovention facility bottom dimensions, embankment side slopes, and freeboard:

$$A_{PMP} = (b_w + 2z(d_p + F_b)) + (F_b + 2z(d_p + F_b))$$

where A_{PMP} = Area Occupied by PBMP (excluding Pretreatment) (ft²)

b_w = Bottom Width from Step 5 (ft)

z = Biovention facility Interior Side Slope (length per unit height)

d_p = Design Ponding Depth from Step 3 (ft)

F_b = Freeboard (ft)

L_b = Bottom Length from Step 5 (ft)

If A_{PMP} is greater than the available space, reduce the drainage area or increase d_p (if it is not already equal to d_m), and repeat the calculations. If A_{PMP} is still greater than the available space, reduce F_s (if the minimum number of test pits and permeability tests have not been performed) and repeat the calculations.

LC-6: Infiltration Basins

O&M Factsheets



LC-6 Infiltration Basin

An infiltration basin is an engineered shallow impoundment facility that collects and stores stormwater runoff, passes it through permeable soils, and infiltrates it through the basin bottom into native soils. Regular inspections and maintenance are needed to prevent sediment buildup and clogging, which reduces the capacity of the system.



Infiltration Basin, Kahului Airport
Source: Hawaii DOT

Operations & Maintenance

Category	Inspections	Conditions that Require Maintenance	Maintenance
Sediment and Debris	Inspect surface drainage systems, flow entrances, and pretreatment measures for sediment, trash, debris, and leaf accumulation.	Accumulation of sediment, trash, debris, and leaves.	<ul style="list-style-type: none"> Remove vegetation clippings and leaves. Remove accumulated sediment, trash, debris, and leaves. If excessive sediment is deposited in the infiltration basin, immediately determine the source, remove sediment deposits, and correct the problem. Remove trash and debris from the drainage system leading to and within the infiltration basin.
Standing Water/ Clogging	<ul style="list-style-type: none"> Inspect for standing water that does not drain after 48 hrs. Monitor observation wells, if present, to determine how quickly the system is draining after a storm. 	Standing water remaining for longer than 48 hrs suggests sediment or trash blockages may be present, soil infiltration rate may have been reduced due to compaction, or media layer may be clogged.	<ul style="list-style-type: none"> Clear the outlet of sediment or trash blockages and remove the top layer of material to replace it with fresh material. If standing water persists, the media or permeable filter fabric may be clogged; unclog or replace components as necessary.
Erosion	<ul style="list-style-type: none"> Inspect inlets, outlets, side slopes, for evidence of undercutting or erosion. Note erosion locations or drainage changes. 	<ul style="list-style-type: none"> Significant erosion observed. Changes to the drainage pattern. 	<ul style="list-style-type: none"> Stabilize undercuts and eroded areas at the inflow, outflow, overflow structures and embankments. Re-grade to reshape the cross-section as sediment collects and form pools. Remove and properly dispose of the sediment.
Landscaping	Note landscaping needs (e.g., grass cutting).	<ul style="list-style-type: none"> Significantly overgrown areas that require landscape maintenance. Grass coverage is less than 90%. Dead or diseased vegetation (some vegetation can be dormant during dry seasons). 	<ul style="list-style-type: none"> Conduct regular plant maintenance including mowing and weeding; grass should maintain a height of at least 3 in. Replace dead and diseased vegetation. Irrigation may be required during prolonged dry periods. Avoid or minimize fertilizer and herbicide use.
Irrigation System	Inspect for proper operation and water distribution.	System not functioning correctly (overwatering, underwatering or not functioning at all).	<ul style="list-style-type: none"> Turn water off and depressurize the irrigation system immediately upon identifying a waterline break. Repair broken sprinkler heads and lines.
Water Quality	<ul style="list-style-type: none"> Observe runoff entering the PBMP, if present, and identify its origin, if visible. Observe outflow from the system, if present and visible. 	Water is significantly dirty/discolored, contains foul odors, or has an oily sheen.	Inspect areas upstream to identify the source and attempt to eliminate.
Damage/Repairs	Inspect surfaces and embankments for damage caused by rodents, vehicles, etc.	Structural damage or obstructions are present.	<ul style="list-style-type: none"> Repair structural damage. Clear obstructions.
Scheduling	Inspect regularly and 48 hours after significant rain events.	See above.	<ul style="list-style-type: none"> Schedule long-term repairs before the rainy season. Maintenance should be conducted during dry weather when no flow is entering the PBMP.

