

Neuse and Tar-Pamlico Local Program Development Guide

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Contents

Introduction	3
About the Neuse and Tar-Pamlico New Development Stormwater Rules	3
Differences Between the Old and New Rules	3
Old Rules	4
New Rules	4
Rule Implementation Schedules and Process	5
Local Program Format	7
Integrating Nutrient Management Strategy Requirements with NPDES	8
Using the Stormwater Management Template to Develop Your Local Program	8
Combining Local Programs for Multiple Nutrient Management Strategies	9
Local Program Contents	10
Local Program Descriptive Contents	10
Local Program Performance Objectives and Activities	11
Program Administration Performance Objectives	12
Post-Construction Stormwater Site Runoff Control Performance Objectives	13
Illicit Discharge Detection and Elimination Performance Objectives	14
Public Education and Outreach Performance Objectives	15
Ordinance Updates	16
Annual Reports	17
Annual Report Timeline	17
Annual Self-Assessment	18
Purpose of Collecting Calculation Data Inputs	19
SNAP Tool Data Inputs	19

Resources for Implementing Post-Construction Stormwater, IDDE, and Public Education 19

Interpretive Rule Guidance..... 21

 Key Operational Terms and their Application..... 21

 Development Permitting and Expansion 21

 Development of Subdivisions 22

 Strict Land Cover Tracking (aka BUA Tracking) 23

 Alternative Density Calculation for Single-Family Residential and Duplex..... 23

 Protected Forest vs Other Pervious 24

Appendix A 26

 Statutory and Rule Definitions, and their Application under this Rule 26

Appendix B..... 29

 Nutrient Calculation Guidance..... 29

 Operational Terms for Use in Calculating Nutrient Export..... 29

 General Rule Interpretations and Calculation Guidance 29

 Development Cases Explained for Nutrient Calculation..... 31

Introduction

The Neuse and Tar-Pamlico Nutrient Management Strategies were updated, and revised rules adopted effective April 1, 2020, pursuant to the legislatively mandated periodic rules review process codified at NCGS Ch. 150B-21.3A. Included were revised rules addressing post-construction stormwater control on new development. These rules were readopted as Neuse Nutrient Strategy: Stormwater, 15A NCAC 02B .0711, and Tar-Pamlico Nutrient Strategy: Stormwater, 15A NCAC 02B .0731. A requirement of these rules was the submission of new local implementation programs for newly added communities, and revision of Local Programs for communities subject to the older versions of the rules (15A NCAC 02B .0235 and .0258 respectively). Throughout this document, references to a **“Local Program”** or **“Local Programs”** shall mean the programs required under either the old or new Neuse or Tar-Pamlico stormwater rule, as further indicated by the context.

Another requirement of the readopted stormwater rules was the development of a new Model Program to provide guidance to local governments in the development of new or revised Local Programs. This Model Program document fulfills that rule requirement. Throughout it, references to **“the Rules”** shall mean the new basin stormwater rules.

Local governments subject to the Rules have a wide variety of stormwater implementation experience, experience with nutrient targets for stormwater, and regulatory arrangements with other stormwater programs. Thus, governments are entering implementation of the Rules with differing guidance needs in developing a new Local Program. This document identifies minimum information submittal needs and the desired contents and structure of a Local Program submittal. The list of requested contents was developed from Best Management Practices of the mature NPDES Stormwater Program and covers the range of both the minimum needed from mature stormwater programs as well as providing extensive guidance and an example Local Program for those local governments new to the Rules.

About the Neuse and Tar-Pamlico New Development Stormwater Rules

Differences Between the Old and New Rules

The original versions of the Neuse and Tar-Pamlico Stormwater Rules, effective in 1998 and 2001 respectively, were written before comprehensive NPDES Phase 2 Stormwater Rules had been developed by DEMLR. The original rules provided specific post-construction unit-area nutrient export rate targets, but little else on post-construction requirements. As a result, other criteria such as development applicability, disturbance thresholds, definitions, and minimum standards were fleshed out in the Model Programs for the watersheds.

The new Rules explicitly define applicability and disturbance thresholds, and otherwise specifically require meeting relevant parts of the DEMLR 02H Stormwater Rules effective in 2017, or other more stringent storm water quality programs that might apply. Revisions also gave the two Rules virtually identical structure and standards, excepting nutrient targets, to ease the regulatory burden on jurisdictions that had to implement both sets of Rules. Further specifics of old and new rules and associated tools are provided as follows for comparative understanding purposes.

Old Rules

- Developer Requirements
 - Applicability: Development disturbance thresholds not provided in the Rules, but included in the approved Model Programs
 - Development must meet specific nutrient export rate targets:
 - Neuse – 3.6 lb N/ac/yr;
 - Tar-Pamlico – 4.0 lb N/ac/yr, 0.4 lb P/ac/yr
 - Nutrient export estimation methods not mentioned in rule; export calculated with Neuse Method 1 or 2, or with Tar-Pamlico Tool, provided in respective Model Programs
 - Treatment:
 - Developers provide onsite stormwater treatment if the development’s untreated nitrogen export exceeds 6lb/ac/yr for residential or 10lb/ac/yr for other land uses
 - (No treatment requirements based on project BUA density)
 - Peak flow rate match required for 1yr, 24hr storm
 - Nutrient Offset
 - Reductions not achieved onsite can be covered with nutrient offsets
 - Developers fill in a form subsequently developed by DWQ to request local approval of nutrient offsets
 - Offsets are obtained in units of pounds of nitrogen or phosphorus
- Local Program Requirements
 - Review development plans to ensure they meet above requirements and riparian buffer rule requirements
 - Identify potential retrofit locations
 - Public education and Illicit Discharge Detection and Elimination (IDDE) programs
 - Stormwater mapping program (Tar-Pamlico only)
 - Program to ensure maintenance of permitted stormwater BMPs (Tar-Pamlico only)
 - Annual reports to DWQ documenting progress

New Rules

- Developer Requirements
 - Applicability:
 - Developer requirements do not apply in areas subject to the Falls Lake Stormwater rule, on existing development or redevelopment, and on activities subject to the respective Basin’s Agriculture Rule
 - Development/disturbance thresholds are in the Rules, mostly mirror DEMLR 02H Stormwater Rules with added requirements to capture development expansion in areas other than single family/duplex residential
 - State and federal projects, if not permitted by the local program, shall obtain DEQ approval
 - Development must meet specific nutrient export rate targets:
 - Neuse – 3.6 lb N/ac/yr;
 - Tar-Pamlico – 4.0 lb N/ac/yr, 0.8 lb P/ac/yr.

- Nutrient export calculated with the SNAP Tool or equivalent method meeting criteria provided in rule
- Treatment
 - Developers provide onsite stormwater treatment for all cumulative BUA if the project density > 24% BUA, and meet other low-density, high-density and other stormwater requirements of DEMLR's 02H .1003
 - Stricter onsite treatment requirements may apply where development falls under DEMLR Water Supply Watershed Rule, the Coastal Stormwater Rule, or HQW/ORW Rule
 - Dedicated offsite regional SCMs may be used for stormwater treatment covering multiple otherwise unrelated projects
 - Projects meeting the definition of "runoff volume match" do not need to further address nutrient export
- (Peak flow rate match not required)
- Nutrient Offset
 - Nutrient reduction needs not achieved following treatment requirements can be covered with nutrient offsets
 - Projects ≤ 24% BUA may meet nutrient rate targets entirely by nutrient offsets, but must also meet low density stormwater requirements of 02H .1003
 - Public road/sidewalk expansions may meet nutrient reductions entirely by nutrient offsets
 - SNAP tool can auto-generate the local government offset approval form
 - Offsets are obtained in units of pounds per year of nitrogen or phosphorus
- Local Program Requirements
 - Review development plans, approve those that meet above requirements and riparian buffer rule requirements
 - (No retrofit identification requirement)
 - Implement public education and IDDE programs
 - Stormwater mapping program
 - Program to ensure maintenance of permitted stormwater SCMs and compliance with rule for life of development
 - Annual reports to DWQ documenting progress and providing all data used in SNAP calculations

Rule Implementation Schedules and Process

The Rules lay out identical implementation schedules. Implementation starts with the development of a Model Program and its approval by the Environmental Management Commission. From that point, different time tracks are specified in the Rules for programs subject to the original rule versus those newly subject. For purposes of understanding implementation schedules applicability, this document will use the following nomenclature for the two classes of local governments differentiated by the Rules:

- **“Current local governments”** – jurisdictions currently implementing the original Neuse or Tar-Pamlico Rule
- **“New local governments”** – jurisdictions newly subject to the Rule, effective April 1, 2020
- Local governments already implementing one basin rule, but also having area within, and newly added under, the other basin rule, will be considered “new local governments” for schedule administrative purposes.

