

Post-Construction Water Quality Best Management Practices Operation and Maintenance Plan Template

Project Name: [\[Click here and type Project Name\]](#)

Project Address: [\[Click here and type Project Address\]](#)
[\[Click here and type Project Address\]](#)

Site Contact: [\[Click here and type Name\]](#)
[\[Click here and type Address\]](#)
[\[Click here and type Address\]](#)
[\[Click here and type Phone Number\]](#)

Plan Prepared By: [\[Click here and type Name\]](#)
[\[Click here and type Address\]](#)
[\[Click here and type Address\]](#)
[\[Click here and type Phone Number\]](#)

Date: [\[Click here and type Preparation Date\]](#)

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1.0 BEST MANAGEMENT PRACTICES OVERVIEW

The Owner shall identify and discuss the Best Management Practices (BMPs) that will be used to manage the stormwater runoff from the site as indicated within the project specific site improvement plan. Describe the location of the BMPs and associated treatment tributary areas. Identify the location of the BMPs on the site plan that is to be included on Exhibit A. Indicate any necessary legally binding maintenance easements and agreements that are necessary to adequately maintain the BMPs and provide copies within an Appendix.

2.0 INSPECTION AND MAINTENANCE PROCEDURES

Discuss the frequency of which the BMPs will be inspected and reporting procedures. BMP inspection report templates are provided within Appendix B. Inspections are to be conducted, at a minimum, on an annual basis unless, for proprietary BMP systems, a more frequent schedule is recommended by the manufacturer. Identify the personnel responsible for conducting the site inspections and maintenance and provide their contact information. Include inspection and maintenance procedures for each BMP and identify the pollutants expected to be removed from the stormwater runoff. Indicate the means of which collected pollutants will be removed from the site and properly disposed. Copies of inspection reports are to be submitted to the City of Hilliard.

APPENDIX A:

City of Hilliard Inspection and Maintenance Agreement
[Template for use by City and Owner]

INSPECTION AND MAINTENANCE AGREEMENT FOR POST-CONSTRUCTION STORMWATER BEST MANAGEMENT PRACTICES

PROJECT NAME: [\[Click here and type Project Name\]](#)

PROJECT ADDRESS: [\[Click here and type Project Address\]](#)
[\[Click here and type Project Address\]](#)
[\[Click here and type Project Address\]](#)

This Inspection and Maintenance Agreement, made this ____ day of _____ 20__, by and between the [\[Click here and type Owner name\]](#) (hereafter referred to as the Owner) and the City of Hilliard (hereafter referred to as the City), provides as follows:

WHEREAS, the Owner is responsible for certain real estate shown as Tax Map No. [\[Click here and type parcel number\]](#) that is to be developed as [\[Click here and type Project Name\]](#) and referred to as the Property; and,

WHEREAS, the Owner is providing a stormwater management system consisting of the following Best Management Practices: [\[Click here and type Practices\]](#) as shown and described within the City approved Storm Water Pollution Prevention Plan pertaining to the Property; and,

WHEREAS, to comply with Section 1179.091 of the City of Hilliard Codified Ordinances, pertaining to this project, the Owner has agreed to maintain the stormwater Best Management Practices in accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, for and in consideration of the mutual covenants and undertaking of the parties, the parties hereby agree as follows:

OPERATION AND MAINTENANCE PLAN FOR THE BEST MANAGEMENT PRACTICES

1. The Owner agrees to maintain in perpetuity the Best Management Practices in accordance with the approved Operation and Maintenance Plan referred to in #2 in a manner that will permit the Best Management Practices to perform the purposes for which they were designed and constructed, and in accordance with the standards by which they were designed and constructed, all as shown and described in the City approved Stormwater Management Plan pertaining to the Property. This includes all pipes and channels built to convey stormwater to the Best Management Practices, as well as structures, improvements, and vegetation provided to control the quantity and quality of the stormwater runoff.

