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Stormwater Management Plans in 401 Certification & Buffer Authorization Applications

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Stormwater Management Plans in 401 Certification & Buffer Authorization Applications

WHY?

- Polluted stormwater runoff is the number one cause of water pollution in NC. In most cases in NC today, stormwater either does not receive any treatment before it enters our waterways or is inadequately treated.
- The quantity of stormwater runoff is also a problem, consider the difference between one inch of rain falling onto a meadow and a parking lot. The parking lot sheds **16 times** the amount of water that a meadow does.
- Untreated stormwater from high density development contributes to water quality issues in NC.
    - One of our 401 program's goals is to protect surface waters from the impacts of stormwater runoff after projects are constructed

Stormwater Management Plans in 401 Certification Applications

Stormwater Management Plans in 401 Certification Applications

WHY?

15A NCAC 02H .0506(b) states that the Division shall issue a certification upon determining that the proposed activity will comply with state water quality standards…..

In assessing whether the project will comply with state water quality standards, the Division **shall evaluate** if the activity:"

(1) has avoided and minimized impacts to surface waters and wetlands to ensure any remaining surface waters or wetlands, and any surface waters or wetlands downstream, continue to support existing uses during and after project completion;

(2) would cause or contribute to a violation of water quality standards;

(3) would result in secondary or cumulative impacts that cause or contribute to, or will cause or contribute to, a violation of water quality standards;

(4) provides for replacement of existing uses through compensatory mitigation as described in Paragraph (c) of this Rule;

Stormwater Management Plans in 401 Certification Applications

WHEN?

- When the project is NOT subject to the NCDOT Individual NPDES Permit (NCS000250), a State Stormwater Program or a *Delegated* Local Program Implementing State Regulations specifically for **Water Quality** Treatment.

  ★ Water quantity / stormwater detention regulations and requirements are not the same as Water Quality Treatment.

- If the project is subject to one of these stormwater programs/permits then the DWR 401 review considers that program as satisfying the evaluation for the potential to contribute to downstream water quality standard violations.

  (2) would cause or contribute to a violation of water quality standards;

  (3) would result in secondary or cumulative impacts that cause or contribute to, or will cause or contribute to, a violation of water quality standards;

NORTH CAROLINA Department of Environmental Quality

Stormwater Management Plans in 401 Certification Applications

State Stormwater Programs: **(see more detailed info on DEMLR's summary of stormwater programs website)**

Only applies to projects that disturb 1 acre or more

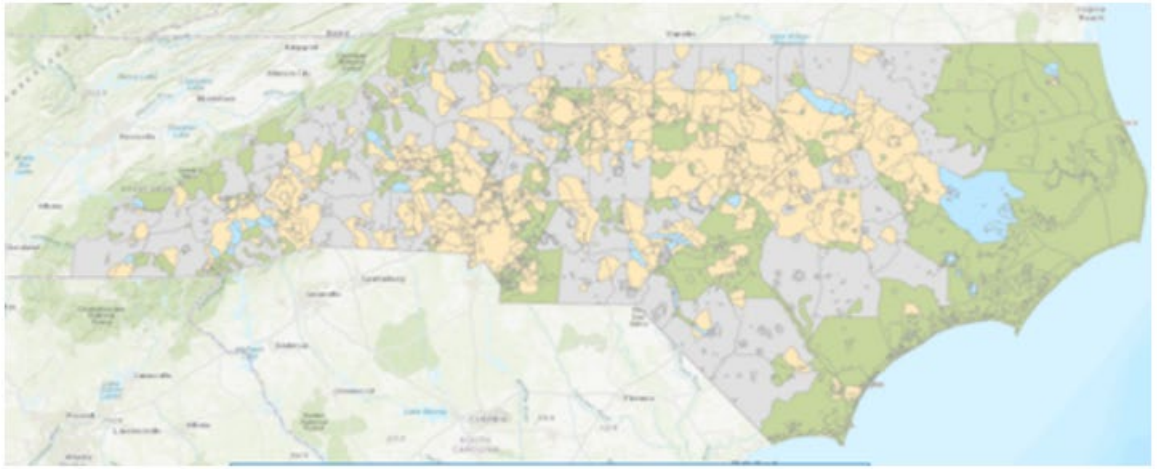
- NPDES Phase 1 / Phase 2
  - Applies to new development in Urbanized Areas
  - Typically delegated to local governments – some locations implemented by DEMLR
- Water Supply Watershed
  - Applies to new development in Water Supply Watersheds except for WS-V
  - Always delegated to local governments
  - If local government is implementing WS stormwater rules they satisfy Phase 2 requirements
- Coastal Stormwater
  - Applies in new development in 20 coastal counties
  - Implemented by DEMLR
- HQW/ORW State Stormwater
  - Applies to new development within specific locations in HQW/ORW watersheds
  - Always implemented by DEMLR
- Nutrient Sensitive Watersheds (Neuse / Tar-Pam / Falls Lake / Randleman)
  - Applies to new development within specific basins
  - Implemented by local governments as identified in each rule (see DEMLR website)
- Goose Creek Watershed
  - Applies to new development within Goose Creek watershed
  - Implemented by DEMLR