Below is the implementation schedule set by rule, with specific actions and options added to assist affected parties, for the **current local governments**, based on an assumed EMC approval of this Model Program in March 2021:

1. **March 2021 through September 2021** - Current local governments develop draft local programs with DWR assistance
 - a. Conference call with DWR to discuss locally specific issues
 - b. Pre-submission ordinance review by DWR if desired
 - c. Determine whether coordination with MS4 program is needed
 - d. Conference call with Clean Water Education Partnership (CWEP) if they are providing public education services
2. **September 2021** – current local governments submit revised Local Programs, including draft ordinances, to DWR for review
 - a. DWR reviews draft Local Programs, requests changes/additional information as needed, reaches completion with local governments and prepares recommendations for EMC
 - b. Where DWR indicates that a Local Program will be recommended for approval by the EMC, current local governments may want to start their ordinance adoption process and process to develop a Memorandum of Agreement with CWEP at this point
 - c. Continued DWR coordination with the MS4 program if needed
 - d. Current local governments start data collection for their “last” Annual Report under old Rules starting November 1, 2021 and running until adoption of the Local Program and Ordinance
3. **March 2022 (ESTIMATED*)** – DWR brings recommendations on draft Local Programs to EMC
 - a. Where DWR recommends changes to a Local Program, the local government has 3 months to revise and return to DEQ for a 2-month review period before bringing recommendations to the EMC
 - b. After approval, several preparatory activities happen, including adopting ordinances and Local Programs, finalizing agreements with cooperating entities, and training local government staff on SNAP (nutrient calculation) Tool
 - c. Where the Stormwater Management Template format, or NMS-SWMP (see below) is used for the Local Program, DWR prepares the local government’s template Annual Report form
4. **September 2022 (or 6 mo. after EMC approval)** – current local governments have adopted their approved Local Programs and ordinances and have started implementation of the Stormwater Rule
 - a. New development review processes are in effect
 - b. Vested developments have permit choice (old or new Rule)

- c. Development submissions include nutrient export calculations using the SNAP Tool
- d. IDDE and Public Education implementation follows the schedule established in the approved Local Program, including starting CWEP activities
- e. New Annual Report tracking is started, the “first year” reporting period starts with Local Program adoption and ends June 30, 2023
- f. Local governments will have 3 months to submit their final Annual Report covering the period before implementation of the New Rules

Below is the schedule for **new local governments** following EMC approval of the Model Program. With the exception of annual reports, the same activities as described above will take place, but shifted 6 months later.

1. **March 2021 through March 2022** - new local governments develop draft Local Programs with DWR assistance
2. **March 2022** – new local governments submit Local Programs to DWR for review
3. **September 2022 (ESTIMATED*)** – DWR brings recommendations on draft Local Programs to EMC
4. **March 2023 (or 6 mo. after EMC approval)** – new local governments have adopted their approved Local Programs and ordinances and have started implementation of the Stormwater Rule

*Note: 6 months is the estimated time DWR will need between receiving draft Local Programs and presenting recommendations to the EMC. This period may be longer or shorter.

All local governments’ initial annual reports will cover the time period from Local Program adoption to June 30, 2023, using the new report format. From there forward, annual reports will cover activities occurring from July 1 to June 30 each year.

Local Program Format

Local Programs can have different document formats depending on the community’s needs and history. Existing Local Programs are written in a descriptive plan style with varying amounts of detail, and all will need some revision to meet new rule requirements. NPDES Phase 1 communities may have extensive, descriptive “Stormwater Program” documents based on their long history of implementation. Many current local governments have a fairly simple Local Program document or have expressed the need for a complete overhaul. Some new local governments have an existing stormwater program, but it may cover very different areas than for the Neuse and Tar-Pamlico Rules. Several local governments have multiple stormwater-related Rules or programs applicable in their jurisdictions and have expressed a desire to consolidate program documents.

Local governments are coming from very different conditions of preparation and resources for updating an existing Local Program or writing a new one. To meet these varying needs, DWR has prepared multiple approaches to developing a new Local Program. Local Programs can be created in a highly structured, NPDES-compatible format demonstrated in a template provided with this guide, or they can

be presented in a more open, descriptive format that resembles standard planning documents. Guidance for both types follows.

Integrating Nutrient Management Strategy Requirements with NPDES

Local governments with NPDES Municipal Separate Storm Sewer System (MS4) programs requested the ability to merge their Neuse or Tar-Pamlico-specific Rule requirements into their existing MS4 Storm Water Management Plan (SWMP). Since the Rules are considered Qualifying Alternative [Post-Construction Stormwater] Programs (QAPs) within the NPDES regulatory structure, combining the two programs into a single document can provide administrative efficiency. DWR finds this combination acceptable for a Local Program document as long as implementation activities and resources needed for the Rules can be easily identified. Activities and elements that DWR considers important to any Local Program are described in detail in the Local Program Performance Objectives section below. In particular, the Post-Construction Performance Objectives provide a set of ideal QAP elements for integrating Rule and NPDES requirements.

All NPDES communities seeking to create a Local Program that merges their Rule requirements with their MS4 permit requirements will need to coordinate with both DWR and DEMLR, regardless of the Local Program format. All Local Programs of this type require review by both DWR and DEMLR to ensure the resulting document meets requirements of both programs.

DEMLR has developed a highly structured SWMP format where MS4 permit implementation activities are broken up into very discrete “Best Management Practices” (BMPs), and those are further described by specific implementation tasks, schedules, and reporting metrics for evaluation. An “Annual Self-Assessment” customized to a community’s SWMP provides a highly simplified method of annual reporting that allows easy evaluation of implementation. As Phase 2 communities go through an MS4 audit, they are required to revise their SWMP that implements the MS4 permit and their annual reporting to the new formats.

To improve coordination between programs and take advantage of administrative efficiencies, DWR consulted with DEMLR on how a local government would develop a Local Program that would merge the requirements of their specific Nutrient Management Strategy with the new Phase 2 SWMP format. Throughout this document, we refer to Local Programs for NPDES communities with this formally-merged format as an “NMS-SWMP” (Nutrient Management Strategy – Storm Water Management Plan); “Local Program” explicitly includes “NMS-SWMP”. In the process of creating guidance for merging Rule requirements into the SWMP format, we developed the highly structured but simplified “Stormwater Management Template”, presented with this document and described in more detail below.

Using the Stormwater Management Template to Develop Your Local Program

The Stormwater Management Template, inspired by the NMS-SWMP, is designed to integrate Nutrient Management Strategy Stormwater Rules implementation and reporting needs into the existing Phase 2 program structure, but in a simplified fashion. It contains only those NPDES elements relevant to

implementing the Rules. Like the NMS-SWMP, the Stormwater Management Template format allows for simpler annual reporting.

The Stormwater Management Template provides example text covering program descriptive information, BMPs, tasks, schedules, and reporting metrics. The BMPs accomplish a set of broader Performance Objectives, provided below, that DWR has identified as supportive of a sustainable stormwater program that can implement the requirements of the Rules. These Performance Objectives are provided to guide those local governments not participating in the MS4 program or otherwise needing to create a new Local Program document.

All local governments are encouraged to use this Stormwater Management Template format to take advantage of the simpler reporting approach, the table structure that clearly lays out program goals and activities, and the reduced administrative burden of beginning the development of a Local Program with an already fleshed-out document ready for customization. For NPDES communities, the opportunity to reduce documentation by merging your Neuse or Tar-Pamlico Local Program with your NPDES stormwater plan is an added benefit. We advise communities that may join the NPDES program in the coming years to get a head start on your MS4 documents by creating your Local Program using the Stormwater Management Template.

We advise Phase 2 communities with new-format SWMPs that want to create NMS-SWMPs, to refer to the Post-Construction section of the Stormwater Management Template to revise their existing BMPs or add elements needed for implementing Rule requirements for stormwater. Public Education and IDDE objectives and tasks for Phase 2 communities are still controlled by the MS4 permit, so those sections only require updating if they do not address nutrient pollution.

We advise Phase 2 communities that are currently or will soon go through an MS4 audit to consider whether folding in Rule requirements to make an NMS-SWMP is desirable. If so, DWR and DEMLR staff will coordinate on the audit and SWMP “upgrade” process to minimize repeated Local Program/SWMP revisions, depending on which NMS-SWMP parts are due first. NMS-SWMP elements will be primarily dictated by MS4 permit details, with a Post-construction stormwater section dictated by Rule requirements and needs.

Combining Local Programs for Multiple Nutrient Management Strategies

Many jurisdictions are subject to more than one Nutrient Management Strategy, all of which have a Local Program requirement. Several jurisdictions have requested the ability to combine Local Programs into a single document, and DWR can find no significant issues with doing so. If attempting this format, consult DWR watershed coordinators for both watersheds prior to writing to review Nutrient Management Strategy differences and potential complications in Program development. In the document, requirements and activities that differ between Strategies should be clearly identified, while requirements that tend to be jurisdiction-wide and difficult to track by watershed need no distinction. Annual report due dates and other elements that have divergence from one or the other Strategy’s requirements for practical purposes should be clearly documented. Local Programs for any Strategy should not be combined with any Jordan Lake watershed Local Program or reporting at this time.

