TECHNICAL MEMORANDUM # 16 AS-BUILT SUBMISSIONS

TO: Applicants and Designers for State and Federal Projects

FROM: Sediment and Stormwater Plan Review Division
Water and Science Administration

DATE: April 2, 2021 (Updated April 2, 2025)

SUBJECT: As-Built Submissions and Tolerances

Background

The *Maryland Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects* require that when the construction of a best management practice (BMP) for stormwater management is complete, as-built plans certified by a professional engineer, professional land surveyor, or landscape architect licensed in the State of Maryland be submitted to MDE for review and acceptance to ensure that constructed stormwater management practices and conveyance systems comply with the approved plans.

Propelled by the reporting requirements in the *National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4), October 31, 2018*, State and federal agencies have been working hard to catch up on their backlogs of unsubmitted as-built plans. Over the past five years, the number of as-builts submitted to the Sediment & Stormwater Plan Review Division has surged.

Policy Statement

To manage the increased workload and assist the government agencies in their efforts, the Plan Review Division has divided the inventory of BMPs into the following groups:

1. **BMPs with as-builts that have already been accepted by MDE.** No further action is required to document construction completion.
2. **Newer BMPs constructed under projects identified by a 2011 "SF" number or more recent (i.e., 11-SF-xxxx, 12-SF-xxxx, 13-SF-xxxx, etc.).** As-built plans for these newer BMPs need to be submitted to the Plan Review Division using the applicable as-built checklist.
3. **Older BMPs constructed under projects identified by a 2010 "SF" number or earlier (i.e., 10-SF-xxxx, 09-SF-xxxx, 08-SF-xxxx, etc.)** These older BMPs fall into two groups:

a. **Non-Small Pond BMPs.** These generally include Environmental Site Design (ESD) practices, small scale structural practices, and proprietary practices. As-built plans for these older, smaller BMPs are not to be submitted to the Plan Review Division for review and acceptance. Instead, BMP verification and construction completion records should be retained on-site. For applicants subject to an NPDES MS4 permit, a summary of progress toward this effort should be provided in the annual progress report. Please note, however, that when reconciling Water Quality Bank balances, the Plan Review Division may request a copy of the BMP verification data for BMPs that credited the Bank.
b. **Heritage Small Pond BMPs.** These are larger SWM BMPs. To ensure the safe operation of these larger stormwater management BMPs, State and federal agencies are required to submit as-builts to the Plan Review Division for all small ponds, regardless of construction year. However, recognizing the challenges and deficiencies with historical BMP records, the Plan Review Division has developed a moderated checklist for these older small ponds.

As-Built Submission Requirements

This technical memo contains three different checklists for as-built submissions. The applicable checklist is dependent on the type(s) of BMP being certified. The checklists are:

- **As-Built Checklist for Non-Small Pond BMPs**
- **As-Built Checklist for [New] Small Pond BMPs**
- **Moderated As-Built Checklist for Heritage Small Pond BMPs**

"Small Pond BMPs" refers to larger SWM BMPs which are categorized as "small ponds" per the USDA, Natural Resource Conservation Service, Maryland Conservation Practice, Standard Pond Code 378 and MDE Dam Safety Program's policy memoranda. (Note the "small pond" label for larger SWM BMPs seems paradoxical unless you think of it in the context of the embankment and "small pond" meaning "small dam".) These structures must be designed and constructed in accordance with MDE Dam Safety Program criteria for small ponds.

Important As-Built Items

The most important elements of an as-built submission are:

- A completed **transmittal form** with the current applicant contact for the respective State/federal agency and the name of the party submitting the as-built (e.g., certifying engineer, contractor).
- Completed **as-built checklist(s)**. Use the type of checklist that applies to the BMP. Each BMP requires a separate checklist.
- A **short narrative** that includes the MDE project number, the type of BMP, the BMP names or ID numbers, and the types of BMPs. For heritage small ponds include the location of the BMP, its intended function, the construction date, its current condition, all available design information, and any other relevant information that may be of importance.