Stormwater Management Plans in 401 Certification Applications

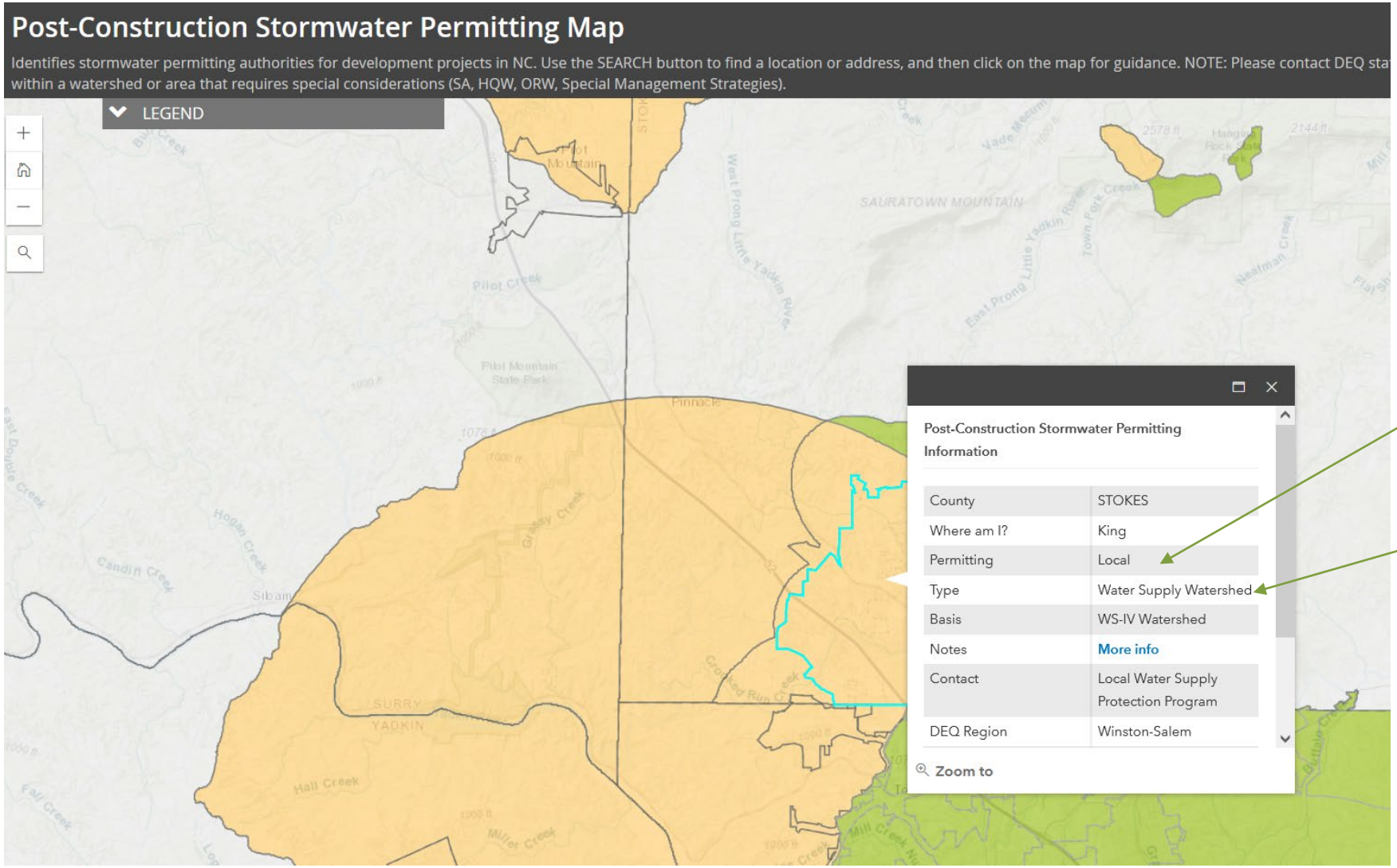
Summary of Post-Construction Programs

In North Carolina, there are a variety of post-construction programs. The Post-Construction Stormwater Map indicates which program applies and the applicable jurisdiction to contact.

