April 21, 2021

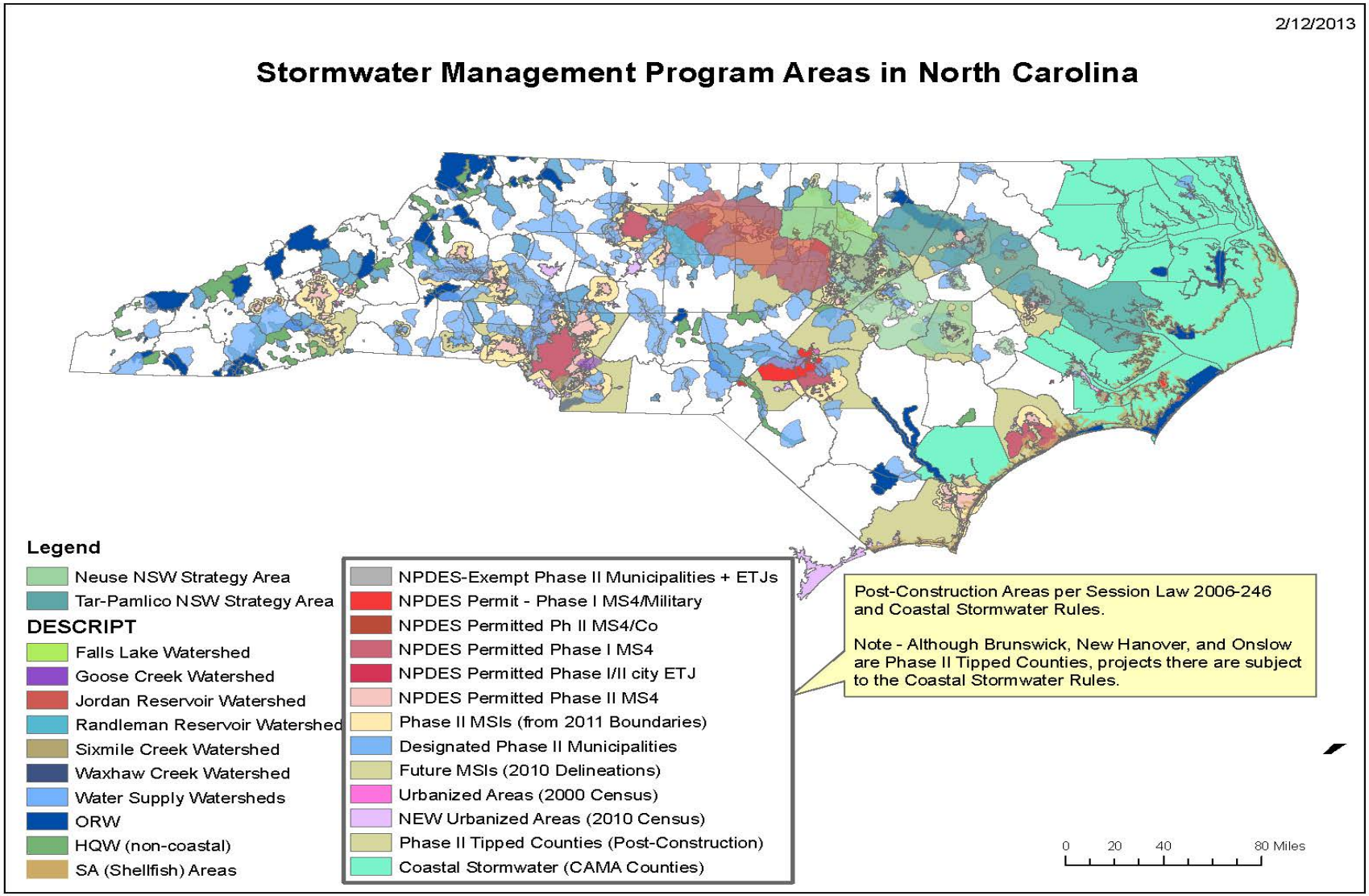
How to Breeze Through Your Post-Construction Review

North Carolina Department of Environmental Quality

Post-construction Permitting Overview

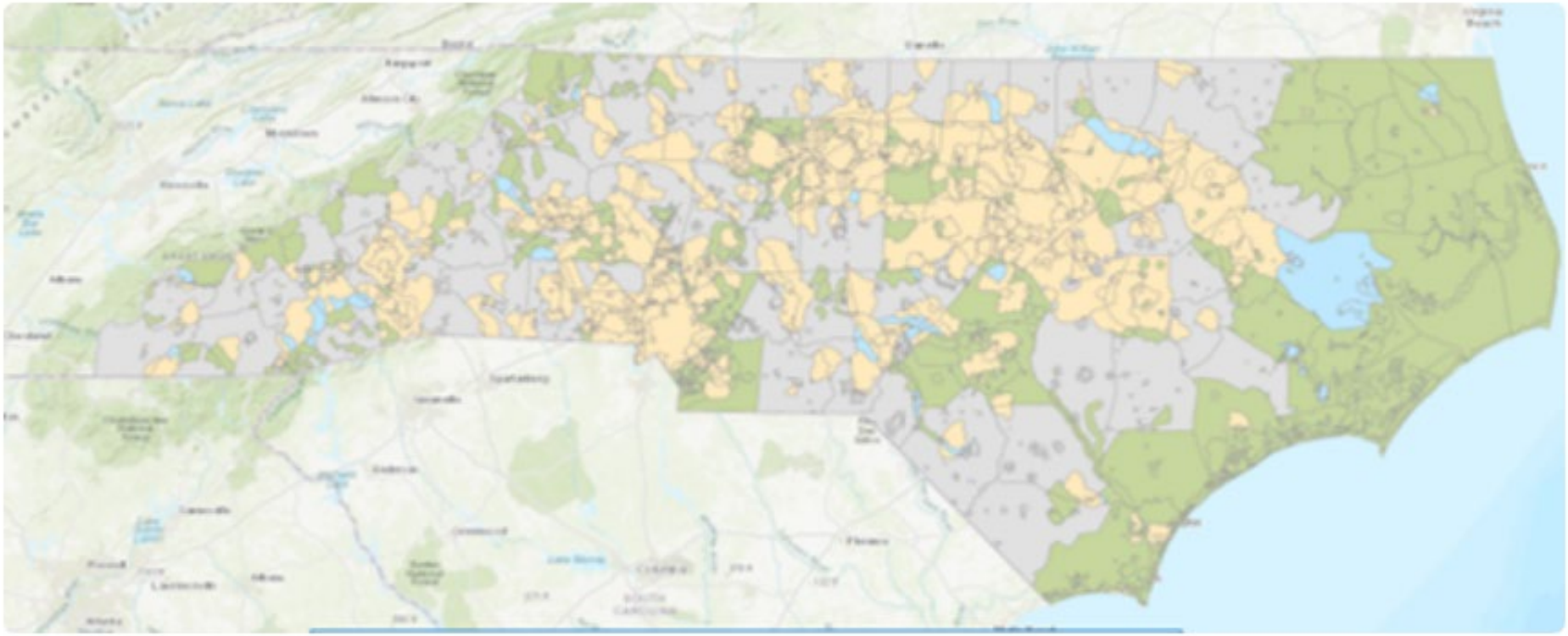
- Site design to limit long term water quality impact
- Serves to protect *after* close out of E&SC plans
- Permit must be issued before constructing any BUA
- Permits enforceable in perpetuity

Where is it required?



Interactive Stormwater Permitting Map

Post-construction Program Website



Permit Thresholds

- Non-coastal:
  - NPDES MS4 & Urbanizing Areas – 1 acre of disturbance
  - HQW/ORW – E&SC Plan required by NCGS 113A-57
- Coastal:
  - E&SC Plan required by NCGS 113A-57
  - CAMA Major Development Permit required by NCGS 113A-118
  - Non-residential projects that cumulatively add 10,000 sf of BUA
  - Residential projects within ½ mile of and draining to SA waters that cumulatively add more than 10,000 sf of BUA and >12% BUA
- Any site with existing permit

Where to start?

Permitting Options

Standard Permitting

Express Permitting

Fast-track Permitting

Standard vs. Express

- Standard Permitting – 15A NCAC 02H.1042
  - Types of projects: New, Major Modifications, Minor Modifications, Transfers, and Renewals
  - Fee: $505 for most applications
  - Per NC Statute: 90 days from the receipt of a complete application to either issue the permit or request additional information
  - Goal: 60 days or less

- Express Permitting – authorized by NCGS 143B-279.13
  - A voluntary program for qualified projects within the 20 coastal counties
  - Types of projects: New, Major Modifications, and Minor Modifications
  - Eligible projects
    - High density projects with up to 5 SCMs (up to 8 may be allowed by supervisor if shown to be similar or minor changes to ensure the review can meet the timelines)
    - The project will meet the MDC and do not propose alternative designs or variations to the rules or MDC.
    - The project will not impact, overlap, or cause another permit to become out of compliance. Exception: if the necessary resolution is also submitted and accepted into the Express program for review at the same time.
    - Projects must either not have compliance issues or those issues must be resolved by the proposed submittal.
  - Fee: Higher application fees ranging from $500 to $4,000 (depending on the type of project) to support the staff dedicated to this program
  - Goal: Permit issued within 30 calendar days after being accepted

Standard Process

- The complete application package is mailed to the appropriate reviewing office:
  - Central Office
  - Washington Regional Office
  - Wilmington Regional Office
- A completeness review is conducted to ensure all the pieces and parts are there
- Once found complete, the project is accepted, assigned a reviewer, and logged into the database