Local Programs, all being a variety of Qualifying Alternative Program, may be integrated into an NMS-SWMP or using the Stormwater Management Template. In the case of an NMS-SWMP also consult with DEMLR's MS4 coordinator prior to writing. BMPs and tasks should be listed and tracked separately for each Strategy in the Local Program. Data tracking for annual reports should be clearly separated, or collected data identified or sorted by Strategy in your Standard Operating Procedures.

Most important to this approach is in annual reporting. A single annual report can be prepared but reporting metrics or other documentation of Rule implementation should be separated by Strategy. Jurisdiction-wide activities that are challenging to separate by watershed, such as public education and outreach, and illicit discharge detection and elimination, do not require distinction by watershed for reporting. In the case of a Neuse Local Program combined with a Falls Lake Local Program, which is technically a subwatershed of the Neuse, ensure that you are tracking and reporting data generated from inside the Falls watershed separately from data generated outside Falls.

DWR will provide guidance on collecting and reporting raw SNAP data if multiple Strategies are combined into a single Local Program.

Local Program Contents

There are certain elements DWR staff will be looking for in reviewing any Local Program submittal that describe local community context and details, regulatory approaches, intended Rule implementation activities, and how the community intends to track and report on Rule implementation. All elements described below are optional in a Local Program document, but their inclusion helps DWR reviewing staff understand local conditions, constraints, and objectives and connect intended community activities to Rule requirements. The Stormwater Management Template format as well as NMS-SWMP format address all of these elements, so the following outline of recommended contents is provided for those who do not use those formats. Note that Phase 2 communities may be required by DEMLR to include more information and specific activities in an NMS-SWMP to cover their MS4 permit obligations.

Local Program Descriptive Contents

Your draft Local Program submittal should include the following descriptive elements regarding your jurisdiction's stormwater program. These elements explain the local physical, regulatory, and organizational conditions and provide context for understanding how the local program is expected to operate. Remove or replace elements to best describe your community and your proposed stormwater program.

1. Certification of the Local Program by a ranking elected official, principal executive officer, or their authorized representative.
2. A map or description of the areas where the Local Program will be implemented.
3. A description of the degree of interconnectedness between the Local Program's stormwater infrastructure and that of other entities regulated under the Neuse or Tar-Pamlico Stormwater Rules.

4. A description of any shared responsibility or cooperating agreement for Neuse or Tar-Pamlico Stormwater Rule implementation.
5. A list of local Receiving Waters.
6. A list of locally common non-stormwater discharges and the anticipated impact on water quality.
7. The organizational structure of the jurisdiction's stormwater program.
8. A description of the expected funding source and estimated budget for implementing the Neuse or Tar-Pamlico Stormwater Rule.
9. A list of the State Programs for Post-Construction Site Runoff Control that apply in this jurisdiction (e.g. MS4, WSW, Coastal, etc.).
10. A list of ordinances, guidance manuals, standard operating procedures, and reference material that cover part or all of the implementation of the nutrient stormwater requirements.
11. For purposes of public education, a list of sources of nutrient pollution to waters in the jurisdiction's area and target audiences.
12. A description of your jurisdiction's approach to development permitting, including whether density averaging or dwelling unit averaging is used, how incremental BUA expansion is managed, local development thresholds or triggers, additional or more stringent stormwater requirements, and any other situations or conditions specific to managing stormwater.
13. Description of Local Program Performance Objectives and Activities. See the next section, Local Program Stormwater Rule Implementation Activities, for more details.

Local Program Performance Objectives and Activities

Your Local Program should include a description of your anticipated stormwater implementation objectives, a more detailed listing of activities that show how it will successfully meet the requirements of the Rule, and a description of how activity implementation will be tracked and reported on. Please describe how your Local Program will implement the following objectives, or alternatives that you can support instead, to meet the Rule. For each objective, you should identify actions, the schedule or frequency of their implementation, how you intend to monitor progress, and how you intend to report on it.

DWR staff developed the following Performance Objectives as elements likely to lead to a successful, sustainable local stormwater program implementing the Rule requirements. This list is neither exhaustive nor a required set, and alternative objectives can be proposed to adequately implement the Rules. "BMP" in this set should be considered synonymous with implementation activities and tasks described in a Local Program. Examples are provided of different approaches for addressing the Performance Objectives, including IDDE alternatives for counties. These examples can be reworded as BMPs with tasks, schedules, and reporting metrics in a Local Program using the provided Stormwater Management Template or in an MS4 Program-approved NMS-SWMP.

Note: in the list of Performance Objectives below, when a "list", "checklist", "plan", or "standard operating procedure" is described, this does not mean that DEQ will necessarily require a copy of this document, only that developing, maintaining, and disseminating such plans or procedures are considered Best Management Practices. However, MS4 Permit requirements, especially for IDDE and

Public Education, may supersede this. Ideal plans or procedures are short and narrowly focused, clearly identify tasks, timelines, resources needed, and responsible parties or staff, and are regularly reviewed and updated to keep up with local government needs and situations. "Standard Operating Procedures" encompasses guidelines from short checklists to large collections of detailed instructions.

Program Administration Performance Objectives

1. Annual evaluation of completion of, or progress on, BMPs and tasks established in the approved Local Program.
 - *For example: A city merged its MS4 SWMP with its Neuse Local Program. The annual Self-Assessment report includes BMPs to implement the Neuse Rules, and is submitted to DEMLR in August, and DWR gets a copy.*
2. Adequate funding and staffing are provided to achieve BMPs and Tasks.
 - *For example: A city's stormwater program is funded by a Stormwater Utility Fee. This provides approximately \$2 million in funding every year and supports 6 FTE.*

Post-Construction Stormwater Site Runoff Control Performance Objectives

1. Legal authorities exist to require compliance with the nutrient stormwater rule, including applicability, nutrient targets, nutrient offset procedures, and stormwater requirements; specify development plan submission requirements; review and approve development plans and SCM O&M plans and agreements; conduct inspections and enforcement; require State/Federal entities to submit development plans (MS4s only); require that SCMs are designed to State Minimum Design Criteria (or a more stringent standard); require annual submission of SCM inspection reports by qualified professionals; require restoration of malfunctioning SCMs to a functional state by responsible parties; and prevent incremental addition of BUA beyond what each development or its SCM(s) were permitted or designed to.
 - *For example: A local government new to the Neuse Rules used the Model Ordinance to check that necessary elements were added to their Code of ordinances, with modifications for Neuse Stormwater Rule specifics.*
2. Development plans are reviewed for compliance with Riparian Buffer Rules.
 - *For example: A local government requires that intermittent and perennial streams and their buffers are shown on development plans.*
3. Development plans are reviewed for compliance with nutrient stormwater regulations, adequacy of nutrient calculations, SCM design, and Operations and Maintenance Plans and Agreements.
 - *For example: A short development review SOP is written to help staff keep up with all the requirements.*
4. Ensure development by Federal, State, or local government entities within the city's or county's jurisdictional area is either reviewed or directed to the appropriate authority for review.
 - *For example: A non-MS4 community that does not intend to review Federal or State projects may send letters to both DEMLR-Stormwater and the Federal and State entities in the area advising them that the relevant development review authority is the State. A statement of this intent would be included in the SWMP or Local Program.*
5. Development close-out processes, educational materials, or other methods are developed for transferring SCMs from developers to responsible parties and to assist these entities in understanding and meeting their SCM O&M and reporting obligations.
 - *For example: A city may have a formal handoff of SCM responsibility from the developer to property owners' association as part of development close-out. This handoff ensures that the property owners association is legally responsible for the SCM.*
6. Post-construction SCMs are tracked for annual submission of inspection reports from responsible parties, post-construction enforcement actions, and 5-year rotating inspections of SCMs by local government staff.
 - *For example: A spreadsheet is used to track all SCMs in town, when annual reports have been received, when deficiencies have been observed/reported, and when these deficiencies have been remedied.*
7. Development activity over the past year is tracked and reported annually, including the number of NMS-subject plans approved, inspections performed for plan compliance, and construction-stage enforcement actions for NMS-subject developments. ("NMS-subject plans/developments" means those that meet disturbance or other nutrient management thresholds.)
 - *For example: Development plan approval may be tracked separately from the activities that take place during development, such as inspections.*
8. Annual reporting includes all nutrient tool calculation inputs used to determine nutrient loads from developments approved in the past year and reductions provided by proposed SCMs.