Veoci™ Construction Module Tour



The *Veoci*TM Construction Module



Construction Design Review

Contractor Document Submittal



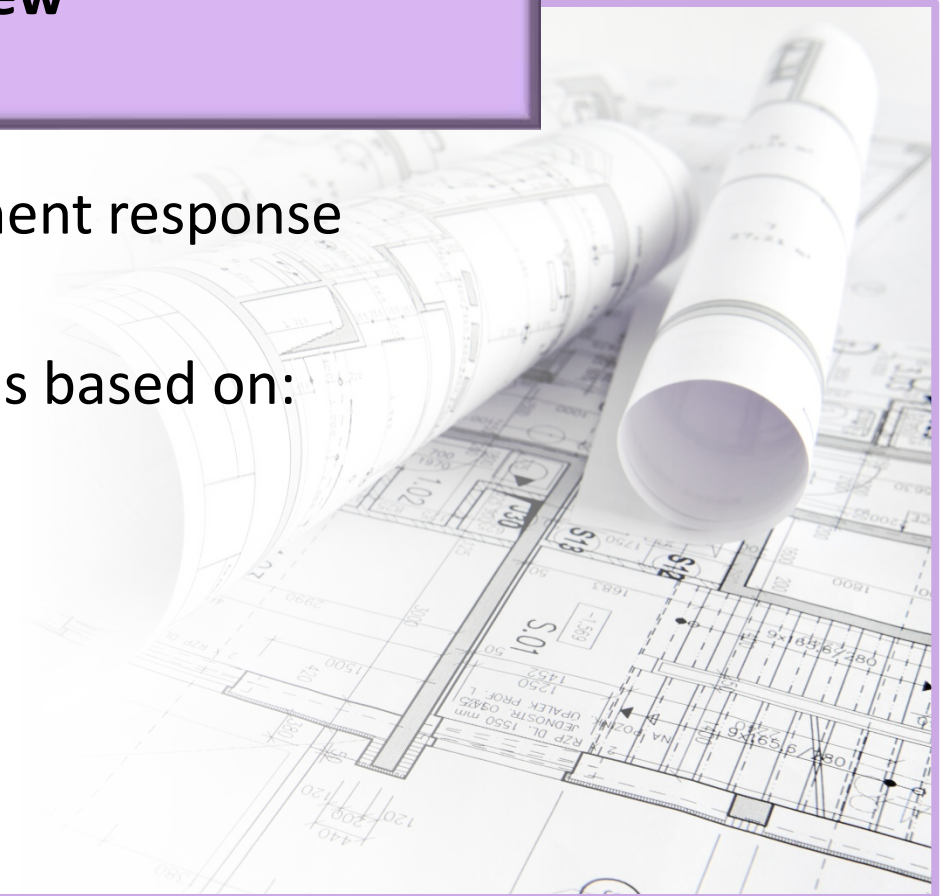
BMP Inspections

Streamlined, step-by-step processes to track compliance throughout the life of a project.

The Veoci™ Construction Module

Construction Design Review

- Detailed tracking of required submittals and comment response
- Step-by-step determination of necessary submittals based on:
 - Project size and scope of work
 - History of contaminated media
 - Project activities