[\[Project Name\]](#)

[\[Date\]](#)

2. The Owner shall provide an Operation and Maintenance Plan for all of the Post-Construction Best Management Practices located on the Property as identified within this agreement with the City. The Operation and Maintenance Plan shall contain the following:
 - Identify the entity responsible for Best Management Practice inspection and maintenance responsibilities;
 - the maintenance tasks to be undertaken;
 - a schedule for the owner required inspection and maintenance;
 - any necessary legally binding maintenance easements and agreements; and
 - a site plan showing the location of the Best Management Practices and all access and maintenance easements.
3. The Owner shall perform all maintenance in accordance with the above Operation and Maintenance Plan and shall complete all repairs identified through regular inspections, and any additional repairs as requested in writing by the City.

BEST MANAGEMENT PRACTICES INSPECTION AND MAINTENANCE

1. The Owner shall inspect all Best Management Practices identified within the Operation and Maintenance Plan at least once per year, or more frequently as may be specified in the City approved Operation and Maintenance Plan.
2. Inspection reports shall be prepared for each Best Management Practice located at the Property and include the following information at a minimum:
 - Project Name and address
 - Inspection date
 - Indicate the Best Management Practice inspected and identify the inspected components
 - Summary of inspection results including necessary repairs and maintenance
 - Best Management Practice pictures taken during the time of the inspection

The Owner shall retain a copy of the Best Management Practice inspection reports and maintenance and repair records and submit copies of the reports to the City within thirty (30) days after each inspection.

Inspection reports to be submitted to:

**Mr. Clyde R. Seidle, PE
Director of Public Service
City of Hilliard
3800 Municipal Way
Hilliard, Ohio 43026**

3. The Owner grants permission to the City to enter the Property and to inspect all aspects of the Best Management Practices whenever the City deems necessary. The City shall provide the Owner copies of the City inspection findings and a directive to commence with necessary repairs.
4. The Owner shall make all repairs within thirty (30) days of their discovery as identified within the Owner inspections or through a request for the City resulting from the City conducted inspections. If repairs will not occur within this thirty (30) day period, the Owner must receive written approval from the City for an alternative repair schedule.
5. In an event of any default or failure by the Owner in properly maintaining the Best Management Practices in accordance with the approved Storm Water Pollution Prevention Plan and the Post-Construction Operation and Maintenance Plan, or, in the event of an emergency as determined by the City, it is the sole discretion of the City, after providing [City to input timeframe] notice to the Owner, to enter the property and take whatever steps necessary to correct deficiencies and to charge the cost of such repairs to the Owner. The Owner shall reimburse the City [City to input timeframe] for costs expended by the City in performing such necessary maintenance or repairs and shall constitute a lien against the properties of the Owner. Nothing herein shall obligate the City to maintain the Best Management Practices.

INDEMNIFICATION

The Owner hereby agrees that it shall save, hold harmless, and indemnify the City and its employees and officers from and against all liability, losses, claims, demands, costs and expenses arising from, or out of, default or failure by the Owner to maintain the Best Management Practices, in accordance with the terms and conditions set forth herein, or from acts of the Owner arising from, or out of, the construction, operation, repair or maintenance of the Best Management Practices.

The parties hereto expressly do not intend by execution of this Inspection and Maintenance Agreement to create in the public, or any member thereof, any rights as a third party beneficiary or to authorize anyone not a party hereof to maintain a suit for any damages pursuant to the terms of this Inspection and Maintenance Agreement.

COVENANT

This Inspection and Maintenance Agreement shall be a covenant that runs with the land and shall be to the benefit of and shall be binding upon the parties hereto, their respective successors and assigns, and all subsequent owners of the property.

The current Owner shall promptly notify the City when the Owner legally transfers any of the Owners responsibilities for the Best Management Practices. The Owner shall supply the City with a copy of any document or transfer, executed by both parties.

Upon execution of the Inspection and Maintenance Agreement, it shall be recorded by....Ohio EPA recommends adding it to the deed so it is passed from owner to owner. City attorney needs to review this to create appropriate language for this.