- **Original/approved design plans with as-built survey information** in a contrasting color like red. Include the original design report if a copy exists. [There is no need to provide design reports for projects that MDE approved after March 2020 or for which MDE shared the original report with the owner.]
- **Photos** of the BMP.
- **Signed as-built certification.**

When preparing an as-built for an older BMP for which the original design information and/or construction inspection records are not available, do not hesitate to contact the Plan Review Division for input on submission requirements.

As-Built Tolerances

The Plan Review Division recognizes that as-built deviations from the grading and elevations shown on the approved stormwater management plans are an expected reality of construction. Deviations from the approved site plans must be kept to a minimum to ensure that the BMPs and site stormwater management plan function as designed and approved. The constructed elevations for the earth work and the drainage appurtenances, including but not limited to low flow orifices, weirs, auxiliary spillways, storm drains, risers, riprap outlet protection, and the associated differentials should effectively match the approved stormwater management plans. Significant construction deviation from the approved plans can result in increased flooding, erosion issues, increased discharge of pollutants, damaged conveyance structures, and breached earthen embankments. To ensure that the constructed stormwater BMP will function as designed, the following minimum construction tolerances should be met:

1. Applicable as-built storage volumes for ESD_v, WQ_v, Re_v, CP_v, Qp_2, Qp_{10}, and Qp_{100} should be at least 90% of that required in the approved stormwater management design computations. Refer to paragraph below on how to proceed when provided storage volumes are <90%.
2. The provided as-built freeboard should be equal to or greater than minimum required freeboard for the respective BMP type. For small ponds, the minimum freeboard is 2 feet without an auxiliary spillway and 1 foot with an auxiliary spillway. (A weir wall spillway is generally considered to be both the primary and auxiliary spillway.)

If the above tolerances are exceeded, the as-built certifying engineer should identify the deviations in the as-built narrative and explain the potential effect of the deviations on the intended function of the BMP in meeting the stormwater management requirements of the original plan. **Please note that MDE will inform the applicant if as-built calculations, based on constructed values, are needed. The plan reviewers run calculations and checks themselves and may not need the applicant to spend time and resources doing this.** Depending on the purpose of the BMP, relevant calculations could include, for example: storage volume, achieved P_E, achieved WQv/ESDv, discharge rates, detention time, water surface elevations, and freeboard. In making this determination, MDE will consider the following: Is the structure a small pond? Does the BMP

sufficiently meet the intended function in terms of achieved water quality and quantity management? If deficiencies are limited to water quality, can they be rectified by debiting the applicant's Water Quality Bank? Are field corrections needed?

In situations where the applicant agrees to use the Water Quality Bank to rectify a deviation in the constructed BMP(s), a revised water quality summary sheet shall be provided, and the banking transaction will be revised.

Questions about this information or other items relating to sediment and stormwater plans can be directed to the Chief of the Sediment and Stormwater Plan Review Division.

MDE SEDIMENT AND STORMWATER PLAN REVIEW DIVISION

AS-BUILT REVIEW CHECKLIST
(small ponds use a different checklist)

MDE Number _____

Project Name _____

Applicant _____

As-Built Engineer's Name _____ Date: _____

MDE Reviewer's Name _____Date: _____
(to be completed by MDE)

PLEASE NOTE THAT AS-BUILTS SUBMITTED WITHOUT A COMPLETED CHECKLIST MAY BE RETURNED WITHOUT REVIEW. One or more non-small pond BMPs may use the same checklist.

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					SUBMISSION DOCUMENTS
					Completed transmittal form
					Reponses to comment letter (for re-submittals only)
					Narrative
					Computations as necessary to support constructed deviations
					Revised Water Quality Summary Sheet as necessary to support constructed deviations
					As-built certification
					As-built drawings comparing the approved stormwater management BMP(s) with what was constructed
					Construction inspection checklists and/or construction inspection report
					Photographs
					Note that MDE may request a set of original plans if reviewer cannot locate a copy.
					Please do not send material tickets.
					AS-BUILT PLANS
					Note that as-built information does not have to be shown on MDE stamped approved plans, but as-built plans must reflect latest MDE approved plan including all modifications.
					As-built drafting indicated in red, green, or blue
					Drawings labeled as "as-builts" with date
					Drawings showing as-built contours and elevations of entire BMP(s), embankment(s), and immediately adjacent area(s) from site survey of constructed conditions