Express Process

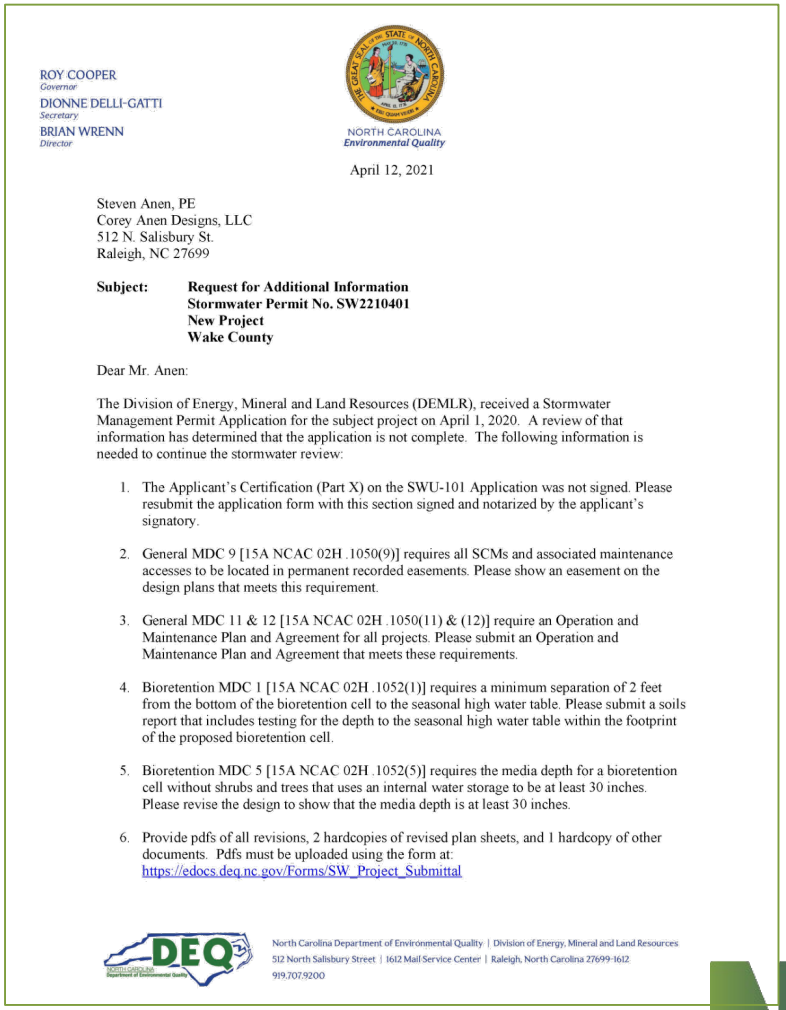
- An Express request form is submitted to the Express Coordinator in the applicable Regional Office along with:
  - Narrative
  - Site plan
  - Vicinity map
- The Express reviewer reviews the request to confirm that the project is eligible (see the previously listed criteria) and does not have any obvious stumbling points (correct water classification, surface waters and vegetated setbacks identified, etc.)
- If acceptable, a submittal meetings is scheduled
  - Necessary to allow the reviewer to dedicate time to review and process the application
- At the submittal meeting:
  - All parties (consultant, applicant, and reviewer) will sit down to discuss the project and application documents
  - The reviewer will provide initial comments and determine if the package is complete
  - If complete, the project is accepted and logged into the database
  - If minor fixes that can be quickly resolved (2 days or less) – mail in submittal to be accepted on that date
  - If major changes or revisions will take longer than (2 days) – reviewer will work with the parties to schedule a new submittal date
- Scheduling timelines:
  - WARO is scheduling submittal meetings 1-2 weeks out
  - WIRO is scheduling submittal meetings 8-12 weeks out (due to a very high demand)

Fast-Track Permitting

- Two Phase Permitting
  - Authorization to Construct (ATC)
    - Before commencing construction
    - No technical review
    - 30 day review period (assuming no add info requests)
  - Final permit when construction complete
    - Similar application process to standard permitting
    - Review as-builts for compliance
- Design professional signs and seals certification that project will meet design criteria
- Compliance issues found after construction need to be resolved before issuing final permit
- Much riskier and potentially time-consuming and costly process

Additional Information Requests

- Sent to consultant via email when deficiencies found in design or documentation
- Applicant has 30 days to respond or project returned as incomplete [15A NCAC 02H .1042(3)(a)(i)]
- Maximum of two (2) additional information requests before project is returned as incomplete



ROY COOPER
Governor
DIONNE DELLI-GATTI
Secretary
BRIAN WRENN
Director

NORTH CAROLINA
Environmental Quality

April 12, 2021

Steven Anen, PE
Corey Anen Designs, LLC
512 N. Salisbury St.
Raleigh, NC 27699

Subject: **Request for Additional Information**
Stormwater Permit No. SW2210401
New Project
Wake County

Dear Mr. Anen:

The Division of Energy, Mineral and Land Resources (DEMLR), received a Stormwater Management Permit Application for the subject project on April 1, 2020. A review of that information has determined that the application is not complete. The following information is needed to continue the stormwater review:

1. The Applicant's Certification (Part X) on the SWU-101 Application was not signed. Please resubmit the application form with this section signed and notarized by the applicant's signatory.
2. General MDC 9 [15A NCAC 02H .1050(9)] requires all SCMs and associated maintenance accesses to be located in permanent recorded easements. Please show an easement on the design plans that meets this requirement.
3. General MDC 11 & 12 [15A NCAC 02H .1050(11) & (12)] require an Operation and Maintenance Plan and Agreement for all projects. Please submit an Operation and Maintenance Plan and Agreement that meets these requirements.
4. Bioretention MDC 1 [15A NCAC 02H .1052(1)] requires a minimum separation of 2 feet from the bottom of the bioretention cell to the seasonal high water table. Please submit a soils report that includes testing for the depth to the seasonal high water table within the footprint of the proposed bioretention cell.
5. Bioretention MDC 5 [15A NCAC 02H .1052(5)] requires the media depth for a bioretention cell without shrubs and trees that uses an internal water storage to be at least 30 inches. Please revise the design to show that the media depth is at least 30 inches.
6. Provide pdfs of all revisions, 2 hardcopies of revised plan sheets, and 1 hardcopy of other documents. Pdfs must be uploaded using the form at: https://edocs.deq.nc.gov/Forms/SW_Project_Submittal

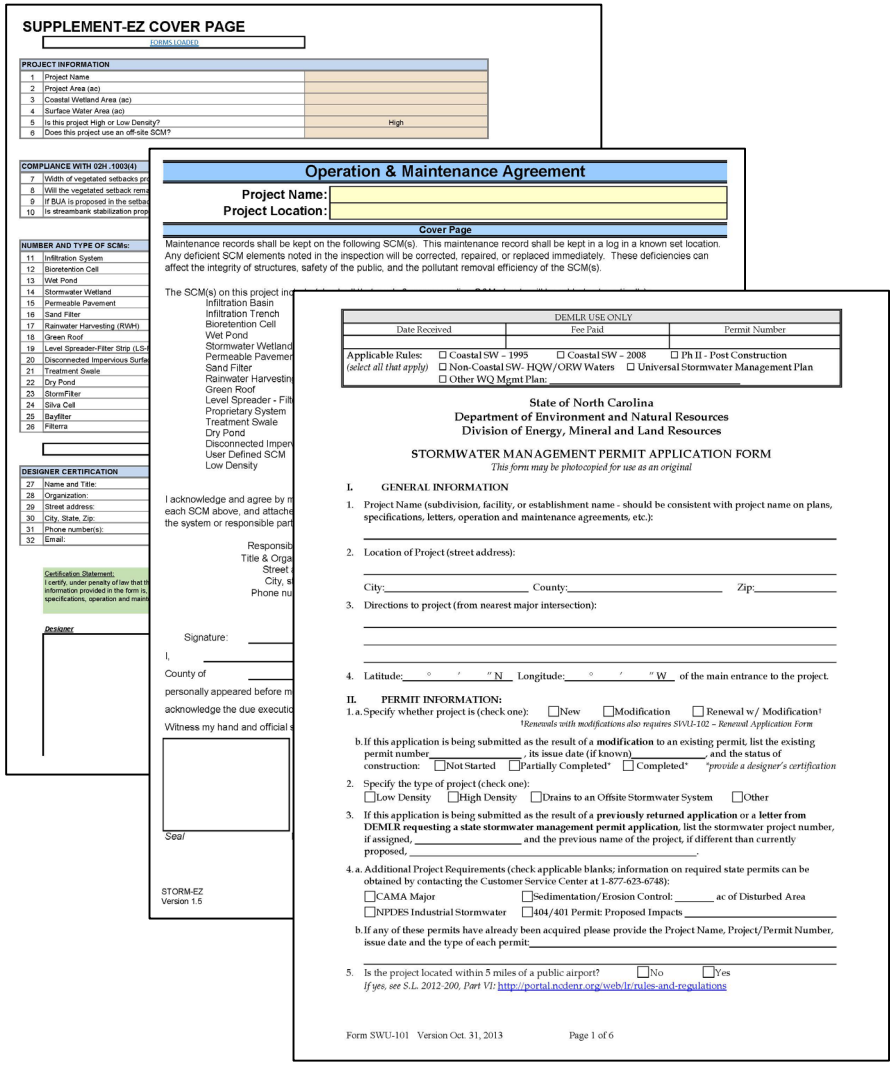
DEQ
North Carolina Department of Environmental Quality

North Carolina Department of Environmental Quality | Division of Energy, Mineral and Land Resources
512 North Salisbury Street | 1612 Mail Service Center | Raleigh, North Carolina 27699-1612
919.707.9200

Common Documentation Issues

General Required Documentation

- Application Form
- Deed Restrictions & Protective Covenants
- Supplement Form and O&M
- Permit Application Fee
- Detailed narrative
- USGS map
- Sealed, signed, and dated calculations
- Two sets of plans
- Geotechnical investigation
- Property Deed
- Secretary of State Documentation



SUPPLEMENT-EZ COVER PAGE

FORMS LOADED

PROJECT INFORMATION		
1	Project Name	
2	Project Area (ac)	
3	Coastal Wetland Area (ac)	
4	Surface Water Area (ac)	
5	Is this project High or Low Density?	High
6	Does this project use an off-site SCM?	