The Veoci™ Construction Module

Construction Design Review

Design Review Track

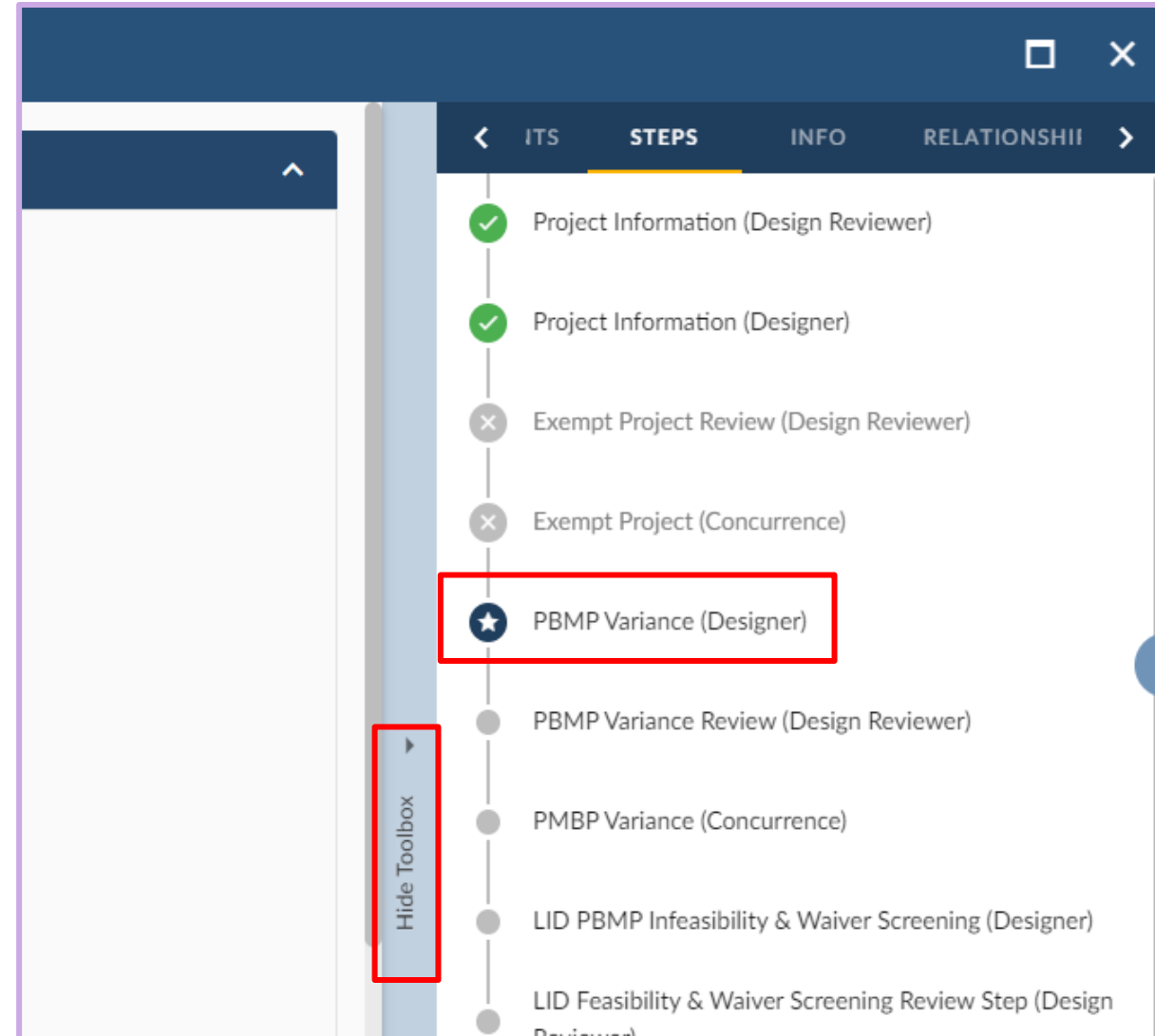
Itemized submittal upload and review

- Designated file attachment fields
- Clear comment and response dialogue

PBMP Track

Step-by-step PBMP selection for given project conditions

- PBMP Variance
- LID Waiver
- PBMP Checklist



The Veoci™ Construction Module

Construction Design Review

Design Review Track

Full Review

- All projects with 1 acre or greater disturbed area
- Projects disturbing less than 1 acre that do not fall under an exempt category
- Activities posing a potential risk to discharge pollutants to receiving drainage systems and waters
- *At determination of AIR-EE*

Exempt

Project eligible if it includes only:

- Interior renovations
- Minor land disturbance activities less than ¼ acre
- Milling and paving without exposing underlying base course or subgrade
- Utility repair work
- Maintenance and repair activities