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					As-built dimensions. BMP plan view, details, cross sections, and profiles with as-built dimensions. A check mark made next to a design dimension that is the same as the constructed dimension. If constructed dimension is different from design dimension, approved dimension stricken through and constructed dimension indicated in a different color next to design dimension
					As-built elevations. BMP plan view, details, cross sections, and profiles with as-built elevations. Constructed elevations indicated in a different color next to design elevation. Elevations provided to the nearest 0.1 ft
					As-built locations/dimensions/elevations for all appurtenances to BMP(s) including, but not limited to, risers, weirs, orifices, spillways, riprap inflow, riprap outlet protection
					As-built locations/dimensions/elevations for flow conveyance systems including pipe sizes, flow direction, manholes, inlets, headwalls, endwalls, end sections, etc.
					Length, width, and depth of storage so that design volume can be verified
					Check marks for affirmation of materials (e.g. pipe type, stone media, bio-soil mix hardware cloth, geotextile, etc.)
					A completed As-Built Schedule (table) from approved plans (when an as-built schedule is printed on plans) with constructed values indicated in as-built column
					A completed and signed MDE Plan Review **As-Built Certification** by a Professional Engineer or Landscape Architect registered in MD along with seal and professional certification
					SUPPORTING DOCUMENTATION
					Narrative briefly stating purpose of submittal, contents, description of BMP(s), and explanation of any notable deviations from the approved plans that may have affected level of stormwater management
					WHEN REQUESTED BY MDE, revised design computations when as-built dimensions or elevations indicate a significant, unfavorable deviation from the approved design
					WHEN REQUESTED BY MDE, revised Water Quality Summary Sheet if originally approved water quality credit is affected by constructed BMP(s) deviating from design
					Construction inspection checklists for BMP(s) completed by inspector (only for BMPs with construction inspection checklists printed on plans) or construction inspection report
					Field notes and survey logs from 3rd party inspector or certifying engineer (if helpful)
					Photographs of critical steps during construction, clearly labeled
					Photographs of final construction showing the site and the BMPs, clearly labeled and stabilized with established vegetation as specified on approved landscaping plan

AS-BUILT CERTIFICATION

I hereby certify that the below referenced stormwater management facility shown on the plans has been constructed in accordance with the plans approved by the Maryland Department of the Environment, except as noted in red on the "AS-BUILT" drawings. "Certify" means to state or declare a professional opinion based on sufficient and appropriate onsite inspections, surveys, and material tests conducted during construction.

_____	_____
Name	Signature
_____	_____
Maryland Registration Number (PE or LS)	Date
_____	_____
MDE No.	ID number for BMP/small pond being certified

MDE SEDIMENT AND STORMWATER PLAN REVIEW DIVISION

SMALL POND AS-BUILT CHECKLIST
For State and Federal Projects

(This checklist is for all "small ponds", including bioretention, infiltration, sand filters, wetlands, submerged gravel wetlands, etc., that are categorized as small ponds.)

MDE Number _____

Project Name _____

Pond Name/BMP No._____

Applicant _____

As-Built Engineer's Name _____ Date: _____

MDE Reviewer's Name _____Date: _____
(to be completed by MDE)

PLEASE NOTE THAT AN AS-BUILT SUBMITTED WITHOUT A COMPLETED CHECKLIST MAY BE RETURNED WITHOUT REVIEW. ***Each pond needs its own checklist.***

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					SUBMISSION DOCUMENTS FOR COMPLETENESS
					Completed transmittal form
					Reponses to comment letter (for re-submittals only)
					Narrative
					Drainage area map to pond (if design records are not available or there are constructed deviations)
					Computations as necessary to support constructed deviations
					Revised Water Quality Summary Sheet as necessary to support constructed deviations
					Signed As-Built Certification
					As-built drawings comparing the approved stormwater management pond with what was constructed
					Completed Construction Inspection Certification Checklist (see attached) and/or construction inspection report
					Geotechnical testing results and certification
					Photographs
					MD Dam Inspection Checklist (if pond was constructed more than three years prior to as-built submission)
					Dam breach analysis (if a DBA/DB screening is not on file or pond was approved more than ten years prior to as-built submission)
					Completed Pond Summary Sheet
					Note that MDE may request a set of original plans if reviewer cannot locate a copy.