IN WITNESS WHEREOF, the Owner has caused this Inspection and Maintenance Agreement to be signed in its name by a duly authorized person.

Owner Printed Name

Owner Signature

Date

By: _____
City Official Printed Name

City Official Signature

Date

APPENDIX B:

Inspection Reports

BMP example inspection reports are provided within this appendix. The reports are to be adjusted based upon site specific BMPs or additional reports created. Reference the Ohio Department of Natural Resources (ODNR) "Rainwater and Land Development" Manual, City of Hilliard Stormwater Design Manual and the project specific site improvement construction plan and stormwater management plan approved by the City for BMP inspection and maintenance guidelines.

ODNR Rainwater and Land Development Manual:

www.dnr.state.oh.us/soilandwater/water/rainwater/default/tabid/9186/Default.aspx

Inspection Report
Bioretention Basins, Rain Gardens

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
Best Management Practice (BMP) Inspected	

Inspection References:

ODNR Manual, Rainwater and Land Development, Latest Edition

City of Hilliard Stormwater Design Manual

Approved Site Improvement Construction and Stormwater Management Plans

Instructions:

One inspection report shall be prepared for each BMP. Identify the BMP inspected as indicated on the Site Plan if multiple BMPs are present on-site. Please sign and date the inspection report and return the original to the City of Hilliard Public Service Department. Please provide pictures taken during the inspection and attach them to the report.

[Project Name]

[Date]

PLANTINGS

- No additional maintenance is recommended at this time.
- Several of the plants provided with the original construction of the facility appear to have died. These plants shall be removed and replaced.

Comments:

- The facility appears to have become overgrown. As such, the vegetation in the facility shall be thinned out.

Comments:

- Invasive plant species are present and need to be removed.

Comments:

- Additional items/comments:

BERM (SMALL DAM EMBANKMENT)

- No additional maintenance is recommended at this time.
- The berm was not constructed properly. The berm shall be reconstructed to the required height and with the required material.

Comments:

- A portion of the berm has “blown out” (e.g., eroded). The berm shall be repaired. Along with the repair, the installation of an armored spillway may require that the berm be constructed to a height approximately 6-inches above the height specified in the approved Construction Drawings.

Comments:

- Additional items/comments:

INFLOW CHANNELS/PIPES/SLOPES

- No additional maintenance is recommended at this time.

- The inlet areas have eroded. These eroded areas shall be repaired.
 Comments: _____

- Trash and debris are in the forebay/sediment basin. This material shall be removed. If the facility is fed by concentrated inlets and there is not a forebay or sediment basin, one shall be considered.
 Comments: _____

- Approximately 50% (or more) of the forebay/sediment basin has been filled with sediment. This material shall be removed.
 Comments: _____

- It appears that the by-pass/diversion structure is malfunctioning. Any trash, sediment, or debris blocking the entry or passage of storm flows through the structure shall be removed.
 Comments: _____

- Additional items/comments:

PRINCIPAL SPILLWAY PIPE (PSP)

No additional maintenance is recommended at this time.

The PSP is blocked. The blockage shall be removed.

Comments: _____

One or more joints of the PSP are leaking.

Comments: _____

One or more sections of pipe have settled to a point where the integrity of the dam may be threatened. These sections of pipe may need to be replaced.

Comments: _____

Additional items/comments:

OUTFALL

Not applicable.

No additional maintenance is recommended at this time.

The outfall area is eroding. The eroded area shall be repaired.

Comments: _____

The outfall area is blocked. This blockage shall be removed.

Comments: _____

Additional items/comments:

OUTLET STRUCTURE

- No additional maintenance is recommended at this time.

- The low-level orifice/inverted siphon is blocked. This blockage shall be removed. A debris cage is/is not (highlighted) recommended [disregard comment if a trash-rack is already present].
Comments: _____

- The outlet structure is filled with excess material (debris, trash, rock, etc.). This material shall be removed. A top trashrack is/is not recommended [disregard comment if a trashrack is already present].
Comments: _____

- The top trashrack/anti-vortex device is damaged. The trash-rack/anti –vortex device shall be repaired or replaced.
Comments: _____

- The outlet structure is damaged/deteriorated. The outlet structure shall be repaired or replaced.
Comments: _____

- Additional items/comments:

BIORETENTION AREA & UNDERDRAINS (PLANTINGS EXCLUDED)

- No additional maintenance is recommended at this time.