COMPLIANCE WITH 02H .1003(4)	
7	Width of vegetated setbacks pro
8	Will the vegetated setback rema
9	If BUA is proposed in the setbac
10	Is streambank stabilization prop

NUMBER AND TYPE OF SCMs:	
11	Infiltration System
12	Bioretention Cell
13	Wet Pond
14	Stormwater Wetland
15	Permeable Pavement
16	Sand Filter
17	Rainwater Harvesting (RWH)
18	Green Roof
19	Level Spreader-Filter Strip (LS-F
20	Disconnected Impervious Surfac
21	Treatment Swale
22	Dry Pond
23	StormFilter
24	Silva Cell
25	Bayfilter
26	Filterra

DESIGNER CERTIFICATION	
27	Name and Title:
28	Organization:
29	Street address:
30	City, State, Zip:
31	Phone number(s):
32	Email:

Certification Statement:
I certify, under penalty of law that th
information provided in the form is
specifications, operation and maint

Designer

STORM-EZ
Version 1.5

Operation & Maintenance Agreement

Project Name:
Project Location:

Cover Page

Maintenance records shall be kept on the following SCM(s). This maintenance record shall be kept in a log in a known set location. Any deficient SCM elements noted in the inspection will be corrected, repaired, or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the pollutant removal efficiency of the SCM(s).

The SCM(s) on this project inc
Infiltration Basin
Infiltration Trench
Bioretention Cell
Wet Pond
Stormwater Wetland
Permeable Pavemen
Sand Filter
Rainwater Harvestin
Green Roof
Level Spreader - Filt
Proprietary System
Treatment Swale
Dry Pond
Disconnected Imper
User Defined SCM
Low Density

I acknowledge and agree by m
each SCM above, and attache
the system or responsible part

Responsib
Title & Orga
Street
City, s
Phone nu

Signature:

I,

County of

personally appeared before m

acknowledge the due executio

Witness my hand and official s

Seal

DEMLR USE ONLY

Date Received	Fee Paid	Permit Number

Applicable Rules: ☐ Coastal SW – 1995 ☐ Coastal SW – 2008 ☐ Ph II - Post Construction
(select all that apply) ☐ Non-Coastal SW- HQW/ORW Waters ☐ Universal Stormwater Management Plan
☐ Other WQ Mgmt Plan: _____

State of North Carolina
Department of Environment and Natural Resources
Division of Energy, Mineral and Land Resources

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

This form may be photocopied for use as an original

I. GENERAL INFORMATION

1. Project Name (subdivision, facility, or establishment name - should be consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):

2. Location of Project (street address):

City:_____ County:_____ Zip:_____

3. Directions to project (from nearest major intersection):

4. Latitude:___ ° ___ ′ ___ ″ N Longitude:___ ° ___ ′ ___ ″ W of the main entrance to the project.

II. PERMIT INFORMATION:

1. a. Specify whether project is (check one): ☐New ☐Modification ☐Renewal w/ Modification†
†*Renewals with modifications also requires SWU-102 – Renewal Application Form*

b. If this application is being submitted as the result of a **modification** to an existing permit, list the existing permit number_____, its issue date (if known)_____, and the **status** of construction: ☐Not Started ☐Partially Completed* ☐Completed* **provide a designer's certification*

2. Specify the type of project (check one):
☐Low Density ☐High Density ☐Drains to an Offsite Stormwater System ☐Other

3. If this application is being submitted as the result of a **previously returned application** or a **letter from DEMLR requesting a state stormwater management permit application**, list the stormwater project number, if assigned, _____ and the previous name of the project, if different than currently proposed, _____.

4. a. Additional Project Requirements (check applicable blanks; information on required state permits can be obtained by contacting the Customer Service Center at 1-877-623-6748):
☐CAMA Major ☐Sedimentation/Erosion Control: _____ ac of Disturbed Area
☐NPDES Industrial Stormwater ☐404/401 Permit: Proposed Impacts _____

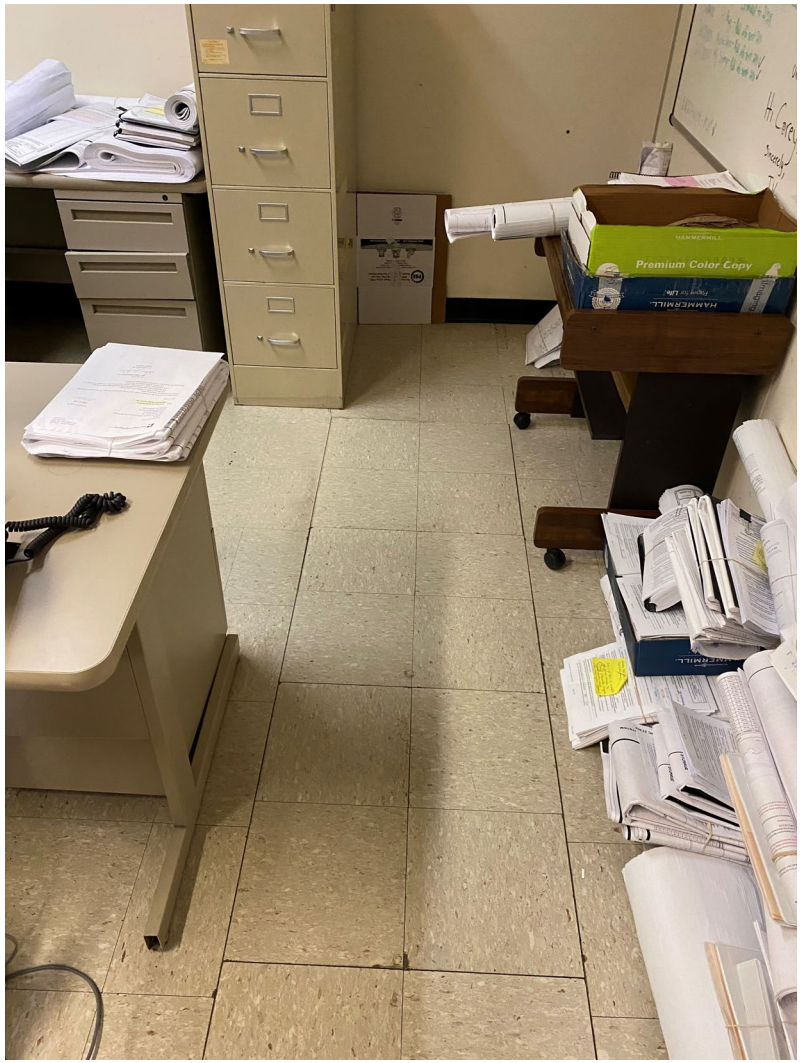
b. If any of these permits have already been acquired please provide the Project Name, Project/Permit Number, issue date and the type of each permit:_____

5. Is the project located within 5 miles of a public airport? ☐No ☐Yes
If yes, see S.L. 2012-200, Part VI: http://portal.ncdenr.org/web/lr/rules-and-regulations

Form SWU-101 Version Oct. 31, 2013 Page 1 of 6

Common Errors: Stormwater Plans and Calculations

- Excessive calculations submitted
  - E&SC calculations
  - Large amounts of routing data
- Excessive plans submitted
  - E&SC
  - Roadway profiles
  - Utility plans
  - Lighting plans
  - Extraneous details
- Show project area and all DAs on full size plans
- Show wetlands, streams, buffers or note that none exist



Common Errors: Application Form

- **Leaving sections incomplete**
- Inaccurate GPS coordinates
- Signing official
- Drainage area table
- Property Owner Authorization & Applicant's Certification

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Common Errors: Application Form

- Leaving sections incomplete
- Inaccurate GPS coordinates
- **Signing official**
- Drainage area table
- Property Owner Authorization & Applicant's Authorization

15A NCAC 02H .1040 PERMIT ADMINISTRATION

(1) SIGNATURES ON PERMIT APPLICATION FORMS. Application forms shall have an original signature by one of the following entities unless the application is accompanied by a letter of authorization signed by the appropriate authority as designated in Sub-Items (a) through (d) of this Item authorizing the signature of another entity:

(a) in the case of a corporation, by a principal executive officer of the level of vice-president or his authorized representative. In the case of a limited liability corporation (LLC), by a manager or company official as those terms are defined in G.S. 57D "North Carolina Limited Liability Company Act;"

(b) in the case of a partnership, by a general partner or a managing partner. In the case of a limited partnership, by a general partner;

(c) in the case of a proprietorship, by the proprietor(s); or

(d) in the case of a municipal, state, or other public entity, by either a principal executive officer, ranking official, or other duly authorized employee.

15A NCAC 02H .1042 APPLICATION SUBMITTAL REQUIREMENTS

(2)(b) when the applicant is a corporation or limited liability corporation (LLC):

(i) documentation showing the corporation or LLC is an active corporation in good standing with the NC Secretary of State; and

(ii) documentation from the NC Secretary of State or other official documentation showing the titles and positions held by the person who signed the application pursuant to Rule .1040(1) of this Section;

Common Errors: Application Form

- Leaving sections incomplete
- Inaccurate GPS coordinates
- Signing official
- **Drainage area table**
- Property Owner Authorization & Applicant's Authorization

Common Errors: Drainage Area Table

10. Complete the following information for each drainage area identified in Project Information item 9. If there are more than four drainage areas in the project, attach an additional sheet with the information for each area provided in the same format as below.