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					AS-BUILT PLANS
					Note that as-built information does not have to be shown on MDE stamped approved plans, but as-built plans must reflect latest MDE approved plan including all modifications.
					CERTIFICATION
					A completed and signed MDE Plan Review **As-Built Certification** by a licensed Professional Engineer registered in MD, sealed with professional certification
					GENERAL
					As-built survey extending at least 100 feet downstream of the embankment fill or to the end of outfall
					As-built drafting indicated in red, green, or blue
					Drawings labeled as "as-builts" with date
					As-built dimensions. Pond plan view, details, cross sections, and profiles with as-built dimensions. A check mark made next to a design dimension that is the same as the constructed dimension. If constructed dimension is different from design dimension, approved dimension stricken through and constructed dimension indicated in a different color next to design dimension
					As-built elevations. Pond plan view, details, cross sections, and profiles with as-built elevations. Constructed elevations indicated in a different color next to design elevation. Elevations provided to the nearest 0.1 ft
					Check marks for affirmation of materials (e.g. pipe type, stone media, bio-soil mix, hardware cloth, geotextile, etc.)
					As-built locations/dimensions/elevations for all appurtenances to pond including, but not limited to, risers, weirs, orifices, spillways, riprap inflow, riprap outlet protection
					As-built locations/dimensions/elevations for flow conveyance systems including pipe sizes, flow direction, manholes, inlets, headwalls, endwalls, end sections, etc.
					A completed As-Built Schedule (table) from approved plans (when an as-built schedule is printed on plans) with constructed values indicated in as-built column
					PLAN VIEW
					Drawings showing as-built contours and elevations of entire pond, embankment, and immediately adjacent area from site survey of constructed conditions
					Length, width, and depth of storage so that design volume can be verified
					PROFILE ALONG CENTER LINE OF EMBANKMENT
					Top elevation of embankment
					Top elevation of the impervious core embankment
					Bottom elevation of the cut-off trench
					Principle spillway location, station, and elevation

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Auxiliary Spillway (normal to flow)
					Location and elevation of auxiliary spillway
					Width of level weir crest of auxiliary spillway
					Side slopes of auxiliary spillway
					AUXILIARY SPILLWAY PROFILE (parallel to flow)
					Elevation
					Length of level section (minimum 25 feet)
					Slope of spillway
					Slope protection type, material size, filter cloth
					EMBANKMENT SECTION/ PROFILE ALONG PRINCIPAL SPILLWAY
					Top elevation and width of embankment
					Embankment side slopes (equal to or flatter than approved design)
					Bottom elevation, width, and slopes of cut-off trench
					Top elevation, width, and slopes of impervious core
					Riser material, size, type, and weir opening elevation(s)
					Size and type of anti-vortex device and trash rack
					Low flow stage orifice(s) size, materials, and invert elevation
					Low flow stage trash rack size, material, and dimensions
					Low flow device drain pipe size, type, length, invert elevation
					Pond drain pipe size, length, invert elevation, valve type
					Principle spillway - barrel size, pipe type, corrugation size, gauge, concrete pipe class (ASTM C-361), inlet and outlet invert elevations, length, slope
					Concrete cradle dimensions
					Phreatic line (drawn from the as-built 10-year water surface elevation)
					Filter diaphragm and drains or anti-seep collars, number, size, spacing, and material
					Outfall protection type, material size, dimensions, filter fabric
					As-built water surface elevations for the WQv, Cpv, and 2-yr or 10-yr, 100-yr storm events, and 100-year for ultimate development
					Freeboard from WSEL for 100-year for ultimate development to top of embankment (min 1 ft with AS and min 2 ft without AS)
					SUPPORTING DOCUMENTATION
					Narrative briefly stating purpose of submittal, contents, description of pond, and explanation of any notable deviations from the approved plans that may have affected level of stormwater management
					Revised design computations when as-built dimensions or elevations indicate a significant, unfavorable deviation from the approved design
					Revised Water Quality Summary Sheet if originally approved water quality credit is affected by constructed pond deviating from design