- *For example: As part of development approval, a CSV file of the submitted SNAP Tool inputs may be saved to a directory for that year's approvals.*

Illicit Discharge Detection and Elimination Performance Objectives

9. The jurisdiction's area stream and waterbody network, and the jurisdiction's entire storm-drainage network, are adequately mapped and kept updated to enable detection and field tracing of dumping and illicit discharges.
 - *For example: In order to keep up with new stormwater infrastructure, a city's development process may require submission of GIS information about new stormwater structures installed by developers in the right-of-way. A county may include environmental features (like streams) on department maps and resources.*
10. Additional map data crucial to detecting and tracing illicit discharges from source to receiving waters of the State, including land use types with potential to contribute discharges and potential sources of human waste, are maintained.
 - *For example: A city may keep an overlay of its sanitary sewer system. A county may keep an overlay of properties with septic systems. Either might keep an overlay of commercial districts, especially ones with food service.*
11. Adequate legal authority exists to prohibit illicit discharges, dumping, and cross-connections, require cleanup, and supports all aspects of IDDE detection, investigation, and enforcement.
 - *For example: An ordinance is passed based on EPA's model IDDE ordinance.*
12. An Illicit Discharge Detection and Elimination Plan is developed and implemented that describes likely discharges or dumping, source types, detection and investigation methods, data collection and tracking, enforcement procedures, and elimination and cleanup methods. This plan or its procedures are disseminated to participating staff and cooperating entities and kept updated and reviewed against illicit discharge events of the past year for effectiveness.
 - *For example: A city used the provided Pollutants, Sources, Audiences worksheet to determine that restaurant washwater was its highest priority source. Detection methods, target audiences, priority locations, preventive practices, and cleanup methods were determined, and staff members trained for detection and investigation. Tracking discovers repeat offenders, and procedures are tweaked to strengthen enforcement.*
13. A reactive program is set up to receive, investigate, and address incidents of dumping, discharges, or spills that are reported by the general public or local government staff through a reliable and readily accessible reporting method.
 - *For example: A phone line for reporting dumping, spills, and suspicious discharges in streams is advertised through utility mailers. Arrangements may be set up between county departments for staff cross-training and clearly delineated responsibilities for taking calls, investigation, and cleanup.*
14. A proactive screening program based on identified discharges, source types, land uses, priority locations, and detection methods is developed, implemented, and regularly reviewed and updated.
 - *For example: A city may determine that restaurants often dump wash water or grease, and staff may make regular sweeps of commercial zones looking for these kinds of discharges. A county may reach out through its Environmental Health department to advise property owners of proper septic maintenance, how to identify septic failures, and how to get assistance for repair.*
15. Education and outreach methods and messages are developed to provide illicit discharge prevention strategies to identified target audiences.

- *For example: A county may determine that automotive fluids are a high priority pollutant. Materials are developed for annual mailers to homeowners, instructing them to drain gasoline from stored cars to protect both engines and groundwater, and take all kinds of automotive fluids to Household Hazardous waste in appropriate containers.*

Public Education and Outreach Performance Objectives

16. A Public Education and Outreach Plan is developed and implemented which includes a list of target pollutants, likely sources, target audiences, and outreach methods. The Plan or its procedures are reviewed against illicit discharge incidents and Public Education outreach of the past year for effectiveness and the Plan updated as needed.
 - *For example: A county used the provided Pollutants, Sources, Audiences Worksheet to determine that septic failures were its highest priority source. Methods of detection, target audiences, preventive practices, and repair methods were determined to design the best outreach approach.*
17. The local government provides up-to-date information on the Local Program through an online website.
 - *For example: A stormwater page on the local government's website clearly identifies their participation in the Neuse Stormwater Rules, upcoming water resources events, and a list of contacts.*
18. A Stormwater Hotline is monitored, citizen questions answered, and interactions tracked.
 - *For example: A staff member is assigned to be the primary point of contact for water resources questions and keeps a log of calls and responses.*
19. Developers are clearly informed on development application processes, and on Nutrient Management Strategy stormwater and nutrient management requirements.
 - *For example: A checklist of materials for development applications may be provided through the website. Related materials may explain that development in the city is required to meet certain runoff targets for stormwater.*
20. Parties responsible for SCM O&M are clearly informed on operating and maintaining SCMs under their responsibility and local government expectations.
 - *For example: A city may send annual O&M reminder letters to parties responsible for SCMs that their annual inspection report will be due, and a form applicable to their SCM may be included.*

21. The general public, businesses, and local government employees are informed of the hazards of illicit discharges, illegal dumping, and untreated sewage/septic discharge.
 - *For example: Materials providing guidance to the public for reducing pollution caused through common activities are developed. These materials are freely and widely available at each festival the city puts on or when staff hold a booth.*
22. Arrangements with external entities to perform education and outreach have clear expectations, responsibilities, timelines, and the collection of reporting metrics.
 - *For example: An MOA is drawn up with CWEP to provide education and outreach services. The agreement includes exactly what outreach CWEP will perform and what data CWEP will collect and report back to the local government.*

Ordinance Updates

All local governments will need to update their ordinances to some degree for the new Rules, even current local governments. Current local governments may want to check their ordinances for changes or adequacy for the following elements, at a minimum:

- Changes to nutrient regulation applicability and exemptions, with particular attention to:
 - Disturbance thresholds
 - Landuse type, project density, existing BUA
 - Projects subject to the Falls Lake New Development Stormwater Rule (.0277)
 - Existing development, redevelopment, activities subject to Neuse or Tar-Pamlico Agriculture Rules (.0712 and .0732 respectively)
- Checking definitions relevant to implementation:
 - Development
 - Redevelopment (this is likely to be specific to this section of your ordinance)
 - Built-upon area
 - Existing Development, Existing BUA
 - Project, Project Area, Project Density
- Requiring low- or high-density stormwater design as appropriate, threshold densities
- Different requirements for nutrient offset, particularly thresholds and process
- Requiring SCMs to be designed to Minimum Design Criteria standards, or better (a subset of DEMLR-approved SCMs may be specified)
- Requiring nutrient export and nutrient reduction calculations to be done with the new SNAP Tool, or another tool approved by the Division
- Peak flow rate match requirements may be dropped
- Methods of forest protection
- Allow runoff volume match, if desired
- In the Tar-Pamlico watershed, changes to the phosphorus target
- Changes to requirements for development-related definitions, vested rights, permit choice, appeal and variance processes, and other zoning limitations based on the new NCGS Chapter 160D

Local governments can find helpful general stormwater ordinance and program guidance from DEMLR Stormwater Unit's NPDES Phase 2 guidance website. In particular, the "USMP Model Ordinance Checklist" can be valuable for both current and new local governments.

- <https://deq.nc.gov/about/divisions/water-resources/water-resources-permit-guidance/npdes-phase-i-phase-ii-stormwater-guidance>
- <https://files.nc.gov/ncdeq/Water%20Quality/Surface%20Water%20Protection/SPU/SPU%20-%20Model%20Ordinances/USMP-ModelOrd-Checklist-20080728-DWQ-SPU.xls>

Local governments will also need an Illicit Discharge ordinance that provides the necessary authorities for discharge investigation, enforcement, and cleanup. <https://www.epa.gov/nps/urban-runoff-model-ordinances-illicit-discharges>

A Model Ordinance for Neuse and Tar-Pamlico Stormwater was created by updating and modifying a model ordinance previously authored by Dr. Richard Whisnant of the UNC School of Government. This ordinance was originally developed in 2005 as an NPDES Phase 2 Model Ordinance, and subsequently updated for Jordan Lake and Falls watershed development rules. It was intended to provide all elements needed at the time of writing, including general provisions, administration and procedures, standards, maintenance, enforcement and violations, and definitions for a local government with no existing stormwater regulations.

There have been several changes to state statutes and rules that are referenced in this ordinance or have relevance to stormwater regulation at the local level. DWR staff have attempted to update all references, requirements, and definitions based on statutes or Rules that may have changed. Local governments are invited to use this model ordinance in whole or in part for developing or updating their local Code of Ordinances to implement the new Rules.

Important Note: this Model Ordinance does not include authorities and requirements for all possible best practices or activities as described in either the Performance Objectives or the Stormwater Management Template. While every attempt has been made to make this Model Ordinance as complete as possible, particular details may be missing. A local government using parts or the whole of this model for its ordinance modifications should be sure to check that the specific BMPs or implementation activities proposed in their Local Program have adequate representation.

Annual Reports

Annual Report Timeline

Annual reporting for Neuse and Tar-Pamlico local governments is proposed to be composed of two parts:

- Part 1: Program implementation
 - For those local governments using the Stormwater Management Template, NMS-SWMP, or NMS-SWMP format, a spreadsheet "Annual Self-Assessment" reports implementation metrics for BMPs and tasks in the approved Local Program ("documenting progress" as described in the Rule)

- For those local governments using a different format, the Local Program will have specified what they are tracking and how they will report it
- Part 2: Raw data input used for SNAP calculations (“appendices” listed in the Rule), easily exported from the Tool as a text file

As described above in the Rule Implementation Schedule and Process section, assuming EMC approval of the Model Program in March 2021, and DWR review and approval recommendation of local programs within another 6 months, annual reporting and associated data collection will have an overlap phase for the current local government where it is simultaneously moving to a new reporting period, new due dates, and adopting the new Local Program and ordinance, which will require collecting different information.