Basin Information	Drainage Area __	Drainage Area __	Drainage Area __	Drainage Area __
Receiving Stream Name				
Stream Class *				
Stream Index Number *				
Total Drainage Area (sf)				
On-site Drainage Area (sf)				
Off-site Drainage Area (sf)				
Proposed Impervious Area** (sf)				
% Impervious Area** (total)				

Impervious** Surface Area	Drainage Area __	Drainage Area __	Drainage Area __	Drainage Area __
On-site Buildings/Lots (sf)				
On-site Streets (sf)				
On-site Parking (sf)				
On-site Sidewalks (sf)				
Other on-site (sf)				
Future (sf)				
Off-site (sf)				
Existing BUA*** (sf)				
Total (sf):				

* *Stream Class and Index Number can be determined at: http://portal.ncdenr.org/web/wq/ps/csu/classifications*

** *Impervious area is defined as the built upon area including, but not limited to, buildings, roads, parking areas, sidewalks, gravel areas, etc.*

Common Errors: Application Form

- Leaving sections incomplete
- Inaccurate GPS coordinates
- Signing official
- Drainage area table
- **Property Owner Authorization & Applicant's Authorization**

Common Errors: Authorizations

p. Vegetated buffers (where required).

9. Copy of any applicable soils report with the associated SHWT elevations (Please identify elevations in addition to depths) as well as a map of the boring locations with the existing elevations and boring logs. Include an 8.5"x11" copy of the NRCS County Soils map with the project area clearly delineated. For projects with infiltration BMPs, the report should also include the soil type, expected infiltration rate, and the method of determining the infiltration rate. **(Infiltration Devices submitted to WiRO:** *Schedule a site visit for DEMLR to verify the SHWT prior to submittal, (910) 796-7378.)* _____
10. A copy of the most current property deed. Deed book: _____ Page No: _____ _____
11. For corporations and limited liability corporations (LLC): Provide documentation from the NC Secretary of State or other official documentation, which supports the titles and positions held by the persons listed in Contact Information, item 1a, 2a, and/or 3a per 15A NCAC 2H.1003(e). The corporation or LLC must be listed as an active corporation in good standing with the NC Secretary of State, otherwise the application will be returned. http://www.secretary.state.nc.us/Corporations/CSearch.aspx _____

VII. DEED RESTRICTIONS AND PROTECTIVE COVENANTS

For all subdivisions, outparcels, and future development, the appropriate property restrictions and protective covenants are required to be recorded prior to the sale of any lot. If lot sizes vary significantly or the proposed BUA allocations vary, a table listing each lot number, lot size, and the allowable built-upon area must be provided as an attachment to the completed and notarized deed restriction form. The appropriate deed restrictions and protective covenants forms can be downloaded from http://portal.ncdenr.org/web/lr/state-stormwater-forms_docs. Download the latest versions for each submittal.

In the instances where the applicant is different than the property owner, it is the responsibility of the property owner to sign the deed restrictions and protective covenants form while the applicant is responsible for ensuring that the deed restrictions are recorded.

By the notarized signature(s) below, the permit holder(s) certify that the recorded property restrictions and protective covenants for this project, if required, shall include all the items required in the permit and listed on the forms available on the website, that the covenants will be binding on all parties and persons claiming under them, that they will run with the land, that the required covenants cannot be changed or deleted without concurrence from the NC DEMLR, and that they will be recorded prior to the sale of any lot.

VIII. CONSULTANT INFORMATION AND AUTHORIZATION

Applicant: Complete this section if you wish to designate authority to another individual and/or firm (such as a consulting engineer and/or firm) so that they may provide information on your behalf for this project (such as addressing requests for additional information).

Consulting Engineer:_____

Consulting Firm:_____

Mailing Address:_____

City:_____ State:_____ Zip:_____

Phone: (_____)_____ Fax: (_____)_____

Email:_____

IX. PROPERTY OWNER AUTHORIZATION *(if Contact Information, item 2 has been filled out, complete this section)*

I, *(print or type name of person listed in Contact Information, item 2a)* _____, certify that I own the property identified in this permit application, and thus give permission to *(print or type name of person listed in Contact Information, item 1a)* _____ with *(print or type name of organization listed in Contact Information, item 1a)* _____ to develop the project as currently proposed. A copy of the lease agreement or pending property sales contract has been provided with the submittal, which indicates the party responsible for the operation and maintenance of the stormwater system.

As the legal property owner I acknowledge, understand, and agree by my signature below, that if my designated agent (entity listed in Contact Information, item 1) dissolves their company and/or cancels or defaults on their lease agreement, or pending sale, responsibility for compliance with the DEMLR Stormwater permit reverts back to me, the property owner. As the property owner, it is my responsibility to notify DEMLR immediately and submit a completed Name/Ownership Change Form within 30 days; otherwise I will be operating a stormwater treatment facility without a valid permit. I understand that the operation of a stormwater treatment facility without a valid permit is a violation of NC General Statue 143-215.1 and may result in appropriate enforcement action including the assessment of civil penalties of up to $25,000 per day, pursuant to NCGS 143-215.6.

Signature:_____ Date:_____

I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this ___ day of _____, _____, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal, _____

SEAL

My commission expires_____

X. APPLICANT'S CERTIFICATION

I, *(print or type name of person listed in Contact Information, item 1a)* _____, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under 15A NCAC 2H .1000 and any other applicable state stormwater requirements.

Signature:_____ Date:_____

I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this ___ day of _____, _____, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal, _____

SEAL

My commission expires_____

Common Errors: Deed Restrictions

- Required for all subdivisions
- Shall be signed by applicant and notarized
- Shall submit wet signature
- Shall outline BUA for all lots
  - State BUA allowable in sf
  - Section on form for all lots if uniform
  - Include table with allowable BUA by lot if not uniform

Low Density Residential Subdivisions
Deed Restrictions & Protective Covenances

In accordance with Title 15 NCAC 2H.1000 and S.L. 2006-246, the Stormwater Management Regulations, deed restrictions and protective covenants are required for **Low Density Residential Subdivisions** where lots will be subdivided and sold. Deed restrictions and protective covenants are necessary to ensure that the development maintains a "built-upon" area consistent with the applicable regulation governing the density level.

I, _____ acknowledge and affirm by my signature below, that I will cause the following deed restrictions and protective covenants to be recorded for _____ prior to the sale of any lot:

1. *The following covenants are intended to ensure ongoing compliance with State Stormwater Management Permit Number_____, as issued by the Division of Energy, Mineral and Land Resources under the Stormwater Management Regulations.*
2. *The State of North Carolina is made a beneficiary of these covenants to the extent necessary to maintain compliance with the stormwater management permit.*
3. *These covenants are to run with the land and be binding on all persons and parties claiming under them.*
4. *The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the State of North Carolina, Division of Energy, Mineral and Land Resources.*
5. *Alteration of the drainage as shown on the approved plan may not take place without the concurrence of the Division of Energy, Mineral and Land Resources.*
6. *The maximum allowable built-upon area per lot is _____square feet. This allotted amount includes any built-upon area constructed within the lot property boundaries, and that portion of the right-of-way between the front lot line and the edge of the pavement. Built upon area includes, but is not limited to, structures, asphalt, concrete, gravel, brick, stone, slate, and coquina, but does not include raised, open wood decking, or the water surface of swimming pools.*
7. *In the case of a lot within CAMA's regulated AEC, where the Division of Coastal Management calculates a different maximum allowable built-upon area for that lot than is shown herein, the governing maximum built-upon area for that lot shall be the most restrictive of the two.*
8. *Filling in or piping of any vegetative conveyances (ditches, swales, etc.) associated with the development except for average driveway crossings is strictly prohibited by any persons.*
9. *Each lot will maintain a 30* foot wide vegetated buffer between all impervious areas and surface waters.*
10. *All roof drains shall terminate at least 30* foot from the mean high water mark of surface waters.*

50 foot for projects located in the 20 coastal counties.

Signature:_____Date:_____

I, _____, a Notary Public in the

State of _____, County of _____,

do hereby certify that _____personally appeared

before me this the _____ day of _____, 20_____, and acknowledge

the due execution of the foregoing instrument. Witness my hand and official seal,