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					CONSTRUCTION INSPECTION REPORT
					Completed Construction Inspection Certification Checklist (attached)
					Field notes and survey logs from 3rd party inspector or certifying engineer (if helpful)
					GEOTECHNICAL REPORT
					Geotechnical Certification signed and sealed by a licensed geotechnical Professional Engineer registered in MD
					Gradation and/or unified soil classification of cutoff trench material
					Gradation and/or unified soil classification of impervious core
					Gradation and/or unified soil classif. of embankment shell material
					Compaction density and moisture content
					Lift thickness
					Structural backfill
					Gradation of filter diaphragm material
					Confirmation that embankment material is non-dolomitic
					PHOTOGRAPHS
					Photographs of critical steps during construction, clearly labeled
					• completion of excavation to sub-foundation and trenching
					• installation of cutoff trench
					• installation of filter diaphragm and drain pipe
					• placement of structural fill and concrete cradle
					• installation of spillway pipe and anti-seep collars
					• installation of riser
					• installation of other piping including blanket or toe drains
					• backfill of foundations and trenches
					• construction of impervious core
					• completion of final grading
					Clearly labeled photographs of final construction/current conditions showing the site and the pond stabilized with at least 95% vegetative coverage and as specified on approved landscaping plan
					VEGETATION
					Photos indicating no trees, shrubs, or woody vegetation within 25 ft. of riser structure, on fill embankment, or within 15 ft. of fill embankment

BMP ID:

PROJECT NAME: MDE#

CONSTRUCTION INSPECTION CERTIFICATION CHECKLIST FOR SMALL POND EMBANKMENTS

	ACTIVITY	TEST RESULTS	✓= yes ✗= no N/A = not applicable	INSPECTION DATE	CERTIFYING INSPECTOR'S INITIALS
1	**SITE PREPARATION**				
	Pre-construction meeting conducted with inspector, contractor, and certifying engineer.				
	Sediment controls and/or flow diversions in place				
	Protection areas flagged				
	Grading accurarely staked out				
	Objectionable material removed from immediate area				
2	**CUT-OFF TRENCH EXCAVATION**				
	Located at centerline of embankment				
	Cut-off trench extended down to impervious soil				
	Length, depth, width, side slopes correct				
	Subgrade dry and stable				
	Area beneath embankment stripped of all vegetaion, topsoil, and organic matter				
3	**CUT-OFF TRENCH BACKFILL**				
	Material free of large stones, roots, etc.				
	Layers placed in 8 inch lifts continuous for entire trench length				
	Compaction and moisture content tested every 50 feet				
	Cut-off trench **Unified Soil Classification:**	_____			
4	**PRINCIPAL SPILLWAY CONSTRUCTION AND BACKFILLING**				
	Pipe spillway:				
	Pipe placed prior to construction of embankment				
	Pipe size, material, and class correct				
	Soil compaction under and adjacent to pipe				
	No gravel under spillway				
	Full concrete cradle provided				
	Watertight joints (joint separation OK) **gap:**	_____			
	Anti-seep collar location and size correct				
	Anti-seep collar and cradle installed with monolithic pour				
	Structural backfill specification followed				
	Soil compaction under and adjacent to pipe				
	Riser:				
	Overall dimensions and openings correctly located				
	Base dimensions correct				
	Concrete strength and bearing capacity acceptable				
	Watertight joints				
	Drain				
	For weir spillway:				
	Footing excavated on stable subgrade				
5	**EMBANKMENT CONSTRUCTION**				
	Impervious core length, depth, width, side slopes correct				
	Material free of large stones, roots, etc.				
	Layers placed in 8 inch lifts continuous for entire core length				
	Compaction and moisture content tested every 50 feet along core				
	Impervious Core **Unified Soil Classification:**	_____			
	Filter diaphragm dimensions and placement				
	Seepage drain pipe, perforation size, and spacing				
	No geotextile in filter diaphragm or seepage drain				
	Filter diaphragm materials **gradation:**	_____			
	Filter diaphragm compaction				
	Embankment soils **Unified Soil Classification:**	_____			