- The mulch layer has deteriorated or washed away. This mulch layer shall be replaced with a 3-inch deep layer of durable hammered hardwood mulch and shall be spread uniformly over the entire area or replaced every 3-years and touched up (raked) annually.
Comments: _____

- Areas of erosion were noted in the floor of the bioretention area. These areas shall be repaired.
Comments: _____

BIORETENTION AREA & UNDERDRAINS (PLANTINGS EXCLUDED) CONTINUED

- The bioretention area is holding water (e.g., for more than 40-hours after a rain event).

Comments:

- It appears that the soil mix was not installed properly (e.g., either the required soil mix was not used or it was not installed to the correct depth). If it is determined that the soil mix was constructed improperly, the bioretention area will need to be reconstructed to the plan and specifications contained in the approved Construction Drawings.

Comments:

- It appears that the relief pipes (e.g., underdrains) proposed in the approved construction drawings were not installed. If it is determined that these drains were not installed, the bioretention area may need to be reconstructed. The relief drains were proposed to mitigate the effects of the poorly draining soils anticipated under the subject facility. If it appears, however, that the facility is functioning adequately and infiltrating the treated drainage into the underlying soil, reconstruction will not be required. If relief drains were not proposed in the Construction Drawings, and the facility appears to have been functioning more like a wetland, official conversion of the facility from a bioretention area to a stormwater wetland may be appropriate. In such instances, consultation with the City of Hilliard Director of Public Service is recommended.

Comments:

- Additional items/comments:

Inspection Report

Vegetated Filter Strip

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
Best Management Practice (BMP) Inspected	

Inspection References:

ODNR Manual, Rainwater and Land Development, Latest Edition

City of Hilliard Stormwater Design Manual

Approved Site Improvement Construction and Stormwater Management Plans

Instructions:

One inspection report shall be prepared for each BMP. Identify the BMP inspected as indicated on the Site Plan if multiple BMPs are present on-site. Please sign and date the inspection report and return the original to the City of Hilliard Public Service Department. Please provide pictures taken during the inspection and attach them to the report.

[Project Name]

[Date]

VEGETATION

- No additional maintenance is recommended at this time.
- An adequate uniform vegetative cover is not provided within the filter and the height of the grass is less than 3 to 4 inches.
Comments: _____

- The outfall area is eroded. The eroded are shall be repaired.
Comments: _____

- Bare areas were noted within the filter area. These areas shall be re-planted with grass.
Comments: _____

- The outfall area is blocked. This blockage shall be removed.
Comments: _____

- Sediment, trash, or debris are noticeable within the filter area, the material shall be removed and re-planted as necessary to ensure adequate vegetated cover.
Comments: _____

- Additional items/comments:

LEVEL SPREADER – WEIR/FOREBAY

- No additional maintenance is recommended at this time.
- The weir is blocked with accumulated sediment or debris.
Comments: _____

- Areas of concentrated flow from the weir into the filter are noticeable and erosion is present. The weir needs adjusted and the eroded areas repaired.
Comments: _____

Inspection Report

Vegetated Swale

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
Best Management Practice (BMP) Inspected	

Inspection References:

ODNR Manual, Rainwater and Land Development, Latest Edition

City of Hilliard Stormwater Design Manual

Approved Site Improvement Construction and Stormwater Management Plans

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[Project Name]

[Date]

VEGETATION

- No additional maintenance is recommended at this time.
- An adequate uniform vegetative cover is not provided within the swale and the height of the grass is less than 3 to 4 inches.

Comments:

- The outfall area is eroded. The eroded area shall be repaired.

Comments:

- Bare areas were noted within the swale area. These areas shall be re-planted.