- Current local governments:
 - will have a partial “last year” where they collect data and use a report format as they have for implementing the old Rules, and a partial “first year” where they switch to a new reporting period and report format
 - will start data collection for their “last” Annual Report under the old Rules starting November 1, 2021 and running until adoption of the Local Program and Ordinance
 - their first “new” report will start collecting data at adoption of the Local Program and ordinance (estimated September 2022), and run through June 30, 2023
- New local governments first “new” report will start collecting data at adoption of the Local Program and ordinance (estimated March 2023), and running through June 30, 2023
- After the “first year” the new reporting period will be set as the fiscal year to coincide with the MS4 program
- Annual Self-Assessments for Phase 2 communities are due on August 30, and October 30 for all other local governments
- Raw SNAP data is due on October 30 for all local governments, but can be submitted earlier

Annual Self-Assessment

For local governments that use the Stormwater Management Template or NMS-SWMP format, the approved Local Program will explicitly lay out the metrics they will report on to describe Rule implementation. The resulting report is known in the MS4 Program as the “Annual Self-Assessment”. It is an Excel spreadsheet customized to each specific local government’s Local Program contents. Phase 2 communities will have a more extensive report based on their longer NMS-SWMP, and would be submitted to the MS4 Program rather than DWR. DWR can obtain a copy of this report from the MS4 Program.

The spreadsheet contains a row for each Task recorded in the Local Program. The Annual Self-Assessment template is updated if the Local Program is updated, otherwise the same template is used each year. Each Task in the Local Program has a recorded Reporting Metric, and this value (such as date of completion, or number of a measured activities, or other measurable activity) is recorded in the Annual Self-Assessment for that year.

A local government using a Local Program format different from the Stormwater Management Template or NMS-SWMP format will need to specify in their Local Program how they are evaluating

implementation of their Performance Objectives and will specify how progress is monitored and reported.

Purpose of Collecting Calculation Data Inputs

The Rules call for local governments to calculate and report on net changes in nitrogen and phosphorus load in addition to submitting raw input data used for calculating nutrient export. DWR's goal is to minimize the annual reporting effort required of local governments as much as possible while still getting essential information on the progress of Rule implementation. Since local governments will be submitting raw data input for nutrient calculation from the SNAP tool (or other approved tool), and DWR will have need for various analyses over time, there is no need for local governments to calculate annual net changes in nutrient loads.

SNAP Tool Data Inputs

Local governments will be submitting the raw data input for nutrient calculation in the SNAP tool (or other approved tool) for developments approved in the preceding year. Rather than storing each submitted Excel spreadsheet for each approved development, which can reach 8MB, the Tool has an onboard function to export input data as a simple text file of approximately 5KB (1/1000 the size). This format was originally intended for easy submission of data from developers to the local government (email servers may reject the macro-enabled Excel file, but not a text file), but it can be easily used for data aggregation.

Local governments will likely have to set up their plan review process to have an assigned staff "minder" responsible for ensuring these export files are collected prior to any archival process that the government has for approved projects, as well as a protected, backed-up electronic storage location.

Resources for Implementing Post-Construction Stormwater, IDDE, and Public Education

Local governments newly added to either of the Rules may find it challenging to bring a stormwater program up to speed very quickly. DWR can make several recommendations for partner agencies and organizations:

The Clean Water Education Partnership (CWEP) has previously conducted considerable public education and outreach for local governments. The organization, in response to the need for more specificity in actions and reporting metrics for the MS4 program, has developed a Memorandum of Agreement template for providing services to local governments. Customizing and finalizing this MOA requires close coordination with a staff member from the local government and customization of the MOA to the local government needs.

With regard to implementing Illicit Discharge Detection and Elimination, several local government agencies may already be covering elements that would be included in a Local Program and reported on annually. Outreach for reducing and correcting septic failures and removing straight-pipes is commonly already done by a County Environmental Health Department. Similarly, interaction with that

Department's food inspectors can help local governments address the kinds of discharges common to food service businesses.

Other local governments have reported partnering with their local Soil and Water Conservation District for education/outreach and events like Big Sweep, their County Solid Waste Department for public education about properly disposing several types of materials, their local Chamber of Commerce for illicit discharge education and outreach, Riverkeepers or other watershed organizations for clean water events and public education, and the local tourism board for education, especially when the jurisdiction is working to create tourism destinations on their nearby waterbodies. In all cases, formal agreements for responsibility of the various parties should be drawn up, and measures of activity determined so that the local government can report on progress.

Interpretive Rule Guidance

In developing this Model Program, the meeting process with local governments brought several implementation issues to the surface that necessitate rule interpretation by the Division. This section captures those issues and provides interpretive guidance to assist local program development and implementation. This guidance is the product of iterative discussions with the local governments and consultation with the DEMLR Stormwater program and Department legal counsel where appropriate. To assist understanding, the first subsection introduces key terms that emerged as necessary to address technical distinctions and carry out rule requirements. Existing terms and definitions on which these new concepts rely are provided for reference as an appendix to this document.

Key Operational Terms and their Application

DWR staff has developed the following terms and associated meanings to facilitate rule implementation. They draw on, and to the extent needed operationalize, concepts already either used in statute without definition, or defined in statute and other rules. As noted above, the previously established terms are compiled as an appendix this document for ease of reference.

- **“Existing BUA”** is used here to operationalize the terms ***Existing Development*** and ***Pre-existing Development*** as used in Ch. 143-214.7. The statute effectively exempts such development from stormwater control requirements. Determination of Existing BUA status will be tied to the date of the most recent amendment of the Rule. That is, when the Rule is amended, the “BUA clock” is set or reset based on the effective date of the applicable local ordinance implementing the amended Rule. Whatever BUA is present at that time becomes “Existing BUA”.
- **“Regulated BUA”** will refer to all BUA in existence at the time of a development application, that was installed after the Rule went into effect through local ordinance, that was not vested at that time, and thus is subject to consideration under the Rule. Regulated BUA will have stormwater treatment already provided, will have been addressed by nutrient offsets, or will have been part of a development that did not exceed the Rule’s nutrient loading rate targets or 24% BUA threshold (i.e. $\leq 24\%$).
- **“Cumulative BUA”** will refer to all “Regulated BUA” plus any proposed net increase in BUA on a project site at the time of a development application. All Cumulative BUA is subject to consideration under the Rule, and it excludes all “Existing BUA”.

Development Permitting and Expansion

Under the original Neuse Stormwater Rule, the Model Program provided two load estimation methods: one calculated nitrogen export from total acreage of protected areas, open space, and impervious surface; and the other used a simple relationship between lot size and nitrogen export with additional export from Rights-of-way. The Model Program under the original Tar-Pamlico Stormwater Rule provided tools (piedmont and coastal) with similar capabilities, with options for calculating nutrient export from total acreage of different landcovers or using a lot-size estimator of landcover types. Neither the original Rules nor their Model Programs had much guidance for handling expansion of development over time, as both of these were oriented mostly to greenfield development.

The new Rules have a very different approach to nutrient calculation. There are explicit requirements for expansion of development, and a new calculation tool that requires specific inputs of square footage for the whole project and for drainage areas of each SCM. For expansion of existing development, there are different disturbance thresholds that trigger the Rules and different resulting project densities that also trigger the Rules.

As a result, more specific information is required on development plans in order to calculate nutrient export, and landcover/BUA amounts need to be tracked over time to implement the Rules. DWR has learned of many ways that local governments have managed expansion of development over time and has the following recommendations regarding setting up initial greenfield developments and data requirements for managing development expansion to comply with the new Rules.

Development of Subdivisions

Permit applications for subdivisions are to address stormwater control for the buildout of all lots that will be made developable by the proposed activity. This interpretation clarifies the intent of the term “**project**” as used in the Rules. It recognizes subdivisions as meeting the intent of **Common Plan of Development** in rule 2H .1002 and is consistent with associated DEMLR rule requirements to address stormwater control for all parts of such projects. Individual lots in a subdivision are not to be left to separate stormwater permitting for their initial buildout even if separate builders will develop each lot. This standard is not intended to apply to the entirety of large, staged developments, such as master planned developments, but rather to any individual phase of such a development, to the extent that lots are made developable by the activity proposed in the permit application for that phase.

In some cases, the amount of BUA or land cover types in the initial development permit is different from the final amount installed by the developer or permit holder at the completion of the project. We recommend that if this is a common occurrence for a jurisdiction, that the local stormwater program include a safety factor in their stormwater requirements, their permitting/inspection process, or in their calculations, especially if the permitted project density is close to 24%. The objective is to ensure that a project that goes over 24% is set up to accommodate that possibility, or that processes are in place to limit building beyond the permit. Both initial and final calculation tool inputs/data should be submitted to DWR as part of the annual reporting process with a clear identification of which data is deprecated when the development is complete.

A separate situation occurs when a developer seeks to implement an “exploratory” subdivision of sorts – a small portion of a much larger parcel – prior to moving on to develop the remainder of the parcel if economic conditions look good. A Local Program could conduct permitting as two overlapping phases instead of two separate projects, where the initial development remains below the Rule’s high density threshold and nutrient loading targets relative to the entire parcel, and where subsequent areas trigger high density requirements and nutrient targets for the entire parcel. Such an approach would require a single developer for the entire parcel, and the Local Program would need to require them to address stormwater control for the entirety of the parcel, including the initial phase, in the second stage. If this is a likely situation, we also suggest that the local government set up a lower BUA threshold (a more stringent one) for high-density, and require some of the elements of high density (such as collection of

stormwater) but some elements of low density to generally address low density requirements, but leave adequate space for conversion to high density.