	Compacted in 8-inch lifts				
	Emankment compaction tested every 5000 sf				
	Elevation correct				
	Top width and side slopes correct				
	No equipment driven within 4 ft of spillway				
6	**AUXILIARY SPILLWAY**				
	Constructed in natural ground				
	Elevation correct				
	Width and side slopes correct				
	Level section length correct				
	Exit slope				
7	**POND EXCAVATION**				
	Elevation and topography of pond bottom graded to plan				
	Pond side slopes correct				
	Bench widths and locations correct				
	Maintenance access location, width, and slope acceptable				
8	**SPILLWAY OUTFALL PROTECTION**				
	Outfall protection channel excavated to design cross section				
	Filter fabric in place				
	Stone size correct				
9	**STABILIZATION AND LANDSCAPING**				
	Topsoil, seed, and mulch applied to site				
	Topsoil, seed, and mulch applied to embankment				
	Landscaping consistent with plan				
	No trees/woody growth planted within 15 ft of embankment or 25 ft of riser				

Inspector's name: _____

Company or agency: _____

Certifying Engineer's name: _____

GEOTECHNICAL CERTIFICATION
SMALL POND

I hereby certify that the soils tests for the embankment of the below referenced stormwater management facility have been performed in accordance with and meet the requirements of Maryland Pond Code 378 and MDE Dam Safety Program's policy memoranda. "Certify" means to state or declare a professional opinion based on sufficient and appropriate testing and onsite inspections.

_____	_____
Name	Signature
_____	_____
Maryland Registration Number (PE or LS)	Date
_____	_____
MDE No.	ID number for BMP/small pond being certified

AS-BUILT CERTIFICATION

I hereby certify that the below referenced stormwater management facility shown on the plans has been constructed in accordance with the plans approved by the Maryland Department of the Environment, except as noted in red on the "AS-BUILT" drawings. "Certify" means to state or declare a professional opinion based on sufficient and appropriate onsite inspections, surveys, and material tests conducted during construction.

_____	_____
Name	Signature
_____	_____
Maryland Registration Number (PE or LS)	Date
_____	_____
MDE No.	ID number for BMP/small pond being certified

MDE SEDIMENT AND STORMWATER PLAN REVIEW DIVISION

MODERATED AS-BUILT CHECKLIST
for
HERITAGE SMALL PONDS
NOT HAVING DESIGN RECORDS AND/OR CONSTRUCTION RECORDS

(This checklist is intended for State and federal "heritage small ponds" dating prior to FY2011 (i.e. 10-SF-xxxx and earlier) including bioretention, infiltration, sand filters, wetlands, submerged gravel wetlands, etc. that fall under MD Pond Code 378.)

MDE Number _____

Project Name _____

Pond Name/BMP No._____

Applicant _____

As-Built Engineer's Name _____ Date: _____

MDE Reviewer's Name _____ Date: _____
(to be completed by MDE)

PLEASE NOTE THAT AN AS-BUILT SUBMITTED WITHOUT A COMPLETED CHECKLIST MAY BE RETURNED WITHOUT REVIEW. ***Each pond needs its own checklist.***

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					SUBMISSION DOCUMENTS FOR COMPLETENESS
					Completed transmittal form
					Reponses to comment letter (for re-submittals only)
					Narrative. Was pond recognized as Code 378 small pond when designed and approved?
					Drainage area map to pond (if design records are not available or there are constructed deviations)
					Computations as necessary to support constructed deviations
					H&H Analysis for 10-yr storm for design conditions and 100-yr storm for ultimate conditions (if design records are not available)
					Revised Water Quality Summary Sheet as necessary to support constructed deviations
					Signed Heritage Small Pond Moderated As-Built Certification
					As-built drawings of ALL VISUAL COMPONENTS of pond, comparing the approved stormwater management pond design (if available) with what was constructed
					Copy of original plans and design documents if available
					Construction information if available
					Photographs
					MD Dam Inspection Checklist
					Dam breach analysis (if a DBA/DB screening is not on file or pond was approved more than ten years prior to as-built submission)