We do our best to make the map as accurate as possible, it is advisable to check with the local government if the map shows that your project is not subject to a stormwater program.



Stormwater Management Plans in 401 Certification Applications



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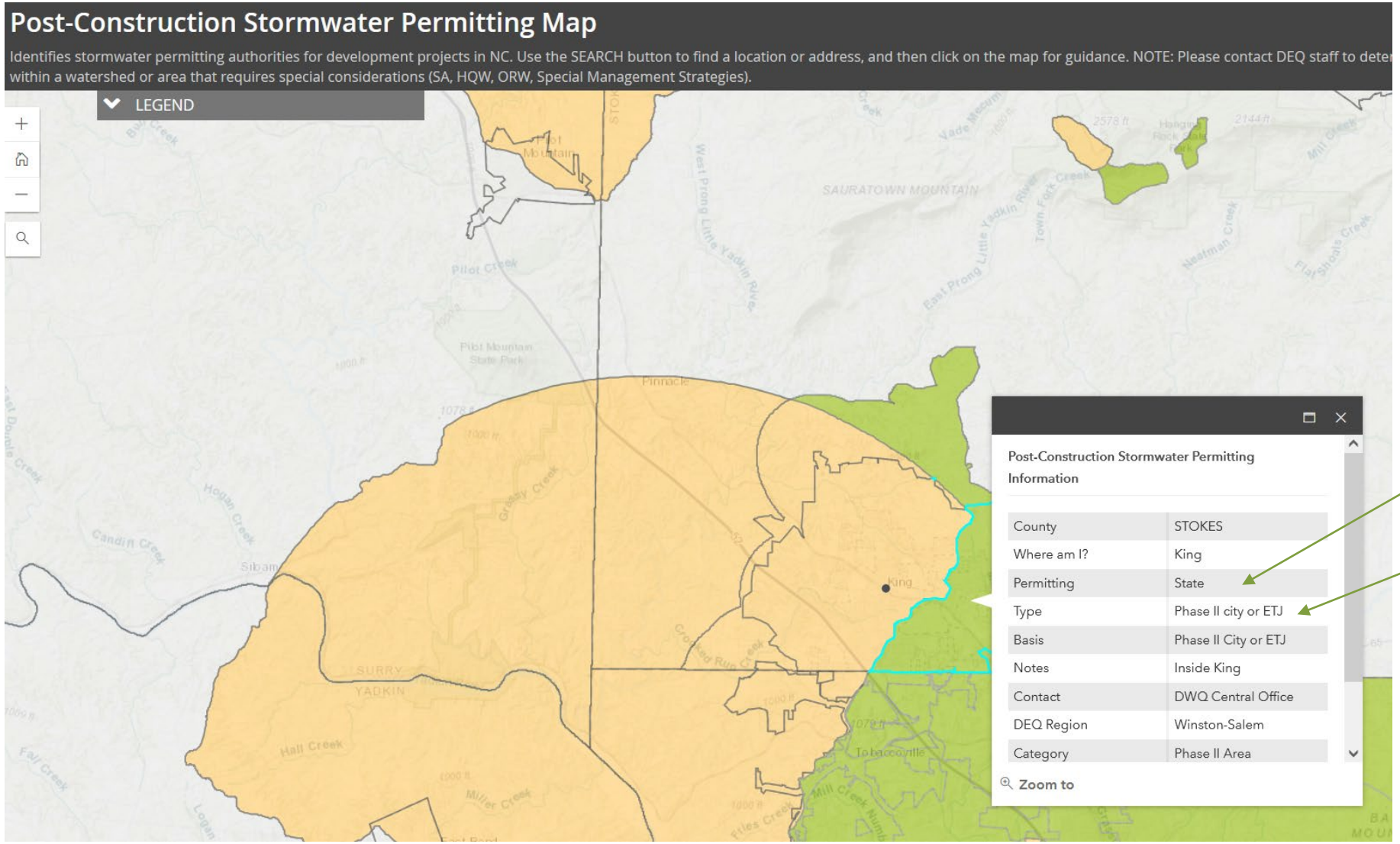