Source Control PBMPs

Project eligible if it qualifies for exemption **AND** includes any of the following:

- Loading/unloading areas
- Triturators
- Hazardous material/waste storage
- Aircraft/vehicle/equipment washing, fueling, maintenance

The Veoci™ Construction Module

Construction Design Review

Design Review Track

Full Review

- All projects with 1 acre or greater disturbed area
- Projects disturbing less than 1 acre that do not fall under an exempt category
- Activities posing a potential risk to discharge pollutants to receiving drainage systems and waters
- *At determination of AIR-EE*

The screenshot displays the Veoci Construction Module interface. At the top, there are navigation tabs: "Plans", "Specs for DOTA Projects / Scope of Work for TIPs", "DOTA Construction Connection, Discharge, and Surface Runoff Permit", and "NPDES Construction Permit Application (NOI-C)". The "NPDES Construction Permit Application (NOI-C)" tab is selected and marked as "REQUIRED".

Below the tabs, the main content area is titled "SWPPP - Designer Comments" with an "Add More" button. It contains a table with the following columns:

Comment Info	Original Review Comment (Design Reviewer)	Original Review Comment (Design Reviewer)	Comment Responses (Designer/Design Reviewer)
Item Open			New Comments/Response
Comment ID 01	Sheet/Page No. Page 12, Section 3.4 Detail/Section Detail C.3 for Stabilized Construction Entrance	Original Review Comment (Design Reviewer) Stabilized construction entrance/exit dimensions must be at least 30 feet wide by 50 feet long. Adjust construction exit length to meet regulation requirements.	
Initial Review Date 2023/10/20			

At the bottom of the interface, there is a section for "Attachments" with a dashed box labeled "Drop files or click to add" and a button labeled "+ Upload New/Revised Document".

The *Veoci*TM Construction Module

Construction Design Review

Design Review Track

Exempt

Project eligible if it includes only:

- Interior renovations
- Minor land disturbance activities less than ¼ acre
- Milling and paving without exposing underlying base course or subgrade
- Utility repair work
- Maintenance and repair activities

- Contaminated media review and site clearance
- Exempt from BMP inspections
- Not required to develop a SWPPP or SSBMP Plan

The *Veoci*TM Construction Module

Construction Design Review

Design Review Track

Source Control PBMPs

Project eligible if it qualifies for exemption **AND** includes any of the following:

- Loading/unloading areas
- Triturators
- Hazardous material/waste storage
- Aircraft/vehicle/equipment washing, fueling, maintenance

- Middle ground: implement environmentally friendly design without extensive submittal requirements
- Required to implement source control PBMPs
- Exempt from BMP inspections
- Not required to develop a SWPPP or SSBMP Plan

The *Veoci*TM Construction Module

Construction Design Review

PBMP Track

PBMP Track

Step-by-step PBMP selection for given project conditions

- PBMP Variance
- LID Waiver
- PBMP Checklist

The Veoci™ Construction Module

Contractor Document Submittal

- Comprehensive repository for Contractor submittals
- Detailed tracking of required submittals, including review comments and response
- Steps to track required submittals before, during, and after construction



The *Veoci*TM Construction Module

Contractor Document Submittal

Before Construction

- Smooth transition from Design Review: design documents automatically provided via email
- Itemized submittal upload and review
 - Designated file attachment fields
 - Clear comment/response dialogue

The *Veoci*TM Construction Module

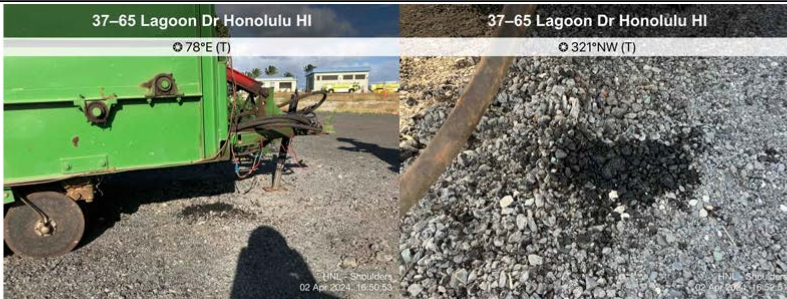
Contractor Document Submittal

During/After Construction

- New submittal requests sent via email as site conditions evolve and after work is complete
- Acts as a database of submittals and review comments in a single location