Comments:

- The outfall area is blocked. This blockage shall be removed.

Comments:

- Sediment, trash, or debris are noticeable within the swale area, the material shall be removed and re-planted as necessary to ensure adequate vegetated cover.

Comments:

- Additional items/comments:

Inspection Report
Underground Proprietary Devices

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
Best Management Practice (BMP) Inspected	

Inspection References:

ODNR Manual, Rainwater and Land Development, Latest Edition
City of Hilliard Stormwater Design Manual
Approved Site Improvement Construction and Stormwater Management Plans

Instructions:

One inspection report shall be prepared for each BMP. Identify the BMP inspected as indicated on the Site Plan if multiple BMPs are present on-site. Please sign and date the inspection report and return the original to the City of Hilliard Public Service Department. Please provide pictures taken during the inspection and attach them to the report.

OUTFALL

- No additional maintenance is recommended at this time.
- The outfall area is eroded. The eroded area shall be repaired.
Comments: _____

- The outfall area is blocked. This blockage shall be removed.
Comments: _____

- Sediment, trash, or floatables are noticeable downstream of the BMP. The material shall be removed and the BMP further evaluated for deficiencies.
Comments: _____

- Additional items/comments:

HYDRODYNAMIC DEVICES/PROPRIETARY DEVICES/PRETREATMENT CELLS

- Not applicable.
- No additional maintenance is recommended at this time.
- Sediment levels exceed manufacturer's recommendations, removal of sediment is required.
Comments: _____

- Depth of floatables such as oils, greases, and trash and determine if the depth exceeds manufacturer's recommendations, removal of floatables is required.
Comments: _____

- The filters are clogged and shall be removed and replaced.
Comments: _____

- Additional items/comments:

UNDERGROUND STORAGE

- Not applicable.
- No additional maintenance is recommended at this time.
- The sediment volume in the storage pipes/vessels exceeds 10% of the storage volume, removal of accumulated sediment is required.
Comments: _____

- The underground storage cell is supposed to infiltrate runoff but standing water is observed. The storage cell may need to be cleaned.
Comments: _____

- The underground storage cell is holding water, the blockage shall be removed.
Comments: _____

- Additional items/comments:

INFLOW CHANNELS/PIPES/SLOPES

- No additional maintenance is recommended at this time.
- Trash and debris noticeable at inlet to BMP, the material shall be removed.
Comments: _____

- Additional items/comments:

Inspection Report
Wet Basin, Dry Basin, or Wetland

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
Best Management Practice (BMP) Inspected	

Inspection References:

ODNR Manual, Rainwater and Land Development, Latest Edition

City of Hilliard Stormwater Design Manual

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Instructions:

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[Project Name]

[Date]

WETLAND AND RIPARIAN PLANTINGS

- No additional maintenance is recommended at this time.
- It appears that some of the plantings installed during construction may have died, did not colonize as intended, and/or have been overtaken by invasive plant species. This condition needs to be corrected to achieve a minimum 90% coverage in the planting zone a minimum of 2 years after initial construction.

Comments:

BASIN/DAM EMBANKMENT

- No additional maintenance is recommended at this time.
- At the time of the inspection, the dam was overgrown. The dam shall be mowed so that a more thorough inspection can be provided.

Comments:

BASIN/DAM EMBANKMENT CONTINUED

- Bare areas were noted on the dam. These areas shall be planted with grass.
Comments: _____

- Trees were noted on the dam. These trees shall be removed and replaced with grass.
Comments: _____

- Shrubbery and other types of vegetation were noted on the dam. This material shall be removed and replaced with grass.
Comments: _____

- The compaction of the dam, in the area around the outlet structure and the connection of the principal spillway pipe to the riser, seemed inadequate (e.g., the dam provided little resistance to soil probing). This condition shall be monitored as it may lead to piping or excessive settlement.
Comments: _____

- Piping (loss of soil) around the outlet structure/principal spillway pipe was noted. These areas shall be repaired.
Comments: _____

- Erosion/sloughing is noted on the dam. These areas shall be repaired.
Comments: _____

- Areas of slope slippage, bulging, and/or excessive settlement were noted on the dam. These areas shall be repaired.
Comments: _____

- Fractures were noted in the dam. These areas shall be repaired.
Comments: _____

- Animal burrows were noted in the dam. These burrow holes shall be filled in.
Comments: _____

OUTLET STRUCTURE

- No additional maintenance is recommended at this time.