Stormwater Management Plans in 401 Certification Applications

WHEN?

Exceptions:

- Sites qualifying for Vested Rights, Grandfathering, or some other exemption from local/state stormwater requirements.
- If a site is using “stormwater in-lieu fee program” and submitting payment to the local government to mitigate for stormwater treatment instead of treating it on site.

★ The project is not treating stormwater from the site and DWR 401 review must evaluate whether stormwater would cause or contribute to violations of water quality standards.

Stormwater Management Plans in 401 Certification Applications

PCN Form

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250?*

○ Yes ◉ No

2c. Does this project have a stormwater management plan (SMP) reviewed and approved under a state stormwater program or state-approved local government stormwater program?*

○ Yes ○ No

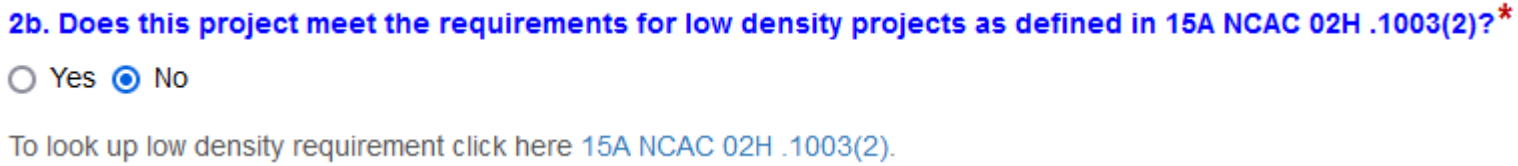
○ N/A - project disturbs < 1 acre

Hint: projects that have vested rights, exemptions, or grandfathering from state or locally implemented stormwater programs or projects that satisfy state or locally-implemented stormwater programs through use of community in-lieu programs should answer no to this question.

Stormwater Management Plans in 401 Certification Applications

WHEN?

- When the project is **NOT** subject to the NCDOT Individual NPDES Permit (NCS000250), a State Stormwater Program or a *Delegated* Local Program Implementing State Regulations specifically for **Water Quality** Treatment.
  - NC Phase II Stormwater Program requires post construction stormwater water quality treatment for High Density Development.
  - DWR 401 program follows the Phase II threshold
  - High Density projects require detailed stormwater evaluation to ensure downstream water quality standards



Stormwater Management Plans in 401 Certification Applications

15A NCAC 02H .1003(3):

"High density projects are projects that do not conform to Item (2) of this Rule."

15A NCAC 02H .1003(2):

"Low density projects shall meet the following minimum design criteria:

- Low density projects shall not exceed the low density development thresholds set forth in the stormwater programs to which they are subject pursuant to Rules .1017….
- Projects shall be designed to maximize dispersed flow through vegetated areas and minimize channelization of flow;
- 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.
- Low density projects may use curb and gutter with outlets to convey stormwater to grassed swales or vegetated areas. Requirements for these curb outlet systems shall be as follows:

Stormwater Management Plans in 401 Certification Applications

How to Determine if a Project is High or Low Density

The Summary of Post-Construction Programs explains the various stormwater design requirements. Most post-construction programs have a low and high density development option, the requirements for each option are codified in 15A NCAC 02H .1003.

Low density projects must meet ALL of the following criteria:

- Be designed with a built upon area (BUA) percentage below the threshold that pertains to the applicable stormwater program (see Chapter E-1 of the Stormwater Design Manual);
- Maximize dispersed flow through vegetated areas and minimize channelization of flow; AND
- Transport stormwater that cannot be dispersed via vegetated conveyances (a small amount of piping is allowable for erosion control or driveway crossings when it cannot be avoided).