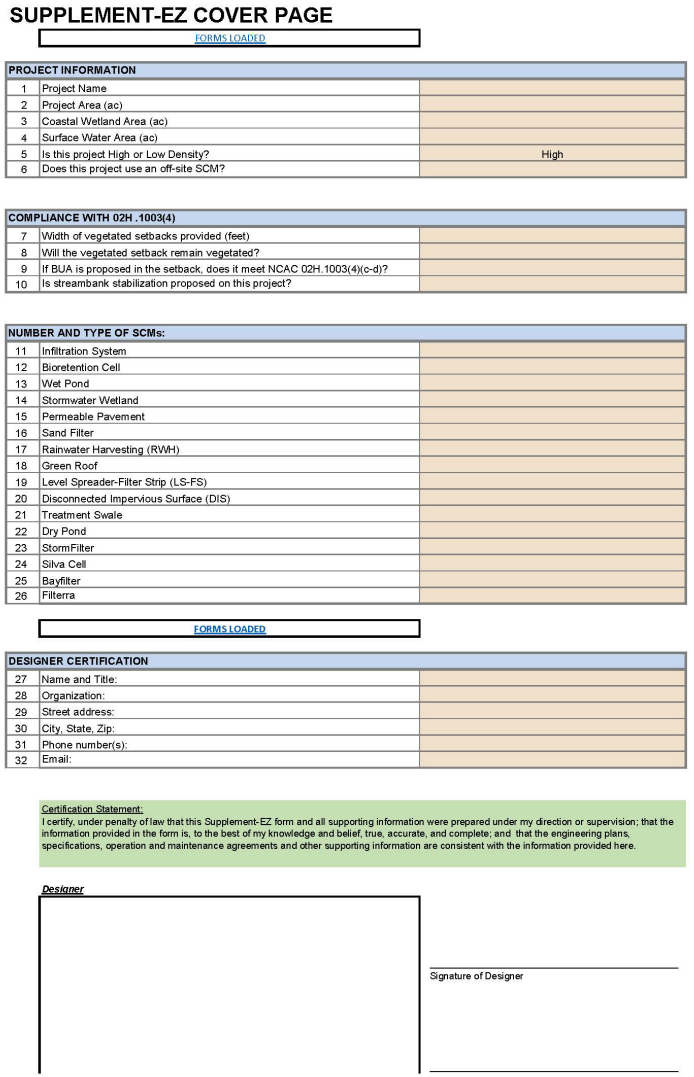
_____ SEAL
Signature

My Commission expires _____

Form DRPC-5 Rev.2 05Nov2009 Page 1 of 1

Common Errors: Supplement EZ Form

- Often not submitted
- Required for all projects – not just high density
  - Note: Offsite not currently included
- Must be signed and sealed by design engineer
- Include information for each drainage area and SCM
- Include design info for low density
- Info in Supplement EZ should match plans, application, be backed up in calcs etc.
- Available on Stormwater Design Manual website (*as of April 21, 2021*)



SUPPLEMENT-EZ COVER PAGE

FORMS LOADED

PROJECT INFORMATION		
1	Project Name	
2	Project Area (ac)	
3	Coastal Wetland Area (ac)	
4	Surface Water Area (ac)	
5	Is this project High or Low Density?	High
6	Does this project use an off-site SCM?	

COMPLIANCE WITH 02H .1003(4)		
7	Width of vegetated setbacks provided (feet)	
8	Will the vegetated setback remain vegetated?	
9	If BUA is proposed in the setback, does it meet NCAC 02H.1003(4)(c-d)?	
10	Is streambank stabilization proposed on this project?	

NUMBER AND TYPE OF SCMs:		
11	Infiltration System	
12	Bioretention Cell	
13	Wet Pond	
14	Stormwater Wetland	
15	Permeable Pavement	
16	Sand Filter	
17	Rainwater Harvesting (RWH)	
18	Green Roof	
19	Level Spreader-Filter Strip (LS-FS)	
20	Disconnected Impervious Surface (DIS)	
21	Treatment Swale	
22	Dry Pond	
23	StormFilter	
24	Silva Cell	
25	Bayfilter	
26	Filterra	

FORMS LOADED

DESIGNER CERTIFICATION		
27	Name and Title:	
28	Organization:	
29	Street address:	
30	City, State, Zip:	
31	Phone number(s):	
32	Email:	

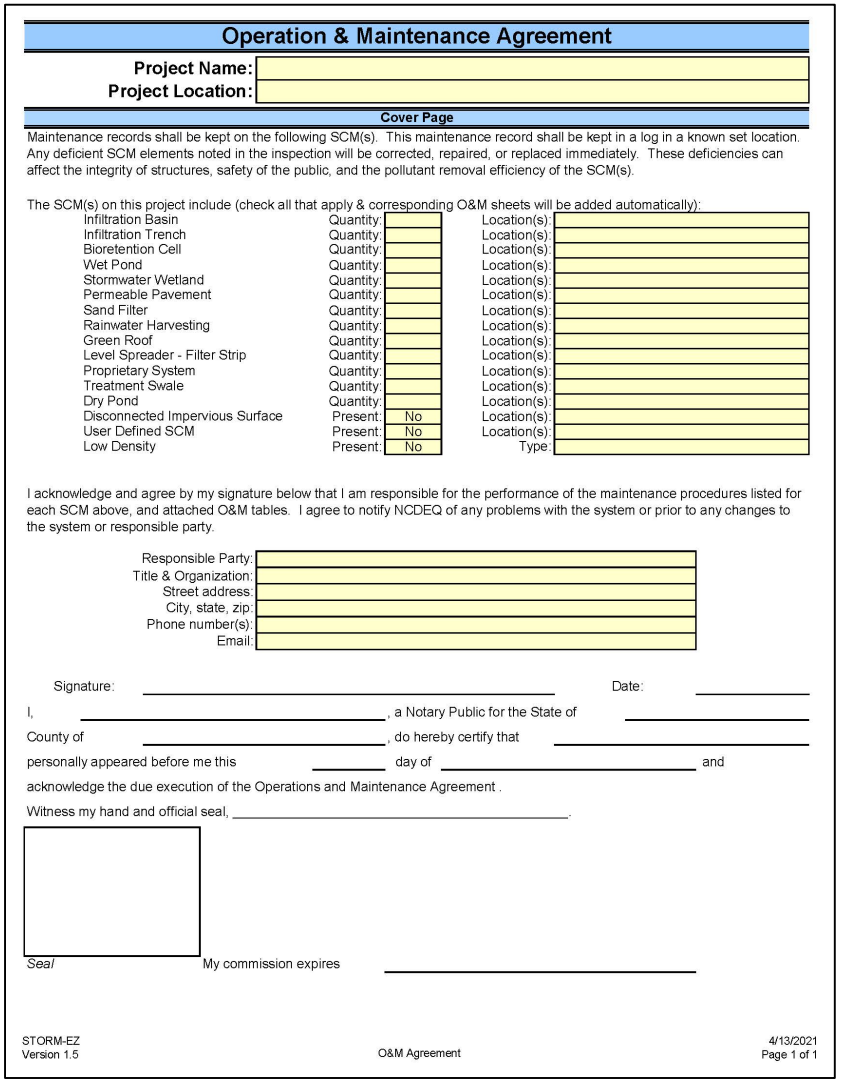
Certification Statement:
I certify, under penalty of law that this Supplement-EZ form and all supporting information were prepared under my direction or supervision; that the information provided in the form is, to the best of my knowledge and belief, true, accurate, and complete; and that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

Designer

Signature of Designer

Common Errors: O&M Plan & Agreement

- Shall be signed and notarized by applicant
- Required for all permits – including low density
- Low density provides options for different types
  - Dispersed flow only
  - Dispersed flow w/ vegetated conveyances
  - Curb outlet swales
- Must hit “Click to Update O&M Manual”
- Always use most up-to-date version



Operation & Maintenance Agreement

Project Name:
Project Location:

Cover Page

Maintenance records shall be kept on the following SCM(s). This maintenance record shall be kept in a log in a known set location. Any deficient SCM elements noted in the inspection will be corrected, repaired, or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the pollutant removal efficiency of the SCM(s).

The SCM(s) on this project include (check all that apply & corresponding O&M sheets will be added automatically):

Infiltration Basin	Quantity:		Location(s):	
Infiltration Trench	Quantity:		Location(s):	
Bioretention Cell	Quantity:		Location(s):	
Wet Pond	Quantity:		Location(s):	
Stormwater Wetland	Quantity:		Location(s):	
Permeable Pavement	Quantity:		Location(s):	
Sand Filter	Quantity:		Location(s):	
Rainwater Harvesting	Quantity:		Location(s):	
Green Roof	Quantity:		Location(s):	
Level Spreader - Filter Strip	Quantity:		Location(s):	
Proprietary System	Quantity:		Location(s):	
Treatment Swale	Quantity:		Location(s):	
Dry Pond	Quantity:		Location(s):	
Disconnected Impervious Surface	Present:	No	Location(s):	
User Defined SCM	Present:	No	Location(s):	
Low Density	Present:	No	Type:	

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed for each SCM above, and attached O&M tables. I agree to notify NCDEQ of any problems with the system or prior to any changes to the system or responsible party.

Responsible Party:
Title & Organization:
Street address:
City, state, zip:
Phone number(s):
Email:

Signature: _____ Date: _____

I, _____, a Notary Public for the State of _____

County of _____, do hereby certify that _____

personally appeared before me this _____ day of _____ and

acknowledge the due execution of the Operations and Maintenance Agreement .

Witness my hand and official seal, _____.

Seal

My commission expires _____

STORM-EZ
Version 1.5

O&M Agreement

4/13/2021
Page 1 of 1

Common Errors: Geotechnical Investigation

- Often not submitted
- Required for all SCMs with SHWT requirements
  - Infiltration Systems
  - Bioretention Cells
  - Permeable Pavement
  - Sand Filters
  - Dry Ponds
- Shall include investigation of depth to SHWT
- For any SCMs relying on infiltration, must include infiltration testing

Common Design Issues

Common Design Errors

- **New MDC vs. pre-2017 SCM requirements**
- Common General MDC mistakes
- Common low density mistakes
- Common SCM-specific MDC mistakes

Common Errors: New vs. Old Requirements

- All new projects shall meet current rules and MDC

- Exception: projects that received approval before new rules took effect (January 1, 2017) [15A NCAC 02H .1001(5)]

- Common issues:
  - LS-FS no longer required
  - All SCMs can be used for peak flow control
  - Sand filter requirements are significantly changed

- Note: **All** Fast-Track Projects must meet current design requirements

Common Design Errors

- New MDC vs. pre-2017 SCM requirements
- **Common General MDC mistakes**
- Common low density mistakes
- Common SCM-specific MDC mistakes

Common Design Errors: General MDC

- **Sizing (MDC 1)**
- Erosion Protection (MDC 4)
- Dewatering (MDC 6)
- Maintenance Access and Easements (MDC 8 & 9)
- O&M Plan and Agreement (MDC 11 & 12)

Common Design Errors: Sizing (General MDC 1)

GENERAL MDC 1. SIZING.
The design volume of SCMs shall take into account the runoff at build out from all surfaces draining to the system. Drainage from off-site areas may be bypassed. The combined design volume of all SCMs on the project shall be sufficient to handle the required storm depth.

