

# Action Plan to Address Erosional Outfalls



State of Hawaii, Department of Transportation  
Highways Division, Oahu District  
SWMP, February 2022

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STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION, OAHU DISTRICT

# STORM WATER MANAGEMENT PROGRAM ACTION PLAN TO ADDRESS EROSIONAL OUTFALLS

MS4 NPDES Permit No. HI S000001



State of Hawaii, Department of Transportation  
Highways Division, Oahu District  
727 Kakoi Street, Honolulu, Hawaii 96819

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## RECORD OF REVISIONS

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## LIST OF ACRONYMS

CMP	Corrugated Metal Pipe
DOT-HWYS	State of Hawaii Department of Transportation, Highways Division, Oahu District
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PID	Point Identification Number



## 1. INTRODUCTION

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The State of Hawaii Department of Transportation Highways Division, Oahu District (DOT-HWYS) is required by the Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit No. HI S000001 (hereinafter MS4 NPDES Permit), effective September 1, 2020, in compliance with Part D.1.f.(3)(iv), to continue to annually update the *Action Plan to Address Erosional Outfalls*. Annual updates include additional outfalls with the potential for significant water quality impact where there is evidence of rilling, gullyng, and/or other evidence of significant sediment transport, as well as erosional outfalls in close proximity to receiving waters listed as impaired by sediment, siltation, and/or turbidity (hereinafter significant erosional outfalls).

The MS4 NPDES Permit Part D.1.f.(3)(iv) requirements are as follows.

“Continue to update the *Action Plan to Address Erosional Outfalls* yearly to include additional outfalls with significant potential for water quality impacts. The annual updates to the implementation schedule shall be included in the Annual Report with a description of the project’s status.”

## 2. SIGNIFICANT EROSIONAL OUTFALL REPAIR SITE IDENTIFICATIONS

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The purpose of the *Action Plan to Address Erosional Outfalls* is to eliminate or reduce, to the Maximum Extent Practicable, erosion at significant erosional outfalls located in the DOT-HWYS MS4 by implementing appropriate and cost-effective remediation projects.

The evaluation criteria for the selection of significant erosional outfall repair sites include the following:

- Confirmation as a DOT-HWYS MS4 outfall.
- Classification as a significant erosional outfall based on:
  - Erosion issues caused by discharge at the outfall,
  - Evidence of sediment transport to downstream receiving waters, and
  - Inadequate natural or manmade storm water treatment in flow path to receiving water.
- Located within the DOT-HWYS rights-of-way or known to have an access easement, and have readily available construction and maintenance access.
- Erosional inlet structures or pipes located immediately upstream of an outfall may also be classified as a “significant erosional outfall” if they are confirmed to contribute significant sediment to the outfall located immediately downstream, and also meet the criteria above.

Sites that are located in Total Maximum Daily Load or Clean Water Act Section 303(d) watersheds are given priority; however, this is not a required criterion.

### 3. IMPLEMENTATION SCHEDULE FOR SIGNIFICANT EROSIONAL OUTFALLS

Through the evaluation process described above, three significant erosional outfalls were selected for design and construction of erosion remediation measures at the start of the current permit term. Table 1 provides a summary of the proposed retrofit projects along with the anticipated implementation schedule. The implementation year is the fiscal year in which the proposed retrofit is scheduled to be completed; however, this schedule is subject to change due to funding availability, permitting delays, or other unforeseen circumstances. Sites with an implementation year of “TBD” (to be determined) are in the preliminary stages of assessment and design and are anticipated to be completed during the permit term. The implementation year for these sites will be updated, along with any other changes to the implementation schedule in the Annual Report. Additional potential retrofit sites will be annually evaluated and added to the implementation schedule.

A detailed description of each proposed erosional outfall repair site is provided in Appendix A Erosional Outfall Sites.

Site-specific retrofit methods and technologies are chosen based on an evaluation of existing MS4 structures, construction access, maintenance requirements and pollutants of concern at each location.

**Table 1. Proposed Erosional Outfall Repair Sites and Implementation Schedule.**

Erosional Outfall Site	Outfall PID	Outfall Type	Receiving Body	Watershed	Implementation Year
1	300732	84" CMP	Waiawa Stream	Waiawa	2024
2	304664	42" CMP	Kawainui Stream	Kawainui	TBD
3	301782	Concrete Open Channel	Waimalu Stream	Waimalu	TBD

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# Appendix A

## Location Maps and Information of Erosional Outfall Sites

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## Erosional Outfall Site 1

**Associated PID:** 300732

**Receiving Water Body:** Waiawa Stream

**Outfall Type:** 84" CMP

**Outfall Description:** PID 300732 is an outfall that drains a network of several catch basins that collect storm water from a residential neighborhood across the H-2 Freeway in Waipio. Heavy flow has eroded the surrounding soil and undermined the outlet headwall structure to the extent that it has separated from the rest of the culvert.

**Proposed Remediation/Repair(s):**

New concrete outlet structure and outfall stabilization.



**Location Map**



**Failed concrete outlet structure downstream of outfall**



**Erosion at outfall**



## Erosional Outfall Site 2

**Associated PID:** 304664

**Receiving Water Body:** Kawainui Stream

**Outfall Type:** 42" CMP

**Outfall Description:** PID 304664 is an outfall that drains a network of open channels that collect storm water from the H-3 Freeway near Kaneohe. The area immediately downstream of the headwall is currently supported by trench shoring to prevent sediment from collapsing and burying and blocking the outfall.

**Proposed Remediation/Repair(s):**

Stabilize embankments. Elevate outlet to surrounding grade.



**Location Map**



**Sedimentation at outfall**



**Outfall after removing debris**



## Erosional Outfall Site 3

**Associated PID:** 301782

**Receiving Water Body:** Waimalu Stream

**Outfall Type:** Concrete Open Channel

**Outfall Description:**

PID 301782 is a concrete open channel outfall that receives storm water runoff from catch basins and open channels located along the H-1 Freeway near Moanalua Road. The concrete channel is breaking apart in several locations and there is significant erosion at the outfall with sedimentation downstream of the outfall.

**Proposed Remediation/Repair:**

Repair eroded areas and replace concrete channel and outfall.



**Location Map**



**Erosion at outfall**



**Failing concrete liner at outfall**