24% or 2 dwellings/acre

Stormwater Management Plans in 401 Certification Applications

WHAT?

For High Density Development:

- A Completed Stormwater Management Plan,

OR

- Documentation to show that the project will not cause degradation of downstream surface waters:

(2) would cause or contribute to a violation of water quality standards;

(3) would result in secondary or cumulative impacts that cause or contribute to, or will cause or contribute to, a violation of water quality standards;

Stormwater Management Plans in 401 Certification Applications

WHAT?

A Complete Stormwater Management Plan (SMP):

1. Must include all appropriate supplemental forms, O&M agreements, calculations, drawings, etc. (as outlined in the application form SWU-101).
2. The Stormwater Design Manual and applicable forms may be found on the DEMLR's Stormwater website.
3. The stormwater permit application fee and the last two signature pages of the form (SWU-101) are not required. The SMP package must be uploaded with the e-PCN online.

Stormwater Management Plans in 401 Certification Applications

WHAT?

Documentation to show that the project will not cause degradation of downstream surface waters:

1) A discussion on how the project will not cause degradation of downstream surface waters when considering both the water quality (debris, sediments) and quantity (volume and velocity) of the increased flows to the current size/condition of the receiving stream.
2) Delineation of each drainage area and accompanying calculations to show that flows from every discharge point will be non-erosive to both the land surface and the receiving surface water during the peak flow from the 10-year storm event. You may refer to the guidelines from DEMLR - Sedimentation and Erosion Control to determine an appropriate non-erosive velocity. The permissible velocities for erosion protection are under Appendix 8.05 (i.e. Chapter 8).
3) Calculations to demonstrate that for any discharge points proposed to increase flow rate and volume, the structural stability and the water quality of the receiving surface water will not be compromised.
4) Designed drawings (both aerial and profile views showing the actual designed dimensions) and calculations of any proposed diffuse/dispersed flow or detention systems and any vegetated conveyances (if provided).

Stormwater Management Plans in 401 Certification Applications

HOW?

Review Process:

- Overall Application reviewed by the 401 lead reviewer
- SMP (or alternative documentation) review conducted by 401 Stormwater Engineer (Ms. Chonticha McDaniel) as part of 401 application (one application fee for overall project)
  - SMP review based on the same MDC requirements and forms used by DEMLR post construction stormwater program.
- Requests for Additional Information typically combined into one request
- Applicants/consultants be contacted directly by either lead reviewer or stormwater engineer with specific questions
- Pre-application meetings may be scheduled, and pre-application questions may be directed to Stormwater Engineer
  - DWR does not review SMP separately/ahead of the 401 application
- Stormwater review (SMP, or alternative) must be completed with and prior to issuance of 401
  - Stormwater conditions will be incorporated into 401
  - Phased projects

Stormwater Management Plans in Buffer Authorization Applications

Stormwater Management Plans in Buffer Authorization Applications

WHY?

15A NCAC 02B .0714 [Neuse] / .0724 [Randleman] / .0734 [Tar-Pam] / .0607 [Goose] / .0614 [Catawba]

“Stormwater runoff into the riparian buffer shall meet dispersed flow as defined in 15A NCAC 02H .1002 except as otherwise described in this Item.”

15A NCAC 02B .0267 [Jordan]

“Diffuse flow of runoff shall be maintained in the riparian buffer by dispersing concentrated flow prior to its entry into the buffer and reestablishing vegetation as follows:”

Stormwater Management Plans in Buffer Authorization Applications

WHEN?

- When the project is NOT subject to a *Delegated or Designated* Local Program Implementing State Riparian Buffer Rules.