For large developments with long implementation timelines, homeowners may move in and wish to add development on their own lot before the original large development is complete. We recommend this incremental expansion be handled as a separate permit, if disturbance thresholds or local requirements dictate, that does not affect BUA, land cover amounts, nutrient calculations, or stormwater requirements of the original, ongoing permit for the larger development.

Strict Land Cover Tracking (aka BUA Tracking)

To satisfy Rule requirements that hinge on knowing % BUA of a site for greenfield developments and for subsequent tracking of development expansions, following discussions with the local governments, two different approaches have been identified and recommended for permitting. The first method we refer to as “strict landcover tracking” or “BUA tracking”. On greenfield developments, we note that BUA tracking will involve “Cumulative BUA” and there will be no “Existing BUA”. This is the most data-intensive approach to stormwater permitting and has the following general features:

- Development plans specify square footage of each type of land cover on each lot of a new development
- Final land cover, especially built-upon area, is regulated and tracked through methods such as recordation on deeds, BUA tracking database, and/or aerial photography
- Incremental additions of many kinds of BUA require some minimal level of permitting
- Additional stormwater treatment, often lot-level, or nutrient buy-down may be required for incremental BUA additions

Being the most stringent approach to development permitting, this method tends to capture the majority of incremental additions of BUA. Rule requirements for projects other than single-family residential and duplex necessitate much tighter tracking and regulation of land cover acreages. Specifically, disturbance thresholds are lower than the 1-acre threshold used for the State erosion and sediment control permit, and there is effectively no disturbance threshold when there is existing BUA present and the cumulative BUA is proposed to exceed 24%. Exceeding this 24% project density triggers stormwater treatment of cumulative BUA.

For this reason, we recommend that all local governments use a strict land cover tracking approach of some kind for development permitting of commercial, industrial, mixed use, and other non-single family/duplex residential land uses. Where BUA limits are imposed on lots, adequate enforcement of those BUA limits is needed.

Alternative Density Calculation for Single-Family Residential and Duplex

The Rules have a higher disturbance threshold on single-family residential and duplex land uses than on other types, and they do not have the same requirement to monitor incremental BUA expansions that may bring a lot beyond 24% BUA. In addition, local governments may find it difficult to apply strict land

cover tracking to single-family/duplex residential expansions, especially on developments originally permitted using the older calculation methods since these methods were able to use density averaging or lot-size estimates of nutrient export. For these reasons, we do not believe strict BUA tracking is necessary to sufficiently implement the Rule on single-family/duplex residential developments. For this landuse type, more approximate approaches to permitting initial buildout and subsequent incremental expansion are acceptable. We identify several potential options for consideration.

One approach is not to require exact square footage of lot-level land covers; instead the subdivision has a land cover and BUA estimate initially permitted and the local government would keep a tally of land covers as buildout progresses. When the project is done, the local government submits revised nutrient calculation data to DWR as part of annual reporting, as described in “Development of Subdivisions” above. Additional contingencies for expansion could be required, such as nutrient buy-downs or lot-level stormwater treatment.

Two other approaches use an averaging method as well, by using collected data to develop a relationship between lot size and land cover proportions, or a relationship between dwelling units per acre and land cover proportions. These approaches are reminiscent of the original Neuse and Tar-Pamlico calculation methods. However, development trends have changed significantly since those datasets for the original methods were created, and modern developments tend to have different proportionalities between land covers and lot sizes or dwelling unit density. In addition, communities have been able to collect better data in recent decades that could improve the accuracy of and confidence in these relationships. DWR would allow these methods if the local government has adequate data to support a modern data relationship. If broader interest is shown by local governments and sufficient data is available, DWR would be willing to investigate developing a calculation tool for whole watersheds or larger areas. This would be a supplemental method to use with the SNAP tool.

Local governments may identify other reasonable methods for estimating residential project density. Your local program will need to include enough details of the approach not only for DWR staff to understand how it works, but to make a supportable case that it produces reasonable approximations compared to a strict land cover tracking approach.

Protected Forest vs Other Pervious

Forest land covers have significantly lower export of nutrients in runoff than more managed kinds of pervious land covers such as lawns, playgrounds, landscaped areas, or septic fields. This is modeled as a lower nutrient export for forest in the SNAP Tool and is a desirable land cover for developers to include because of the overall project-level lowering of nutrient export that forest cover provides. However, without adequate regulatory protection, forest can be converted to other pervious land covers that export much more nitrogen and phosphorus. DWR assumes that any forested area not protected in some enforceable way is likely to be converted to another pervious cover with no accounting for the increase in nutrient export or requirement to return cleared areas back to forest. This is why the term “protected forest” is used as a land cover type in the SNAP tool rather than just “forest” or “unmanaged pervious”.

When a local government reviews and approves development plans and nutrient calculations, reviewing staff need to ensure that areas identified as forest have some mechanism for keeping them forested and returning them to forest if cleared. Otherwise, a local government's ordinances need to require unprotected forested area to be entered into nutrient calculations as "other pervious" land cover, even if these areas are presently forested.

DWR understands that this could potentially encourage unnecessary clearing of forest by developers where that is deemed more expedient and less costly. We encourage local governments' ordinances to clarify what qualifies as adequate protection for forested areas in the jurisdiction and encourage the investigation of alternative forest protection methods. Adequate types of protection for forested areas include conservation easements, square footage or percent of the parcel that is to remain forested is recorded on the deed, Zone 1 of the riparian buffer, forested setbacks, and other environmental zones (riparian, floodplain, steep slopes) if your ordinance explicitly requires that they stay forested. We also encourage alternative permitting or land use requirements that may tie forest clearing to recalculation of nutrient export and subsequent nutrient offset.

Appendix A

Statutory and Rule Definitions, and their Application under this Rule

The following definitions of common development terms are copied here from statute or Rule. Additional operational interpretations of these terms that relate to requests for Rule clarification or guidance for entering data into the nutrient calculation tool are presented to provide context for the development examples and cases laid out in Appendix B.

Land-disturbing activity (from NCGS 113A-52): means any use of the land by any person in residential, industrial, educational, institutional or commercial development, highway and road construction and maintenance that results in a change in the natural cover or topography and that may cause or contribute to sedimentation.

*Operational definition based on the above: **Disturbed Area:** Entire area experiencing land-disturbing activity. This area is used in determining whether applicability thresholds for Nutrient Stormwater Rules are “tripped”.*

Development (from NCGS 143-214.7): Any land-disturbing activity that increases the amount of built-upon area or that otherwise decreases the infiltration of precipitation into the subsoil. When additional development occurs at a site that has existing development, the built-upon area of the existing development shall not be included in the density calculations for additional stormwater control requirements, and stormwater control requirements cannot be applied retroactively to existing development, unless otherwise required by federal law.

*Operational definition based on the above: **Development Expansion:** land-disturbing activity that does result in a net increase in built-upon area, which is added to some built-upon area that is already onsite. This BUA may be considered “existing” (and not subject to current stormwater regulations), or it may have been installed after local implementation of new Rule requirements and subject to the same stormwater regulations that additional BUA is subject to. Commonly phrased in the Neuse and Tar-Pamlico Stormwater Rules as “projects that would replace or expand existing structures and result in a net increase in built-upon area”.*

*Operational definition based on the above: **New Development:** land-disturbing activity that adds built-upon area to a site that does not currently have any BUA. Also called “greenfield development”.*

Redevelopment (from NCGS 143-214.7): Any land-disturbing activity that does not result in a net increase in built-upon area and that provides greater or equal stormwater control to that of the previous development.

Note: Redevelopment can include completely demolishing and rearranging onsite built-upon area, as long as there is no net increase in BUA. This activity is exempt from Nutrient Management Strategy New Development Stormwater Rules.

Built-Upon Area (BUA) (from NCGS 143-124.7): impervious surface and partially impervious surface to the extent that the partially impervious surface does not allow water to infiltrate through the surface and into the subsoil. "Built-upon area" does not include a slatted deck; the water area of a swimming pool; a surface of number 57 stone, as designated by the American Society for Testing and Materials,

laid at least four inches thick over a geotextile fabric; a trail as defined in G.S. 113A-85 [*Note: recodified to NCGS 143B-135.94*] that is either unpaved or paved as long as the pavement is porous with a hydraulic conductivity greater than 0.001 centimeters per second (1.41 inches per hour); or landscaping material, including, but not limited to, gravel, mulch, sand, and vegetation, placed on areas that receive pedestrian or bicycle traffic or on portions of driveways and parking areas that will not be compacted by the weight of a vehicle, such as the area between sections of pavement that support the weight of a vehicle.

Note: DWR interprets “structures” as it occurs in the Neuse and Tar-Pamlico Stormwater Rules to be synonymous with BUA. See Operational Definitions of Built-Upon Area below for more detailed descriptions of determining how to apply Nutrient Management Strategy Rules when there is onsite Built-Upon Area.

Existing development (from 15A NCAC 02H .1002): those projects that are built or those projects that have established a vested right under North Carolina law as of the effective date of the state stormwater program or applicable local government ordinance to which the project is subject.