- Only net increase in BUA required to be treated on development [15A NCAC 02H .1003(3)(d)]
- Offsite BUA and amount of BUA ≤ existing can be bypassed
- Regardless of minimum required treatment area, SCM ***shall*** be sized for all surfaces draining to the system
- Must hold entire volume – can't rout design storm through system

Common Design Errors: General MDC

- Sizing (MDC 1)
- **Erosion Protection (MDC 4)**
- Dewatering (MDC 6)
- Maintenance Access and Easements (MDC 8 & 9)
- O&M Plan and Agreement (MDC 11 & 12)

Common Design Errors: Erosion Protection (General MDC 4)

GENERAL MDC 4: EROSION PROTECTION.
The inlets SCMs shall be designed to protect the SCM from erosion resulting from stormwater discharges. The outlets of SCMs shall be designed so that they do not cause erosion immediately downslope of the discharge point during the peak flow from the 10-year storm event as shown by engineering calculations.

- Often not submitted
- Riprap or other outlet calculations required
- Calculations should be in accordance with current Erosion and Control Planning and Design Manual

Common Design Errors: General MDC

- Sizing (MDC 1)
- Erosion Protection (MDC 4)
- **Dewatering (MDC 6)**
- Maintenance Access and Easements (MDC 8 & 9)
- O&M Plan and Agreement (MDC 11 & 12)

Common Design Errors: Dewatering (General MDC 6)

GENERAL MDC 6: DEWATERING.
SCMs shall have a method to draw down any standing water to facilitate maintenance and inspection.

- To have a method for emptying an SCM for maintenance in case of failure
- Designers often simply specify “Other” on Supplement EZ
- Need to specify what the method is if choosing “Other”

Common Design Errors: General MDC

- Sizing (MDC 1)
- Erosion Protection (MDC 4)
- Dewatering (MDC 6)
- **Maintenance Access and Easements (MDC 8 & 9)**
- O&M Plan and Agreement (MDC 11 & 12)

Common Design Errors: Maintenance Access and Easements (General MDC 8 & 9)

GENERAL MDC 8: MAINTENANCE ACCESS.
Every SCM installed pursuant to this Section shall be made accessible for maintenance and repair. Maintenance accesses shall:

(a) have a minimum width of ten feet;
(b) not include lateral or incline slopes that exceed 3:1 (horizontal to vertical); and
(c) extend to the nearest public right-of-way.

GENERAL MDC 9: EASEMENTS.
All SCMs and associated maintenance accesses on privately owned land except for those located on single family residential lots shall be located in permanent recorded easements. The SCM shall be shown and labeled within the easement. These easements shall be granted in favor of the party responsible for enforcing the stormwater program under which the SCMs were approved.

- Often not shown on plans
- Easements must include entire SCM and maintenance access and extend to nearest public ROW
- Easements not usually required on public projects or single-family residential lots, but maintenance access is

Common Design Errors: General MDC

- Sizing (MDC 1)
- Erosion Protection (MDC 4)
- Dewatering (MDC 6)
- Maintenance Access and Easements (MDC 8 & 9)
- **O&M Plan and Agreement (MDC 11 & 12)**

Common Design Errors

- New MDC vs. pre-2017 SCM requirements
- Common General MDC mistakes
- **Common low density mistakes**
- Common SCM-specific MDC mistakes

Common Design Errors: Low Density

- **Excessive piping/concentration of stormwater**
- Insufficient design of vegetated conveyances
- Not showing proposed swale contours
- Not delineating drainage areas to vegetated areas
- Specifying non-vegetated liner in conveyances
- Curb outlet swales

Common Design Errors: Excessive Piping

15A NCAC 02H .1003(2) DESIGN REQUIREMENTS FOR LOW DENSITY PROJECTS

(a) DENSITY THRESHOLDS.

(b) DISPERSED FLOW. Projects shall be designed to maximize dispersed flow through vegetated areas and minimize channelization of flow.

(c) VEGETATED CONVEYANCES. Stormwater that cannot be released as dispersed flow shall be transported by vegetated conveyances. **A minimal amount of non-vegetated conveyances for erosion protection or piping for driveways or culverts under a road shall be allowed by the permitting authority when it cannot be avoided**. Vegetated conveyances shall meet the following requirements:

(i) Side slopes shall be no steeper than 3:1 (horizontal to vertical) unless it is demonstrated to the permitting authority that the soils and vegetation will remain stable in perpetuity based on engineering calculations and on-site soil investigation; and

(ii) The conveyance shall be designed so that it does not erode during the peak flow from the 10-year storm as demonstrated by engineering calculations.

Common Design Errors: Low Density

- Excessive piping/concentration of stormwater
- **Insufficient design of vegetated conveyances**
- Not showing proposed swale contours
- Not delineating drainage areas to vegetated areas
- Specifying non-vegetated liner in conveyances
- Curb outlet swales

Common Design Errors: Insufficient Design

(a) VEGETATED CONVEYANCES. Stormwater that cannot be released as dispersed flow shall be transported by vegetated conveyances. A minimal amount of non-vegetated conveyances for erosion protection or piping for driveways or culverts under a road shall be allowed by the permitting authority when it cannot be avoided. Vegetated conveyances shall meet the following requirements:

(i) Side slopes shall be no steeper than 3:1 (horizontal to vertical) unless it is demonstrated to the permitting authority that the soils and vegetation will remain stable in perpetuity based on engineering calculations and on-site soil investigation; and

(ii) The conveyance shall be designed so that it does not erode during the peak flow from the 10-year storm as demonstrated by engineering calculations.

- Applies to all vegetated conveyances on-site – including roadside ditches

Common Design Errors: Low Density

- Excessive piping/concentration of stormwater
- Insufficient design of vegetated conveyances
- Not showing proposed swale contours
- Not delineating drainage areas to vegetated areas
- Specifying non-vegetated liner in conveyances
- Curb outlet swales

Common Design Errors: Low Density

- **Curb outlet swales:** *curb and gutter with breaks or other outlets used to convey stormwater runoff to vegetated conveyances or other vegetated areas.*

- Does not mean you can pipe everything to swales!

Common Design Errors

- New MDC vs. pre-2017 SCM requirements
- Common General MDC mistakes
- Common low density mistakes
- **Common SCM-specific MDC mistakes**

Common Design Errors: Infiltration Systems

- **Failure to provide soil testing within proposed footprint (MDC 1)**
- Failure to provide pretreatment (MDC 4)

Common Design Errors: Soil Investigation (Infiltration MDC 1)

INFILTRATION MDC 1: SOIL INVESTIGATION.
A site-specific soil investigation shall be performed to establish the hydraulic properties and characteristics of the soil within the proposed footprint and at the proposed elevation of the infiltration system.

- Must be within footprint of proposed infiltration system
- Infiltration testing required to establish hydraulic conductivity
- SHWT testing to verify separation (2 ft separation as required by Infiltration MDC 2)

Common Design Errors: Infiltration Systems

- Failure to provide soil testing within proposed footprint (MDC 1)
- **Failure to provide pretreatment (MDC 4)**

Common Design Errors: Pretreatment (Infiltration MDC 4)

INFILTRATION MDC 4: PRETREATMENT.
Pretreatment devices shall be provided to prevent clogging. Pretreatment devices may include measures such as sumps in catch basins, gravel verges, screens on roof and patio drains, filters, filter strips, grassed swales, and forebays. Rooftop runoff that is discharged to the surface of an infiltration system shall not require pretreatment.

- Required for all infiltration SCMs
- Don't specify type of pretreatment or design requirements
- Intent to give a lot of flexibility

Common Design Errors: Bioretention Cells

- **Separation From the SHWT (MDC 1)**
- Maximum Ponding Depth and Peak Attenuation Volume (MDC 2 & 3)
- Media Depth (MDC 5)
- Media Mixture and P-index (MDC 6 & 7)
- Planting Plan (MDC 10)