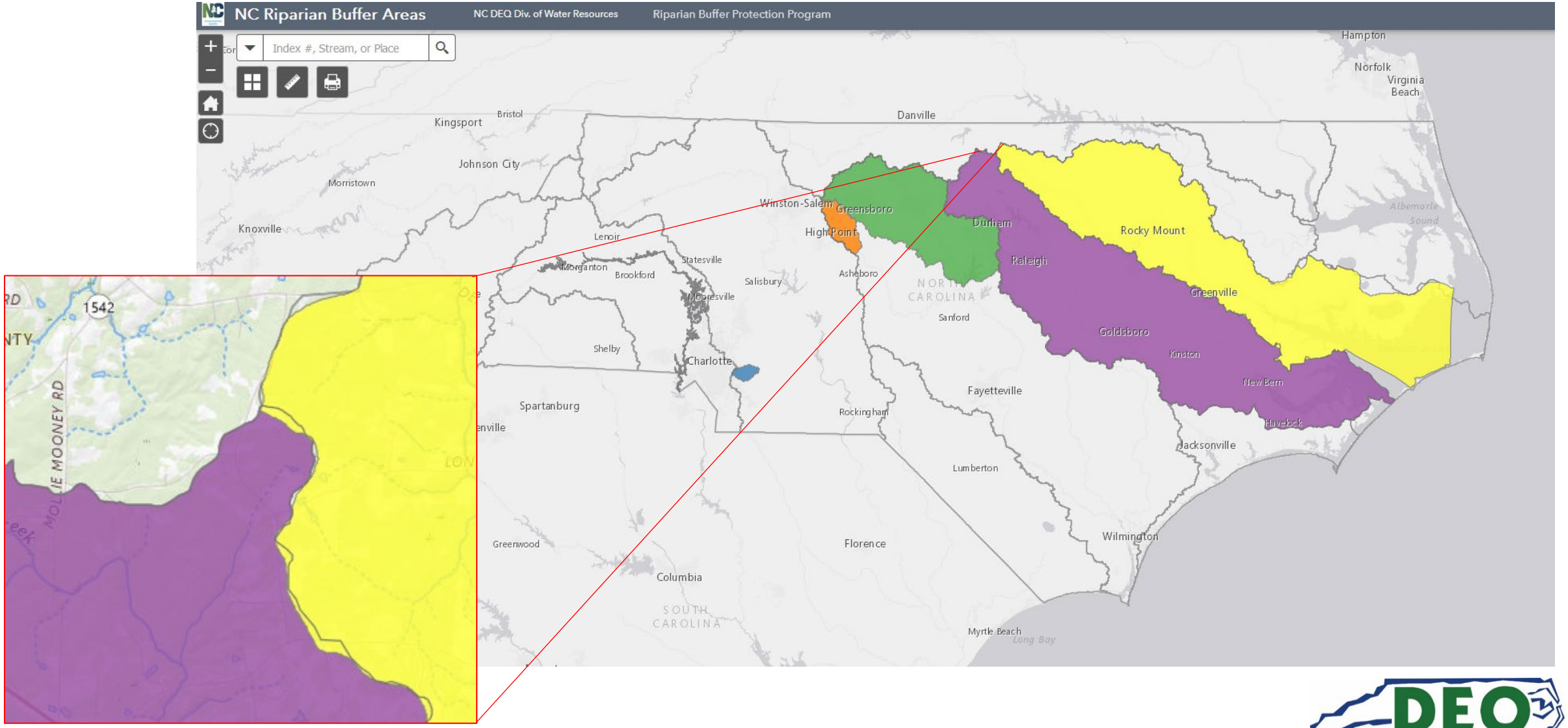
- Not all delegated stormwater programs are also delegated to implement the State Riparian Buffer Rules.

See DWR Riparian Buffer Helpful Docs for a list of delegated/designated local governments in specific watersheds

Delegated/Designated Local Governments
Administering State Riparian Buffer Protection Rules

Municipality	Website	Riparian Buffer Rules
Alamance	Village Site	Jordan Lake
Apex	Planning & Development	Jordan Lake
Archdale	City Site	Randleman Lake
Burlington	Planning & Development	Jordan Lake
Carrboro	Planning & Zoning	Jordan Lake
Cary	Planning	Jordan Lake
Chapel Hill	Planning	Jordan Lake
Durham	Planning	Jordan Lake
Elon	Planning & Zoning	Jordan Lake
Gibsonville	Town Site	Jordan Lake
Graham	Planning	Jordan Lake

Stormwater Management Plans in Buffer Authorization Applications



Stormwater Management Plans in Buffer Authorization Applications

WHEN?