- The normal pool orifice/inverted siphon is blocked. This blockage shall be removed.
Comments: _____

- The outlet structure is filled with excess material (debris, trash, rock, etc.). This material shall be removed. A top trashrack is/is not recommended [disregard if a trashrack is already present].
Comments: _____

- The top trashrack/anti-vortex device is damaged. The trash-rack/anti-vortex device shall be repaired or replaced.
Comments: _____

- The outlet structure is damaged/deteriorated. The outlet structure shall be repaired or replaced.
Comments: _____

- Additional items/comments:

EMERGENCY SPILLWAY

- No additional maintenance is recommended at this time.
- At the time of the inspection, the emergency spillway was overgrown. The spillway shall be mowed so that a more thorough inspection can be provided.
- It appears that the emergency spillway was not installed in accordance with the approved construction drawings. The spillway shall be installed.

Comments:

- Bare areas were noted on the emergency spillway. These areas shall be planted with grass.

Comments:

- Trees were noted on the emergency spillway. These trees shall be removed and replaced with grass.

Comments:

- Shrubbery and other types of vegetation were noted on the emergency spillway. This material shall be removed and replaced with grass.

Comments:

- Erosion was noted on the emergency spillway. These areas shall be repaired.

Comments:

- Additional items/comments:

PRINCIPAL SPILLWAY PIPE (PSP)

- No additional maintenance is recommended at this time.
- The PSP is blocked. The blockage shall be removed.
Comments: _____

- One or more joints of the PSP are leaking.
Comments: _____

- One or more sections of pipe have settled to a point where the integrity of the dam may be threatened. These sections of pipe may need to be replaced.
Comments: _____

- Additional items/comments:

OUTFALL

- No additional maintenance is recommended at this time.
- The outfall structure is undermined and/or is rusting/deteriorating. This structure shall be repaired or replaced.
Comments: _____

- The outfall structure has separated from the PSP by more than three inches. This structure shall be reattached to the PSP.
Comments: _____

- The outfall area is eroding. The outfall area shall be repaired and stabilized with additional riprap (e.g., irregularly shaped stone) or a permanent soil liner (i.e., turf reinforcing mat, articulated concrete block, etc.).
Comments: _____

- The outfall area is blocked. This blockage shall be removed.
Comments: _____

- Additional items/comments:

IMPOUNDMENT AREA

- No additional maintenance is recommended at this time.
- The water level is more than 6" below the design normal pool elevation as per plan.
Comments: _____

- The forebay/sediment basin/micropool/impoundment areas have silted in. These areas shall be cleaned out.
Comments: _____

- The forebay berm has eroded. The berm shall be repaired.
Comments: _____

- Bare areas were noted on the basin side slopes. These areas shall be stabilized.
Comments: _____

- Eroded areas (rills, channels, etc.) were noted on the basin side slopes. These areas shall be repaired and stabilized.
Comments: _____

- Algae has covered over 50% of the deep pool and shallow water areas, the algae growth shall be removed and controlled.
Comments: _____

- Additional items/comments:

EXHIBIT A:

Site Plan

Provide a site plan to scale indicating the proposed site features, BMP locations and delineation of the BMP tributary drainage areas. Differentiate similar BMPs on the plan with labels to assist with inspection reporting. Indicate the site boundary and any necessary easements that are required to access the site and properly maintain the BMPs.

Provide BMP details and specifications identifying the various components that are to be inspected, maintained or replaced, such as:

- *Planting plans*
- *Seed mixes and application rates*
- *Manufactured water quality structures*
- *Engineered soil mixes*
- *BMP cross sections*
- *Basin outlet structures*