# Stormwater Retrofit Assessment on Fish Barrier Projects

Last Updated 3/30/2022

This assessment is to be completed for all fish passage projects prior to Project Summary submittal for HQ review. A separate assessment is required for each fish passage site in a project.

This assessment is in addition to required stormwater treatments, such as:

1. All fish barrier projects that meet or exceed the [Highway Runoff Manual](https://www.wsdot.wa.gov/Publications/Manuals/M31-16.htm) (HRM) thresholds for Minimum Requirement 5 (runoff treatment) in HRM Figures 3-1, 3-2, and 3-3 will provide the appropriate runoff treatment per the HRM.
2. If a fish barrier project will impact existing stormwater BMPs within the project limits, those BMPs shall be replaced and shall not be considered part of this stormwater retrofit assessment.
3. Runoff treatment provided to meet ESA programmatic consultation commitments.

The purpose of this assessment is to identify all opportunity-based retrofits adjacent to fish barrier corrections. The results of the assessment will be a list of opportunity-based retrofit stormwater BMPs proposed and documentation of which are approved for inclusion in the project scope. Because this template is primarily used during the pre-design phase, it is understood that the final retrofit designs may deviate from these assumptions.

The primary intent of this direction is to evaluate and include stormwater retrofit opportunities along the roadway that drain to the stream in the vicinity of the fish barrier correction. If the stream’s drainage basin is broad and parallels the roadway beyond the TDAs of the project, or the site is within ¼ mile of a medium or high stormwater retrofit need, or is in an urbanizing area, BMPs beyond the vicinity of the barrier correction work can be considered under a stand-alone stormwater retrofit project. While this work may be delivered with the barrier correction project, it also may be delivered separately after the barrier correction so that it does not jeopardize the schedule of the barrier correction.

# Stormwater Retrofit Assessment for Fish Barrier Projects

## Summary Page

## Site Name:

Enter the fish passage Site ID and Site Name

## Project Name:

Include the PIN and Project Title correcting the fish passage barrier(s)

## Mile Post Limits: Click here to enter text.

## Completed by:

Click here to enter names.

## Regional Hydraulic Engineer Supporting Evaluation:

Click here to enter names.

Date of Stormwater Retrofit Assessment completion: Use drop down to select date.

## **Is this site within ¼ mile of a medium or high stormwater retrofit need, or is the site in an urbanized area? (Yes or No)**

If Yes, evaluate opportunities to construct BMPs to meet full HRM BMP design standards (preferred), partial HRM BMP design standards, or document existing site conditions already providing treatment (to full or partial HRM BMP design standards). If No, only evaluate the fish passage site for BMPs that are based on existing features since designing and constructing new BMPs is not a priority.

## **Findings and Conclusion** (Complete this section last):

Summarize the results of the Feasibility Determination. If BMPs are not feasible, make that statement here. If BMPs are feasible, make that statement here, complete the table below of feasible BMPs, and describe each BMP.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BMP Type | Approx. Milepost Limits | Based on Existing Features Only? (Yes/No) | Approx. Area Treated (square feet) | Cost Estimate (Preliminary Engineering, Construction, BMP Documentation and Signing) | HQ Approved? |
| *Ex: Natural Dispersion* |  |  |  |  |  |
|   |  |  |  |  |  |
|  |  |  |  |  |  |

Description of BMPs

*<Describe each BMP in this section>*

Simple Vicinity Map

*<Develop a simple vicinity map with locations of BMPs highlighted. This can be as simple as a “cartoon” depiction. The purpose to provide a visual of the BMP proposals within the project.>*

Once the assessment for all fish passage sites in a project are complete, please send an email with the assessment forms to WSDOT CPDM Priority Programming (CPDMPriorityProgramming@WSDOT.WA.GOV). This is to occur once the forms are initially completed and should not wait until region Project Summary approval. HQ CPDM will consult with the ESO Fish Passage Delivery Manager, the ESO Stormwater Branch Manager, and the HQ Hydraulics Section to determine which are approved for inclusion in the project. Shortly after submittal, a brief meeting (30 minutes or less) will be set up with the Region Hydraulic Engineering Supporting Staff to discuss. CPDM will send a final response following this meeting.

# Feasibility Determination for common BMP Types

Full HRM BMP design standards are preferred, but if ROW is limited or other site constraints exist, partial HRM BMP design standards can be implemented, or document existing site conditions already providing treatment (to full or partial HRM BMP design standards). Document the results in the Findings and Conclusion.

Use the following section to determine the feasibility of three preferred BMP type(s) and document the results in the Findings and Conclusion.

### Natural Dispersion BMP Feasibility Evaluation

1. Does stormwater sheet flow from the highway onto the roadway embankment, or is there an existing barrier or curb that can be removed to reestablish sheet flow conditions? If no, Natural Dispersion is not feasible.
2. If yes, after sheet flowing down the roadway embankment, does roadway runoff sheet flow across a heavily vegetated or forested area that **meets full HRM BMP design standard for FC.01 Natural Dispersion**? If yes, it is feasible to designate existing site conditions as a natural dispersion BMP. If no, Natural Dispersion is not feasible.

### Vegetated Filter Strip (VFS) BMP Feasibility Evaluation

1. Does roadway runoff flow to a roadway embankment that has a side slope of 3:1 or flatter and is at least 3 feet wide, or can the roadway embankment side slope be modified to at least 3:1 or flatter with minor grading without acquiring additional ROW and without causing environmental impacts that would require additional environmental permits? If no, a VFS is not feasible.
2. If yes, does the area discharge to a waterbody with a total maximum daily load (TMDL) or 303(d) listing for phosphorus or dissolved oxygen? If yes, construct a VFS or designate existing site conditions as a VFS. If no, construct a compost amended VFS or designate existing site conditions as a VFS and add a 3-inch blanket of compost on top.

### Biofiltration Swale BMP Feasibility Evaluation

A biofiltration swale must:

1. Have a flat bottom width of at least 2 feet
2. Have a longitudinal slope of 5% or less
3. Have 3:1 (or flatter) side slopes
4. Have a length of at least 25 feet
5. Have adequate access for maintenance
6. Does the roadway runoff flow, via an existing collection and conveyance system, or with minor changes like adding curb, inlets, and catch basins, to an existing ditch or location feasible for a newly constructed bioswale, AND where the ditch or location can be modified/constructed without acquiring additional ROW and without causing environmental impacts that would require additional environmental permits? If no, a biofiltration swale is not feasible.
7. If yes, does the area discharge to a waterbody with a total maximum daily load (TMDL) or 303(d) listing for phosphorus or dissolved oxygen? If yes, construct a biofiltration swale or designate existing site conditions as a biofiltration swale. If no, construct a compost amended biofiltration swale (CABS) or designate existing site conditions as a bioswale and add a 3-inch blanket of compost on top.