★ Within delegated/designated local governments DWR shall implement buffer rules for:

- State and Federal activities
- Activities under multiple jurisdictions
- Local government activities
- Forest harvesting and agricultural activities
- Activities conducted in a location where there is no local government implementation of the following:
  - NPDES Stormwater Program
  - Water Supply Protection Program
  - Voluntary Buffer Program

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Jordan Buffer Rules

Application review will include determining compliance with the buffer rules

Diffuse flow of runoff shall be maintained in the riparian buffer by dispersing concentrated flow prior to its entry into the buffer and reestablishing vegetation as follows:

- Concentrated runoff from new ditches or manmade conveyances shall be converted to diffuse flow at non-erosive velocities before the runoff enters Zone Two of the riparian buffer.
- No new stormwater conveyances are allowed except for those listed in the Table of Uses; 
- Activities conducted outside of the buffers that alter the hydrology in violation of the diffuse flow requirements shall be prohibited.

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Jordan Buffer Rules

No new stormwater conveyances are allowed except for those listed in the Table of Uses;

SMP may be reviewed by delegated local government or DEMLR, however any buffer impacts for outlet conveyance will require separate buffer authorization from the appropriate buffer authority

Use	Exempt*	Allowable*	Allowable with Mitigation*
Drainage ditches, roadside ditches and stormwater conveyances through riparian buffers:			
• New stormwater flows to existing drainage ditches, roadside ditches, and stormwater conveyances provided flows do not alter or result in the need to alter the conveyance and are managed to minimize the sediment, nutrients and other pollution that convey to waterbodies.	X		
• Realignment of existing roadside drainage ditches retaining the design dimensions, provided that no additional travel lanes are added and the minimum required roadway typical section is used based on traffic and safety considerations.		X	
• New or altered drainage ditches, roadside ditches and stormwater outfalls provided that a stormwater management facility is installed to control nutrients and attenuate flow before the conveyance discharges through the riparian buffer		X	
• New drainage ditches, roadside ditches and stormwater conveyances applicable to linear projects that do not provide a stormwater management facility due to topography constraints provided that other practicable BMPs are employed.			X

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse / Tar-Pam / Catawba / Goose Creek / Randleman Buffer Rules

Application review will include determining compliance with the buffer rules

STORMWATER RUNOFF THROUGH THE RIPARIAN BUFFER. Stormwater runoff into the riparian buffer shall meet dispersed flow as defined in 15A NCAC 02H .1002 except as otherwise described in this Item. Drainage conveyances include drainage ditches, roadside ditches, and stormwater conveyances.

The following stormwater conveyances through the riparian buffer are either deemed allowable or allowable upon authorization, as defined in Sub-Item (10)(a) of this Rule, provided that they do not erode through the riparian buffer and do not cause erosion to the receiving waterbody. Stormwater conveyances through the riparian buffer that are not listed below shall be allowable with exception as defined in Sub-Item (10)(a)(v) of this Rule.

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse / Tar-Pam / Catawba / Goose Creek / Randleman Buffer Rules

Application review will include determining compliance with the buffer rules

Stormwater runoff into the riparian buffer shall meet dispersed flow as defined in **15A NCAC 02H .1002** except as otherwise described in the Rule.

"Dispersed flow" means uniform shallow flow that is conveyed to a vegetated filter strip, another vegetated area, or stormwater control measure (SCM). The purpose of "dispersed flow" is to remove pollutants through infiltration and settling, as well as to reduce erosion prior to stormwater reaching surface waters.

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse / Tar-Pam / Catawba / Goose Creek / Randleman Buffer Rules

Application review will include determining compliance with the buffer rules

The following stormwater conveyances through the riparian buffer are either deemed allowable or allowable upon authorization, as defined in Sub-Item (10)(a) of this Rule, provided that they do not erode through the riparian buffer and do not cause erosion to the receiving waterbody.

Deemed Allowable:

- New drainage conveyances from a Primary SCM, as defined in 15A NCAC 02H .1002, when the Primary SCM is designed to treat the drainage area to the conveyance and that comply with a stormwater management plan reviewed and approved under a state stormwater program or a state-approved local government stormwater program; and
- New stormwater flow to existing drainage conveyances provided that the addition of new flow does not result in the need to alter the conveyance.