Common Design Errors: Bioretention Cells

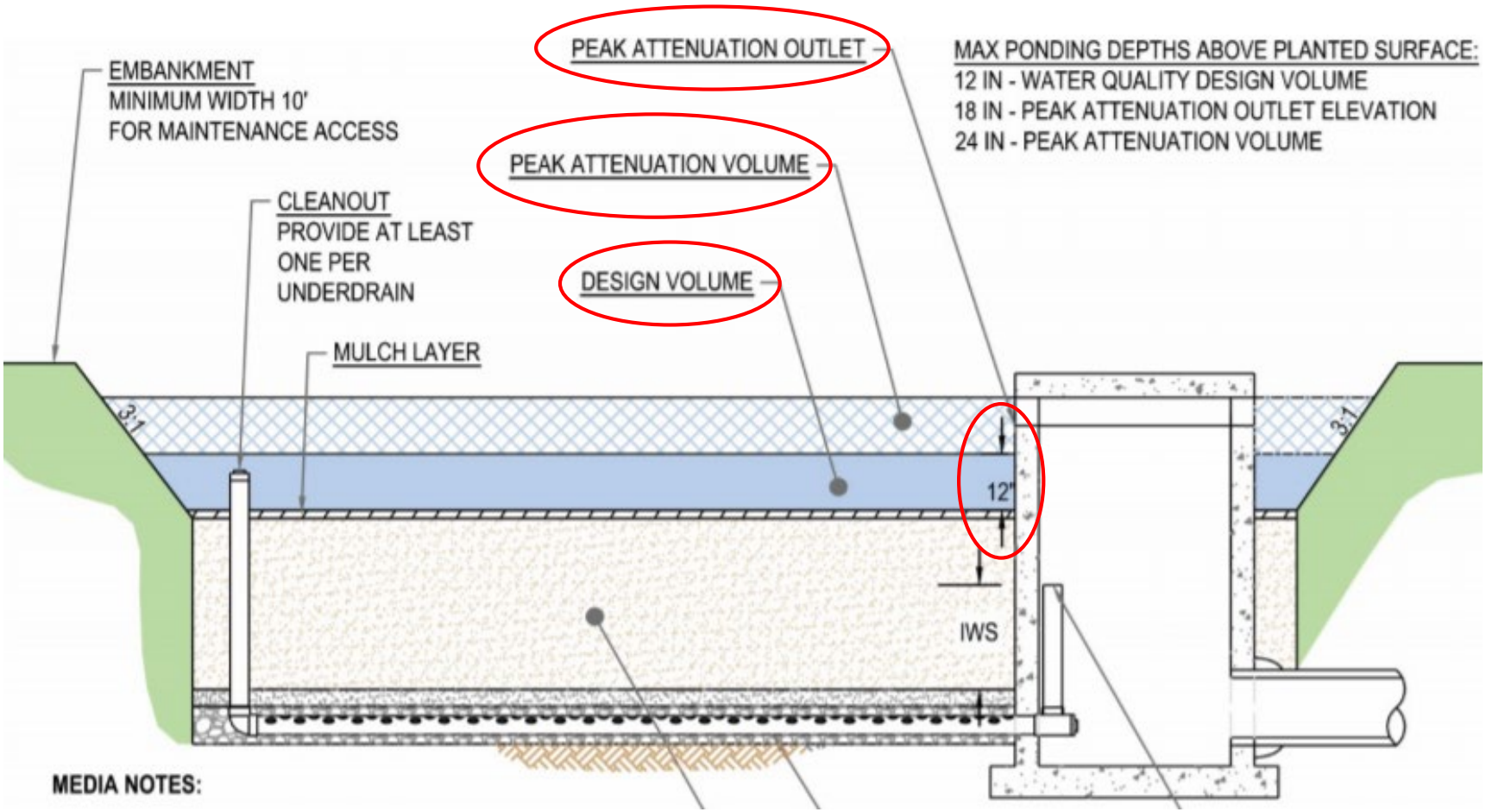
- Separation From the SHWT (MDC 1)
- **Maximum Ponding Depth and Peak Attenuation Volume (MDC 2 & 3)**
- Media Depth (MDC 5)
- Media Mixture and P-index (MDC 6 & 7)
- Planting Plan (MDC 10)

Common Design Errors: Maximum Ponding Depth & Peak Attenuation (Bioretention MDC 2 & 3)

BIORETENTION MDC 2: MAXIMUM PONDING DEPTH FOR DESIGN VOLUME.
The maximum ponding depth for the design volume shall be 12 inches above the planting surface.

BIORETENTION MDC 3: PEAK ATTENUATION VOLUME.
Bioretention cells may store peak attenuation volume at a depth of up to 24 inches above the planting surface. The peak attenuation outlet shall be a maximum of 18 inches above the planting surface.

Common Design Errors: Maximum Ponding Depth & Peak Attenuation (Bioretention MDC 2 & 3)



Common Design Errors: Bioretention Cells

- Separation From the SHWT (MDC 1)
- Maximum Ponding Depth and Peak Attenuation Volume (MDC 2 & 3)
- **Media Depth (MDC 5)**
- Media Mixture and P-index (MDC 6 & 7)
- Planting Plan (MDC 10)

Common Errors: Media Depth (Bioretention MDC 5)

BIORETENTION MDC 5: MEDIA DEPTH.
The minimum depth of the media depends on the design of the cell as follows:
(a) all cells with trees and shrubs: 36 inches;
(b) cells without trees and shrubs:
(i) with no internal water storage: 24 inches; or
(iii) with internal water storage: 30 inches.

- Must correspond with submitted planting plan (Bioretention MDC 10)
- Internal water storage required unless in-situ soil infiltration rate ≥ 2 in/hr (Bioretention MDC 4)
- Media depth does not include any stone underlay for underdrain

Common Design Errors: Bioretention Cells

- Separation From the SHWT (MDC 1)
- Maximum Ponding Depth and Peak Attenuation Volume (MDC 2 & 3)
- Media Depth (MDC 5)
- **Media Mixture and P-index (MDC 6 & 7)**
- Planting Plan (MDC 10)

Common Design Errors: Media Mix and P-index (Bioretention MDC 6 & 7)

BIORETENTION MDC 6: MEDIA MIX.
The media shall be a homogeneous soil mix engineered media blend with approximate volumes of:

(a) 75 to 85 percent medium to coarse washed sand (ASTM C33, AASHTO M 6/M 80, ASTM C330, AASHTO M195, or the equivalent);
(b) 8 to 15 percent fines (silt and clay); and
(c) 5 to 15 percent organic matter (such as pine bark fines).

BIORETENTION MDC 7: MEDIA P-INDEX.
The phosphorus index (P-index) for the media shall not exceed 30 in NSW waters as defined in 15A NCAC 02B .0202 and shall not exceed 50 elsewhere.

- Both must be specified on design plans
- Type of organic matter must be defined
- Mulch does not count as organic matter

Common Design Errors: Bioretention Cells

- Separation From the SHWT (MDC 1)
- Maximum Ponding Depth and Peak Attenuation Volume (MDC 2 & 3)
- Media Depth (MDC 5)
- Media Mixture and P-index (MDC 6 & 7)
- **Planting Plan (MDC 10)**

Common Design Errors
Planting Plan (Bioretention MDC 10)

BIORETENTION MDC 10: PLANTING PLAN.
For bioretention cells with vegetation other than sod, the planting plan shall be designed to achieve a minimum of 75 percent plant coverage at five years after planting. The maximum coverage with tree or shrub canopy shall be 50 percent at five years after planting. If sod is used, then it shall be a non-clumping, deep-rooted species.

- Must submit a planting plan
- Must have appropriate media depth
- If sod is used, specify that it's not grown in soil that has an impermeable liner, such as clay
- Difficult to ensure at outset that coverage will be obtained over 5 years – should be special condition in maintenance plan

Common Design Errors
Wet Ponds

- **Main pool depth (MDC 2)**
- Sediment storage (MDC 3)
- Forebay (MDC 5)
- Drawdown time (MDC 7)

Common Design Errors: Main Pool Depth (Wet Pond MDC 2)

MDC 2: MAIN POOL DEPTH.
The average depth of the main pool shall be three to eight feet below the permanent pool elevation. The applicant shall have the option of excluding the submerged portion of the vegetated shelf from the calculation of average depth.

Average depth ≠ physical depth

Equation 2. Average depth when the shelf is not submerged or the shelf is being included in the average depth calculation

$$D_{avg} = \frac{V_{PP}}{SA}$$

Where:

D_{avg}	=	Average depth (feet)
V_{PP}	=	Main pool volume at permanent pool elevation (feet^3)
SA	=	Main pool area at permanent pool elevation (feet^2)

Common Design Errors: Main Pool Depth (Wet Pond MDC 2)

Equation 3. Average depth when the shelf is partially or fully submerged and the shelf is being excluded from the average depth calculation

$$D_{avg} = \frac{V_{PP} - V_{shelf}}{A_{bottom\ of\ shelf}}$$

Where:

D_{avg}	=	Average depth (feet)
V_{PP}	=	Main pool volume at permanent pool elevation (feet^3)
V_{shelf}	=	Volume over the shelf only (feet^3) – see below
$A_{bottom\ of\ shelf}$	=	Area of main pool at the bottom of the shelf (feet^2)

$$V_{shelf} = 0.5 * Depth_{max\ over\ shelf} * Perimeter_{perm\ pool} * Width_{submerged\ part\ of\ shelf}$$

Where:

$Depth_{max\ over\ shelf}$	=	Depth of water at the deep side of the shelf as measured from the permanent pool (feet)
$Perimeter_{perm\ pool}$	=	Perimeter of main pool at the bottom of the shelf (feet)
$Width_{submerged\ part\ of\ shelf}$	=	Width from the deep side to the dry side of the shelf as measured at permanent pool (feet)

Common Design Errors
Wet Ponds

- Main pool depth (MDC 2)
- **Sediment storage (MDC 3)**
- Forebay (MDC 5)
- Drawdown time (MDC 7)

Common Design Errors: Sediment Storage (Wet Pond MDC 3)

MDC 3: SEDIMENT STORAGE.
The forebay and main pool shall have a minimum sediment storage depth of six inches.

- Sediment storage must be added **after** other MDC are met
- Design entire wet pond and then excavate additional 6 inches

Common Design Errors
Wet Ponds

- Main pool depth (MDC 2)
- Sediment storage (MDC 3)
- **Forebay (MDC 5)**
- Drawdown time (MDC 7)

Common Design Errors: Forebay (Wet Pond MDC 5)

MDC 5: FOREBAY.
A forebay that meets the following specifications shall be included:

(a) Forebay volume shall be 15 to 20 percent of the volume in the main pool;
(b) The forebay entrance shall be deeper than the forebay exit;
(c) The water flowing over or through the structure that separates the forebay from the main pool shall flow at a nonerosive velocity; and
(d) If sediment accumulates in the forebay in a manner that reduces its depth to less than 75 percent of its design depth, then the forebay shall be cleaned out and returned to its design state.