*Operational definition based on the above: **Existing Development:** development - specifically BUA - that was installed before or had vested rights relative to the effective date of the relevant State stormwater rule or local ordinance implementing a state rule. For purposes of applying Nutrient Management Strategy Rules, this would be relative to when the local government adopted the relevant nutrient rule requirements. With regard to revised Rules, the “existing BUA clock” would reset to the adoption date of the new Rule requirements. This is needed to accommodate changes in applicability and nutrient calculation between old and new nutrient rules, and the presence of SCMs or nutrient offsets installed/acquired under older nutrient Rules. As with redevelopment, this landuse is exempt from Nutrient Management Strategy New Development Stormwater Rules.*

The 02H .1002 rule is tied to the stormwater statute Ch. 143-214.7. The 2H definition of Existing Development interprets the use of that term in the statute. The Neuse and Tar-Pamlico Stormwater rules tie in to the 2H .1000 rules, including to define “project” and “project area”. They also incorporate the requirements and constraints of 143-214.7 regarding expansions, which involves the Existing Development concept supported by the 02H .1002 definition.

Existing Development (Nutrient Strategies Definitions Rule 02B .0701): refers to “structures and other land modifications resulting from development activities...”

[Note: This rule provides definitions applicable to use of the listed terms within nutrient strategy rules of Section 02B .0700. The Existing Development term is used in the Jordan and Falls Existing Development Stormwater rules, but not in various Nutrient Management Strategies’ New Development Stormwater rules. The Neuse and Tar-Pamlico Stormwater rules do not use the term “existing development” in any discussion of expansion. The existing development term is used once in each of these rules, explicitly as defined in rule 02H .1002 rather than 02B .0701, to recognize it as exempt. Thus the 02B .0701 definition for Existing Development does not apply to the Neuse or Tar-Pamlico Stormwater rules.]

Project (from 02H .1002): the proposed development activity for which an applicant is seeking a stormwater permit from the state or other entity in accordance with this [.1002] section. “Project” shall exclude any land adjacent to the area disturbed by the project that has been counted as pervious by any

other development regulated under a federal, State, or local stormwater regulation. Owners and developers of large developments consisting of many linked projects may consider developing a master plan that illustrates how each project fits into the design of the large development.

*Operational definition based on the above: **Project Area** (in consideration of 143-214.7 which bars the state from requiring stormwater treatment for existing development when expansion of development occurs, and 2H .1002 which defines “project”): The entirety of a parcel minus Existing BUA. Generally, this will be all the pervious areas plus all of the Cumulative BUA. “Project” is also viewed as the development at buildout.*

Note: DWR interprets the terms “onsite” and “parcel” as they occur in the Neuse and Tar-Pamlico Stormwater Rules to be synonymous with the project area.

Common plan of development (from 15A NCAC 02H .1002): means a site where multiple separate and distinct development activities may be taking place at different times on different schedules but governed by a single development plan regardless of ownership of the parcels. Information that may be used to determine a "common plan of development" include plats, blueprints, marketing plans, contracts, building permits, public notices or hearings, zoning requests, and infrastructure development plans.

Operational application: We interpret “proposed development activity” (from the .1002 definition of “project”) to include the entirety of a common plan of development, whether different builders implement individual lots or phases, or an institutional/campus situation where there may be ongoing development expansion over a long period of time. A construction or land disturbing activity is part of a larger common plan of development if it is completed in one or more of the following ways: in separate stages, in separate phases, or in combination with other construction activities.

Appendix B

Nutrient Calculation Guidance

While more specific nutrient calculation guidance will be issued with the revised SNAP Tool, as well as part of the outreach and training for local government staff prior to their local implementation, we offer the following overview of steps for nutrient calculations and how they apply to Rule requirements. These concepts can be useful to local governments when preparing operating procedures and other internal guidance.

Operational Terms for Use in Calculating Nutrient Export

Existing BUA (AKA “preexisting BUA”, “existing development”): BUA built/vested prior to local/state implementation of the most recent version of the applicable Nutrient Stormwater Rule. * See Note.

Regulated BUA (AKA “onsite BUA”): BUA built/vested after the local/state implementation of the most recent version of the applicable Nutrient Stormwater Rule, this BUA is in existence at the time a developer seeks a permit to install New BUA. * See Note.

New BUA: BUA the developer is seeking a permit to install; can include replacement of Existing BUA and/or Regulated BUA. This area is part of the total Disturbed Area.

Net Increase BUA: New BUA minus any BUA that is demolished and replaced with BUA anywhere onsite. Net Increase BUA must be > 0 for Nutrient Stormwater Rules to apply.

Cumulative BUA: Includes all Regulated BUA and Net Increase BUA – Cumulative BUA is used for calculating Project Density (%BUA), and is subject to Stormwater Rules and Nutrient Targets, depending on provided stormwater treatment, nutrient offsets, and other exemptions and exceptions that may apply.

** Note: BUA is considered “still present” if demolished but still remains impermeable (such as reduced to a gravel parking area). BUA can be permanently removed in one area and replaced in another area for no net change in BUA. BUA is permanently removed from the total area of Existing BUA or Regulated/onsite BUA if demolished/removed and followed up with planting, seeding and strawing, or other work to restore rain infiltration, such as deep soil ripping.*

General Rule Interpretations and Calculation Guidance

- NCGS 143-214.7 bars the state from requiring stormwater treatment for existing development. It also establishes that the area of Existing BUA, or the equivalent amount if it is rebuilt, is to be removed from calculations of project area and project density. Project density calculation brings in the pervious areas of the project. Analogous application of the statute to nutrient rules recognizes that nutrient export calculations involve both the BUA and all the pervious area and would remove the area of existing BUA from the entire calculation on an expansion project. DWR does not consider the resulting determination of nutrient export against a required export target as requiring additional stormwater treatment. In particular, including the pervious areas

of a development in the export rate determination is not considered requiring treatment of existing development. In fact, doing so would only reduce treatment requirements.

- Projects meeting “runoff volume match” (defined in 15A NCAC 02H .1002) are assumed to meet nutrient requirements.
- New Rules apply to older lots, but not the Existing BUA on them.
- For any BUA addition that exceeds disturbance thresholds, but Cumulative BUA remains below or equal to 24%, we interpret the rules to require low-density stormwater design. Nutrient targets may be achieved solely through offsets. Low-density stormwater design includes non-eroding stormwater outlets, dispersed flow, vegetated conveyances, optional curb outlet systems, and vegetated setbacks as applicable or otherwise required.
- For any BUA addition that exceeds disturbance thresholds, and Cumulative BUA exceeds 24%, we interpret the rules to require high-density stormwater design, including onsite SCMs or an offsite regional SCM. Nutrient offsets may be used to meet targets not reached by onsite stormwater. High-density stormwater design includes non-eroding stormwater outlets, vegetated setbacks as applicable or otherwise required, and treatment of runoff volume from a 1” storm (or greater where specified by Rule) from all Cumulative BUA by onsite SCMs or a regional offsite SCM.
- A public road expansion/sidewalk project, or other project subject to the Surface Transportation Board, may meet nutrient targets solely through nutrient offsets.
- Net Increase BUA must be > 0 for any Nutrient Stormwater Rule to apply.
- Project Area = Cumulative BUA + all pervious area on the lot.
- Development applications are reviewed for compliance with Riparian Protection Rules.
- No disturbance threshold for commercial/industrial/mixed/etc. when:
 - Net Increase BUA > 0, and
 - Cumulative BUA > 24%, and
 - **any type** of onsite BUA is present, **Existing or Regulated**
- BUA installed under an earlier nutrient Rule would be considered Existing BUA and excluded from density calculation.
- Addition of Net Increase BUA complicates nutrient calculation when it is interspersed with SCMs installed under previous rules or where it is interspersed with existing BUA and drainage cannot be separated. It is recommended to consult with DWR on nutrient calculation in this case.
- BUA, nutrient calculations, SCM treatment, and nutrient offsets approved under the previous Rules are grandfathered.
- Runoff from Existing BUA can be treated in a new SCM in place of runoff from Cumulative BUA.
 - Runoff from Existing BUA treated in an onsite SCM is treated as if it is a nutrient/stormwater credit.
 - It can be used to offset stormwater treatment requirements of Cumulative BUA if it treats the same volume of runoff.
 - It can be used to offset nutrient treatment requirements of Cumulative BUA if it offsets at least the same amount of nutrient reduction.
- Offsite run-on is handled like runoff from Existing BUA.

- If some of the Cumulative BUA is already being treated, the SCM and its BUA should be handled like a “retrofit” situation (i.e. putting a new SCM into a landscape where there already is one). It is recommended to consult with DWR on nutrient calculation in this case.
- More stringent local stormwater requirements may exist. The SNAP tool will not be able to tell you whether stormwater treatment requirements exist beyond what is needed to meet nutrient targets.
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Development Cases Explained for Nutrient Calculation

The following list walks through the simplest development cases and notes where nutrient calculations or stormwater treatment would be required. Additional calculation details and steps will be provided with the revised SNAP tool. Cases assume that single-family lots in a development are handled as a Common Plan of Development. All cases assume Net Increase BUA > 0 and that BUA limits are not exceeded, or there is a local approach to handling BUA limits. “Greenfield” assumes there is no BUA on site, either Existing BUA or Regulated BUA.