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse / Tar-Pam / Catawba / Goose Creek / Randleman Buffer Rules

Application review will include determining compliance with the buffer rules

The following stormwater conveyances through the riparian buffer are either deemed allowable or allowable upon authorization, as defined in Sub-Item (10)(a) of this Rule, provided that they do not erode through the riparian buffer and do not cause erosion to the receiving waterbody.

Allowable Upon Authorization:

- New drainage conveyances from a Primary SCM as defined in 15A NCAC 02H .1002 when the Primary SCM is provided to treat the drainage area to the conveyance but are not required to be approved under a state stormwater program or a state-approved local government stormwater program;
- New drainage conveyances when the flow rate of the conveyance is less than 0.5 cubic feet per second during the peak flow from the 0.75 inch per hour storm;
- New stormwater runoff that has been treated through a level spreader-filter strip that complies with 15A NCAC 02H .1059;

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse / Tar-Pam / Catawba / Goose Creek / Randleman Buffer Rules

Allowable Upon Authorization:

- Realignment of existing drainage conveyances applicable to publicly funded and maintained linear transportation facilities when retaining or improving the design dimensions provided that no additional travel lanes are added and the minimum required roadway typical section is used based on traffic and safety considerations;
- Realignment of existing drainage conveyances retaining or improving the design dimensions provided that the size of the drainage area and the percent built-upon area within the drainage area remain the same;
- New or altered drainage conveyances applicable to publicly funded and maintained linear transportation facilities provided that SCMs, or BMPs from the NCDOT Stormwater Best Management Practices Toolbox, are employed;
- New drainage conveyances applicable to publicly funded and maintained linear transportation facilities that do not provide a stormwater management facility due to topography constraints provided other measures are employed to protect downstream water quality to the maximum extent practical;
- New drainage conveyances where the drainage area to the conveyance has no new built-upon area as defined in 15A NCAC 02H .1002 and the conveyance is necessary for bypass of existing drainage only

NORTH CAROLINA Department of Environmental Quality DEQ

Stormwater Management Plans in Buffer Authorization Applications

WHAT?

Neuse Buffer Rules

Allowable Upon Authorization:

- New drainage conveyances when the drainage area to the conveyance is demonstrated via approved nutrient calculation methodologies to meet the nutrient loading goal of 3.6 pounds per acre per year of Nitrogen (N) outside of the Falls of the Neuse Reservoir Watershed. Within the Falls of the Neuse Reservoir Watershed, new drainage conveyances when the drainage area to the conveyance is demonstrated via approved nutrient calculation methodologies to meet the nutrient loading goal of 2.2 pounds per acre per year of Nitrogen (N) and 0.33 pounds per acre per year of Phosphorus (P);

Tar-Pam Buffer Rules

Allowable Upon Authorization:

- New drainage conveyances when the drainage area to the conveyance is demonstrated via approved nutrient calculation methodologies to meet the nutrient loading goals as outlined in Rule .0731(e)(1) of this Subchapter;

Stormwater Management Plans in 401 Certification & Buffer Authorization Applications

Recap – most common application issues

- ☆ Water quantity / stormwater detention regulations and requirements are not the same as Water Quality Treatment
- ☆ Stormwater map isn't always correct, best to check with local government before submitting application
- ☆ If the project is exempt from treating stormwater from the site because of grandfathering, vested rights, in-lieu fee payment etc, remember, DWR 401 review still needs to ensure protection of downstream water quality and requires detailed evaluation of stormwater management.
- ☆ Definition of Low Density is not just % BUA
- ☆ Stormwater review (SMP, or alternative) must be completed with and prior to issuance of 401
- ☆ Not all delegated stormwater programs are also delegated to implement the State Riparian Buffer Rules
- ☆ Within delegated/designated local governments DWR implements buffer rules for certain activities
- ☆ Some stormwater conveyances are allowed/approvable as listed in the Table of Uses
- ☆ For all buffers except Jordan: New drainage conveyances from a Primary SCM, as defined in 15A NCAC 02H .1002, when the Primary SCM is designed to treat the drainage area to the conveyance and that comply with a stormwater management plan reviewed and approved under a state stormwater program or a state-approved local government stormwater program;

NORTH CAROLINA DEQ Department of Environmental Quality

Questions?

Department of Environmental Quality