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Completed Pond Summary Sheet
					AS-BUILT PLANS
					Note that as-built information does not have to be shown on MDE stamped approved plans, but as-built plans should reflect latest MDE approved plan including all modifications, when available.
					CERTIFICATION
					A completed and signed MDE Plan Review **Heritage Small Pond Moderated As-Built Certification** by a licensed Professional Engineer registered in MD, sealed with professional certification
					GENERAL
					As-built survey extending at least 100 feet downstream of the embankment fill or to the end of outfall
					As-built drafting indicated in red, green, or blue
					Drawings labeled as "as-builts" with date
					As-built dimensions. Pond plan view, details, cross sections, and profiles with as-built dimensions. A check mark made next to a design dimension that is the same as the constructed dimension. If constructed dimension is different from design dimension, approved dimension stricken through and constructed dimension indicated in a different color next to design dimension
					As-built elevations. Pond plan view, details, cross sections, and profiles with as-built elevations. Constructed elevations indicated in a different color next to design elevation. Elevations provided to the nearest 0.1 ft
					Check marks for affirmation of materials (e.g. pipe type, stone media, BSM, hardware cloth, geotextile, etc.)
					As-built locations/dimensions/elevations for all appurtenances to pond including, but not limited to, risers, weirs, orifices, spillways, riprap inflow, riprap outlet protection
					As-built locations/dimensions/elevations for flow conveyance systems including pipe sizes, flow direction, manholes, inlets, headwalls, endwalls, end sections, etc.
					A completed As-Built Schedule (table) from approved plans (when an as-built schedule is printed on plans) with constructed values indicated in as-built column
					PLAN VIEW
					Drawings showing as-built contours and elevations of entire pond, embankment, and immediately adjacent area from site survey of constructed conditions
					Length, width, and depth of storage so that design volume can be verified
					PROFILE ALONG CENTER LINE OF EMBANKMENT
					Top elevation of embankment
					~~Top elevation of impervious core embankment~~ (interior component)
					~~Bottom elevation of the cut-off trench~~ (interior component)
					Principle spillway location, station, and elevation

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Emergency Spillway (normal to flow)
					Location and elevation of emergency spillway
					Width of level weir crest of emergency spillway
					Side slopes of emergency spillway
					EMERGENCY SPILLWAY PROFILE (parallel to flow)
					Elevation
					Length of level section (minimum 25 feet)
					Slope of spillway
					Slope protection type, material size, filter cloth
					EMBANKMENT SECTION/ PROFILE ALONG PRINCIPAL SPILLWAY
					Top elevation and width of embankment
					Embankment side slopes (equal to or flatter than approved design)
					~~Bottom elevation, width, and slopes of cut-off trench~~ (interior component)
					~~Top elevation, width, and slopes of impervious core~~ (interior component)
					Riser material, size, type, and weir opening elevation(s)
					Size and type of anti-vortex device and trash rack
					Low flow stage orifice(s) size, materials, and invert elevation
					Low flow stage trash rack size, material, and dimensions
					Low flow device drain pipe size, type, length, invert elevation
					Pond drain pipe size, length, invert elevation, valve type (provide as much info as possible)
					Principle spillway - barrel size, pipe type, corrugation size, gauge, concrete pipe class (ASTM C-361), inlet and outlet invert elevations, length, slope
					~~Concrete cradle dimensions~~ Confirm, is there a concrete cradle?
					Phreatic line (drawn from the as-built 10-year water surface elevation)
					~~Filter diaphragm and drains or anti-seep collars, number, size, spacing, and material~~ Confirm, is there a filter diaphragm?
					Outfall protection type, material size, dimensions, ~~filter fabric~~
					As-built water surface elevations for the WQv, Cpv, and 2-yr or 10-yr, 100-yr storm events, and 100-year for ultimate development
					FREEBOARD from WSEL for 100-year for ultimate development to top of embankment (min 1 ft with ES and min 2 ft without ES)
					SUPPORTING DOCUMENTATION
					Narrative stating the purpose of submittal, contents, description of pond, available records, history, explanation of any deviations from the approved plans, alterations, or modifications, previous or proposed that have affected or propose to affect the level of management
					Drainage area map to pond (if design records are not available or there are constructed deviations altering DA)