- Depth from bottom of forebay to permanent pool shall be greater at inlet than at weir between forebay and main pool

- Sediment accumulation is maintenance issue – usually addressed by cleaning when forebay sediment storage full

Common Design Errors
Wet Ponds

- Main pool depth (MDC 2)
- Sediment storage (MDC 3)
- Forebay (MDC 5)
- **Drawdown time (MDC 7)**

Common Design Errors: Drawdown Time (Wet Pond MDC 7)

MDC 7: DRAWDOWN TIME.
The design volume shall draw down to the permanent pool level between two and five days.

- Drawdown time based on volume from water quality event (usually 1.5” in coastal counties and 1” in other)

- Steps:
  - Calculate water quality volume
  - Find storage elevation above permanent pool that provides storage for water quality volume
  - Design orifice that will provide average outflow to allow storm to drain in two to five days assuming average head of H/3

Common Design Errors: Sand Filter

- **SHWT Separation (MDC 1)**
- Two Chamber System and Sizing (MDC 2 & 3)
- Sand Media Specification (MDC 6)
- Media Depth (MDC 7)

Common Design Errors: Sand Filter

- SHWT Separation (MDC 1)
- **Two Chamber System and Sizing (MDC 2 & 3)**
- Sand Media Specification (MDC 6)
- Media Depth (MDC 7)

Common Design Errors: Two Chamber System and Chamber Sizing (Sand Filter MDC 2 & 3)

SAND FILTER MDC 2. TWO CHAMBER SYSTEM.
The sand filter shall include a sediment chamber and a sand chamber. Storage volume in each chamber shall be equivalent.

SAND FILTER MDC 3. SEDIMENT/SAND CHAMBER SIZING.
The volume of water that can be stored in the sediment chamber and the sand chamber above the sand surface combined shall be 0.75 times the treatment volume. The elevation of bypass devices shall be set above the ponding depth associated with this volume. The bypass device may be designed to attenuate peak flows.

- Sediment chamber acts as forebay
- Can use adjusted design volume of 0.75 * treatment volume
- Sand chamber must be able to store at least 50% of adjusted design volume below outlet
- Sediment chamber can be oversized to attenuate peak flows

Common Design Errors: Sand Filter

- SHWT Separation (MDC 1)
- Two Chamber System and Sizing (MDC 2 & 3)
- **Sand Media Specification (MDC 6)**
- Media Depth (MDC 7)

Common Design Errors: Sand Media Specification (Sand Filter MDC 2 & 3)

SAND FILTER MDC 6. SAND MEDIA SPECIFICATION.
Sand media shall meet ASTM C33 or the equivalent.

- Sand media must be specified on plans
- Sand should cover entire sand chamber
- Cannot use old design manual calculations to determine size of sand chamber

Common Design Errors: Sand Filter

- SHWT Separation (MDC 1)
- Two Chamber System and Sizing (MDC 2 & 3)
- Sand Media Specification (MDC 6)
- **Media Depth (MDC 7)**

Common Design Errors: Sand Media Specification (Sand Filter MDC 2 & 3)

SAND FILTER MDC 7. MEDIA DEPTH.
The filter bed shall have a minimum depth of 18 inches. The minimum depth of sand above the underdrain pipe shall be 12 inches.

- Sand media (C33 or equivalent) must be 18 inches everywhere *except* above underdrain pipe
- Underdrain can be embedded in sand layer provided sand layer above pipe is at least 6”
- If gravel layer used under sand for underdrain, not included in media depth

Common Design Errors: Permeable Pavement

- **Separation From the SHWT (MDC 1 & 2)**
- Runoff from Adjacent Areas (MDC 7)
- Infiltrating Permeable Pavement – how to present within the application documents?

Common Design Errors: Soil Investigation (Permeable Pavement MDC 1 & 2)

PERMEABLE PAVEMENT MDC 1: SOIL INVESTIGATION
For infiltrating pavement systems, site-specific soil investigation shall be performed to establish the hydraulic properties and characteristics within the proposed footprint and at the proposed elevation of the permeable pavement system.

PERMEABLE PAVEMENT MDC 2: SHWT REQUIREMENTS
The minimum separation between the lowest point of the subgrade surface and the SHWT shall be:

(a) two feet for infiltrating pavement systems; however, the separation may be reduced to no less than one foot if the applicant provides a hydrogeologic evaluation that demonstrates that the modified soil profile allows for infiltration of the design volume within 72 hours; and

(b) one foot for detention pavement systems.

- SHWT testing to verify separation (1-2 ft separation as required by Permeable Pavement MDC 2)

- For infiltration systems, testing within footprint of proposed pavement area(s) is required to establish hydraulic conductivity

Common Design Errors: Permeable Pavement

- Separation From the SHWT (MDC 1 & 2)
- **Runoff from Adjacent Areas (MDC 7)**
- Infiltrating Permeable Pavement – how to present within the application documents?

Common Design Errors: Runoff from Adjacent Areas (Permeable Pavement MDC 7)

PERMEABLE PAVEMENT MDC 7: RUNOFF FROM ADJACENT AREAS

Runoff to the permeable pavement from adjacent areas shall meet these requirements:

(a) The maximum ratio of additional built-upon area that may drain to permeable pavement is 1:1. Screened rooftop runoff shall not be subject to the 1:1 loading limitation.

(b) Runoff from adjacent pervious areas shall be prevented from reaching the permeable pavement except for incidental, unavoidable runoff from stable vegetated areas.

- Need to show grading contours / spot elevations for adjacent areas on the plans
- The additional adjacent BUA contributing runoff cannot not exceed a 1:1 ratio.
- If screened rooftop runoff contributing runoff, show collection system and provide a screen detail

Common Design Errors: Infiltrating Permeable Pavement - How to present?

Built-upon Area Credit for Infiltrating Pavement

Infiltrating permeable pavement that is designed per the MDC may be considered as 100% pervious for the following purposes:

1. On new projects: As a tool to keep a project below the BUA threshold for high density or to reduce the volume of the SCM that is treating the balance of the project.

2. On existing projects: As a tool to add a driveway, parking area, road, patio or other paved area while still adhering to a BUA restriction imposed by development covenants, SCM design or permit conditions.

The BUA credit for infiltrating permeable pavement cannot be used to create an exemption from the permit requirements in 15A NCAC 02H .1001(1)(f) [Applicability] or 15A NCAC 02H

- List each area as a separate drainage area / SCM in the application documents
- The pavement area must be considered as BUA when sizing the system and in the application documents
- Doesn't get the credit until the MDC have been met and the SCM is approved

Common Errors: Final Submittal Requirements

- 15A NCAC 02H .1042(4) requires submittal of:
  - Designer's Certification Form
  - Copy of recorded deed restrictions and protective covenants
  - Copy of recorded drainage easements
- O&M Agreement must be referenced on final plat and recorded with County Register of Deeds

State Stormwater Management
Permit No. SW3201203

AS-BUILT PERMITTEE CERTIFICATION

I hereby state that I am the current permittee for the project named above, and I certify by my signature below, that the project meets the below listed Final Submittal Requirements found in NCAC 02H.1042(4) and the terms, conditions and provisions listed in the permit documents, plans and specifications on file with or provided to the Division.

☐ Check here if this is a partial certification. Section/phase/SCM #?_____
☐ Check here if this is part of a Fast Track As-built Package Submittal.

Printed Name_____Signature_____

I, _____, a Notary Public in the State of _____

County of _____, do hereby certify that _____

personally appeared before me this _____ day of _____, 20_____

and acknowledge the due execution of this as-built certification. (SEAL)

Witness my hand and official seal

_____

My commission expires _____

Permittee's Certification NCAC .1042(4)	Completed / Provided	N/A
A. DEED RESTRICTIONS / BUA RECORDS		
1. The deed restrictions and protective covenants have been recorded and contain the necessary language to ensure that the project is maintained consistent with the stormwater regulations and with the permit conditions.	Y or N	
2. A copy of the recorded deed restrictions and protective covenants has been provided to the Division.	Y or N	
3. Records which track the BUA on each lot are being kept. (See Note 1)	Y or N	
B. MAINTENANCE ACCESS		
1. The SCMs are accessible for inspection, maintenance and repair.	Y or N	
2. The access is a minimum of 10 feet wide.	Y or N	
3. The access extends to the nearest public right-of-way.	Y or N	
C. EASEMENTS		
1. The SCMs and the components of the runoff collection / conveyance system are located in recorded drainage easements.	Y or N	
2. A copy of the recorded plat(s) is provided.	Y or N	
D. SINGLE FAMILY RESIDENTIAL LOTS - Plats for residential lots that have an SCM include the following:	Y or N	
1. The specific location of the SCM on the lot.	Y or N	
2. A typical detail for the SCM.	Y or N	
3. A note that the SCM is required to meet stormwater regulations and that the lot owner is subject to enforcement action as set forth in NCGS 143 Article 21 if the SCM is removed, relocated or altered without prior approval.	Y or N	
E. OPERATION AND MAINTENANCE AGREEMENT	Y or N	
1. The O&M Agreement is referenced on the final recorded plat.	Y or N	
2. The O&M Agreement is recorded with the Register of Deeds and appears in the chain of title.	Y or N	
F. OPERATION AND MAINTENANCE PLAN – maintenance records are being kept in a known set location for each SCM and are available for review.	Y or N	
G. DESIGNER'S CERTIFICATION FORM – has been provided to the Division.	Y or N	

Note 1- Acceptable records include ARC approvals, as-built surveys, and county tax records.

Any Questions?

DEMLR Post-construction Stormwater Contacts

Central Office:

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