The Veoci™ Construction Module

BMP Inspections



Deficiency 8 Description:

Hydraulic oil was spilled on soil below sprigging machine. Immediately clean up spill and contaminated soil. Submit a spill report using [DOTA's online Spill Reporting Form](#). Provide information on methods taken for cleanup and where contaminated material was disposed, along with photo evidence of the removal and disposal of the soil. Properly dispose of any used cleaning materials. Provide documentation of proper disposal.



Deficiency 9 Description:

PVC pipes were stored on top of perimeter control measures. Store pipes such that they are not on top of or immediately abutting perimeter control measures.

- Pre-construction, Routine, and Final BMP inspections
- Detailed reports distributed automatically via email
- Corrective action Dropbox for simple deficiency response and compliance tracking

The Veoci™ Construction Module

BMP Inspections

OPEN DEFICIENCY

^ Deficiency

Deficiency #

10

Deficiency Type

● 7-Day

Corrective Action Due Date ?

2024/10/29

Deficiency Description

Dust screen was not secured to site perimeter fence. Properly secure dust screen to fence.

Corrected?

● No

Failed Correction Comments

<No Value>

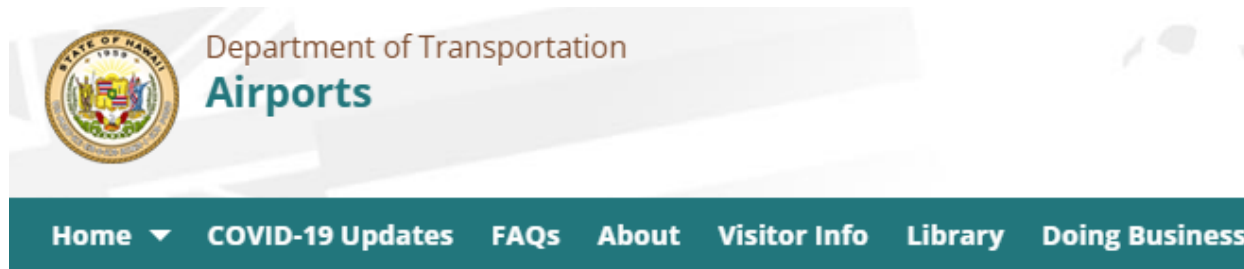
^ Photo of Deficiency



- Pre-construction, Routine, and Final BMP inspections
- Detailed reports distributed automatically via email
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Resources

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



[Home](#) » [Doing Business](#) » [Engineering](#) » [Environmental](#) » Construction Site Runoff/PBMP Program

CONSTRUCTION SITE RUNOFF/PBMP PROGRAM

The Construction Site Runoff/PBMP Program has been developed to address the potential pollutants that are generated as a result of construction activities in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit Program and other environmental regulations. All Designers, Construction Managers, Contractors, and other parties involved with construction at airports, statewide, must comply with this program. All construction projects must undergo a construction plan review and receive a Notice-To-Proceed from DOTA prior to commencing construction activities.

CONSTRUCTION/POST-CONSTRUCTION MANUALS

- **REVISED** [Construction BMP Manual](#)
- **REVISED** [Post-Construction Best Management Practice Manual](#)



Resources

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

- **SOP and Veoci QRGs** ** These are updated regularly but the current versions posted might not reflect the most recent changes. **
 - [SOP – Environmental Requirements for Construction Projects](#)
 - [Veoci QRG – Getting Started and General Information](#)
 - [Veoci QRG – Less Than 1 Acre \(Designer\)](#)
 - [Veoci QRG – 1 Acre or Greater \(Designer\)](#)
 - [Veoci Process Map – DOTA Construction Design Review Less Than 1 Acre](#)
 - [Veoci Process Map – DOTA Construction Design Review 1 Acre or Greater](#)
 - [Veoci QRG – Correcting Inspection Deficiencies \(Contractor\)](#)





MAHALO

QUESTIONS?

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**HALEY
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