Preparer (check off)			MDE Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Revised design computations when as-built dimensions or elevations indicate a significant, unfavorable change from the approved design. If design computations are not available, H&H Analysis for 10-yr storm for design conditions and 100-yr storm for ultimate conditions
					Revised Water Quality Summary Sheet if originally approved water quality credit is affected by constructed pond deviating from design
					CONSTRUCTION INSPECTION REPORT
					Any available information from construction including photographs, inspection checklists, and logs
					GEOTECHNICAL REPORT
					****Note that depending on the results of the dam inspection, subsurface soils investigation may be required.****
					IF AVAILABLE, soils report from construction
					~~Gradation and/or unified soil classification of cutoff trench material~~
					~~Gradation and/or unified soil classification of impervious core~~
					~~Gradation and/or unified soil classification of embankment material~~
					~~Gradation of filter diaphragm material~~
					~~Confirmation that embankment material is non-dolomitic~~
					PHOTOGRAPHS
					IF AVAILABLE, any photographs taken during construction, clearly labeled
					• ~~completion of excavation to sub-foundation and trenching~~
					• ~~installation of cutoff trench~~
					• ~~installation of filter diaphragm and drain pipe~~
					• ~~placement of structural fill and concrete cradle~~
					• ~~installation of spillway pipe and anti-seep collars~~
					• ~~installation of riser~~
					• ~~installation of other piping including blanket or toe drains~~
					• ~~backfill of foundations and trenches~~
					• ~~construction of impervious core~~
					• ~~completion of final grading~~
					Clearly labeled photographs of final construction/current conditions showing the site and the pond stabilized with at least 95% vegetative coverage and as specified on approved landscaping plan
					VEGETATION
					Photos indicating no trees, shrubs, or woody vegetation within 25 ft. of riser structure, on fill embankment, or within 15 ft. of fill embankment

Dam :_____ Weather: _____ Date:_____

Inspectors:_____ Pool Level:_____

MARYLAND DAM INSPECTION CHECKLIST	Y	N	Monitor Repair
1. CREST			
Settlement Cracking Misalignment			
2. UPSTREAM SLOPE			
Ground cover in good condition			
Riprap in good condition			
Erosion Animal Burrows Trees Shrubs			
Settlements Depressions Bulges Cracks			
3. DOWNSTREAM SLOPE			
Ground cover in good condition			
Erosion Animal Burrows Trees Shrubs			
Settlements Depressions Bulges Cracks			
Seepage _____ gpm			
4. INTERNAL DRAINAGE SYSTEM			
Seepage/drain flow: Left _____ gpm Right _____ gpm Other _____ gpm			
Does seepage contain fines?			
5. ABUTMENT CONTACTS			
Trees Shrubs Erosion			
Seepage _____ gpm			
6. SPILLWAY/RISER STRUCTURE Concrete or Metal Pipe			
Spalling Cracking Corrosion Erosion Scaling Exposed Reinforcement			
Joints: Displacement Leakage Loss of joint material			
Trash racks: Operational Broken Bent Rusted Debris Obstructed			
Sluice/Drain gates: Operational Broken Bent Corroded Leaking			
7. SPILLWAY CONDUIT Concrete or Metal Pipe			
Debris Cracking Leakage Spalling Exposed reinforcement			
Joints: Displacement Leakage Loss of joint material			
8. STILLING POOL/BASIN Riprap or Concrete			
Spalling Cracking Erosion Scaling Exposed Reinforcement Joint Deterioration			
Undercutting Eroding			
Outlet channel condition:			
Tailwater elevation and flow condition:			
9. EMERGENCY SPILLWAY			
Ground cover in good condition			
Erosion Trees Shrubs Obstructions			
OVERALL CONDITION: Excellent Good Fair Poor Unsafe			

Notes:

"HERITAGE" SMALL POND
MODERATED AS-BUILT CERTIFICATION

I hereby certify that all visual elements of the below referenced stormwater management facility shown on the plans have been constructed in accordance with the plans approved by the Maryland Department of the Environment, except as noted in red on the "AS-BUILT" drawings. Where approved plans are not available, I certify that the "AS-BUILT" drawings are an accurate representation of the constructed stormwater management facility. "Certify" means to state or declare a professional opinion based on sufficient and appropriate onsite inspections and surveys.

_____	_____
Name	Signature
_____	_____
Maryland Registration Number (PE or LS)	Date
_____	_____
MDE No.	ID number for BMP/small pond being certified