1. First, follow more stringent local disturbance thresholds, density thresholds, or stormwater standards if they exist. These may include water supply watershed protection, coastal stormwater, or non-coastal high-quality waters or outstanding resource waters.
2. SFR/duplex, disturbance < 1ac
 - **Below threshold** for running nutrient calculations and requiring stormwater treatment
3. SFR/duplex, disturbance ≥ 1ac
 - If Cumulative BUA > 24%, → nutrient calcs for project area, **high-density stormwater** design for all Cumulative BUA
 - If Cumulative BUA ≤ 24% AND > 5% → nutrient calcs for project area, **low-density** stormwater design for all Cumulative BUA
 - If Cumulative BUA ≤ 5% AND PART OF Common Plan of Development → nutrient calcs for project area, **low-density stormwater** design for all Cumulative BUA
 - If Cumulative BUA ≤ 5% AND NOT PART OF Common Plan of Development → **below threshold** for nutrients and requiring stormwater treatment
4. Comm/Ind, disturbance ≥ 0.5ac
 - If Cumulative BUA > 24% → nutrient calcs for project area, **high-density stormwater** design for all Cumulative BUA
 - If Cumulative BUA ≤ 24% → nutrient calcs for project area, **low-density** stormwater design for all Cumulative BUA
5. Comm/Ind, disturbance < 0.5ac
 - Greenfield, any amount of New BUA → **below threshold** for nutrients and requiring stormwater treatment
 - Expansion, Cumulative BUA > 24% → nutrient calcs for project area, **high-density stormwater** design for all Cumulative BUA
 - Expansion, Cumulative BUA ≤ 24% → **below threshold** for nutrients and requiring stormwater treatment

The following list describes in detail the development scenario cases that DWR anticipates a local government might encounter and recommends the nutrient calculation steps that may be needed. These cases are set up to scope out how nutrient calculations should be done in a strict BUA tracking permitting approach. Developments permitted using density or other averaging can use these instructions for new development. All scenarios assume Net Increase BUA > 0 and that BUA limits are not exceeded, or there is a local approach to handling BUA limits. “Greenfield” assumes there is no BUA on site, either Existing BUA or Regulated BUA.

Case 1: Completely New Development and Expansion of Development, Isolated SFR/duplex, Cumulative BUA ≤ 5%:

- Comes in below Rule nutrient and stormwater thresholds for Neuse and Tar-Pamlico (Falls & Jordan not included)

Case 2: Completely New Development (Greenfield) Post-Rule:

- Applies to these landuse scenarios (Neuse and Tar-Pamlico applicability – Falls & Jordan not included):
 - Greenfield Isolated SFR/duplex, disturbance ≥ 1ac AND Cumulative BUA > 5%
 - Greenfield Common Plans of Development (SFR/duplex), disturbance ≥ 1ac
 - Greenfield Comm/ind/mixed (Isolated or CPOD), disturbance ≥ 0.5 ac
- Project Calculations:
 - New BUA = Net Increase BUA = Cumulative BUA = All onsite BUA
 - Project area = Cumulative BUA + remaining permeable area
 - Project density = Cumulative BUA / Project Area
 - Nutrient calculations include the entirety of the Project Area.
- Cumulative BUA ≤ 24%:
 - Low-density stormwater design
 - Nutrient targets may be met entirely with nutrient offsets.
- Cumulative BUA > 24%:
 - Stormwater treatment of runoff volume from Cumulative BUA is onsite or using regional offsite.
 - New SCM must be sized for whatever volume drains to it. This may include more than the required volume.
 - Treatment of runoff volume from offsite run-on can be used in place of treatment of runoff volume from Cumulative BUA.
 - Nutrient offsets may be used to meet remaining nutrient reduction need after determining reduction provided by stormwater treatment.
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Case 3: Expansion of Post-Rule BUA:

- Applies to these landuse scenarios (Neuse and Tar-Pam applicability – Falls & Jordan not included):
 - Expansion of SFR/duplex, disturbance ≥ 1ac part of Common Plan of Development
 - Expansion of SFR/duplex, disturbance ≥ 1ac, Cumulative BUA > 5%, and not part of Common Plan of Development

- Expansion of Comm/ind, disturbance ≥ 0.5 ac
- Expansion of Comm/ind, disturbance < 0.5 ac AND Cumulative BUA $> 24\%$
- NOTE: expansion of BUA should not be allowed if development or lot-level BUA limits have been reached
- Project Calculations:
 - Cumulative BUA = Net Increase BUA + onsite BUA (not considered “existing BUA” because of installation date)
 - Project area = Cumulative BUA + remaining permeable area
 - Project density = Cumulative BUA / Project Area
 - Nutrient calculations include the entirety of the Project Area. Subtract the previous nutrient reduction provided by any SCMs and/or nutrient offsets from the new total nutrient reduction need to get the remaining nutrient reduction need. Additional nutrient reduction provided with new SCMs or nutrient offsets starts with the remaining nutrient reduction need (new total nutrient reduction need – reduction provided through previous SCM). Additional nutrient targets may be met with nutrient offsets if additional onsite stormwater is not used.
- Cumulative BUA $\leq 24\%$, no previous SCMs:
 - Low-density stormwater design for Net Increase BUA
 - New post-construction nutrient targets may be met entirely with nutrient offsets. Subtract already-acquired offsets from the total reduction amount to determine additional buy-down need.
- Cumulative BUA $> 24\%$, no previous SCMs:
 - Stormwater treatment must be installed onsite or using regional offsite, treating runoff volume from all Cumulative BUA or equivalent volume. This is regardless of already-acquired nutrient offsets.
 - New SCM must be sized for whatever volume drains to it. This may include more than the required volume.
 - Treatment of runoff volume from offsite run-on can be used in place of treatment of runoff volume from Cumulative BUA.
 - Nutrient offsets may be used to meet remaining nutrient reduction need after determining reduction provided by stormwater treatment and any previous offsets.
- Cumulative BUA $> 24\%$, previous SCMs present:
 - Additional stormwater treatment must be installed onsite or using regional offsite, treating runoff volume from any Cumulative BUA that is not already treated by an SCM, or equivalent volume. This is regardless of already-acquired nutrient offsets.
 - Treatment of runoff volume from Existing BUA or offsite run-on can be used in place of treatment of runoff volume from Cumulative BUA.
 - Existing SCMs may be redesigned and their nutrient reduction recalculated instead of adding SCMs.
 - New or redesigned SCM must be sized for whatever volume drains to it. This may include more than the required volume.
 - Nutrient offsets may be used to meet remaining nutrient reduction need after determining reduction provided by stormwater treatment and any previous offsets.
 - Recommend contacting DWR for guidance on nutrient calculation, especially if existing SCMs are present or previous nutrient offsets exist.

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Case 4: Expansion of Existing BUA:

- Applies to these landuse scenarios (Neuse and Tar-Pam applicability – Falls & Jordan not included):
 - Expansion of SFR/duplex, disturbance ≥ 1 ac part of Common Plan of Development
 - Expansion of SFR/duplex, disturbance ≥ 1 ac, Cumulative BUA $> 5\%$, and not part of Common Plan of Development
 - Expansion of Comm/ind, disturbance ≥ 0.5 ac
 - Expansion of Comm/ind, disturbance < 0.5 ac AND Cumulative BUA $> 24\%$
 - NOTE: expansion of BUA should not be allowed if development or lot-level BUA limits have been reached
- Project Calculations:
 - Cumulative BUA = Net Increase BUA + Post-Rule BUA (if any) Exclude Existing (Pre-Rule) BUA.
 - Project Area = Cumulative BUA + remaining permeable area. Exclude Existing (Pre-Rule) BUA.
 - If Existing BUA is being removed, double-check Net Increase BUA, especially for determining Project Area. Ensure total amount of Existing BUA is excluded even if some is removed.
 - Project density = Cumulative BUA / Project Area
 - Nutrient calculations include the entirety of the Project Area.
- Cumulative BUA $\leq 24\%$, no previous SCMs:
 - Low-density stormwater design for Net Increase BUA
 - New post-construction nutrient targets may be met entirely with nutrient offsets. Subtract already-acquired offsets from the total reduction amount to determine additional buy-down need.
- Cumulative BUA $> 24\%$, no previous SCMs:
 - Stormwater treatment must be installed onsite or using regional offsite, treating all runoff volume from Cumulative BUA or equivalent volume. This is regardless of already-acquired nutrient offsets.
 - Treatment of runoff volume from Existing BUA or offsite run-on can be used in place of treatment of runoff volume from Cumulative BUA.
 - New SCM must be sized for whatever volume drains to it. This may include more than the required volume.
 - Nutrient offsets may be used to meet remaining nutrient reduction need after determining reduction provided by stormwater treatment and any previous offsets.
 - New SCM must be sized for whatever volume drains to it. This may include more than the required volume.
- Cumulative BUA $> 24\%$, previous SCMs present:
 - Additional stormwater treatment must be installed onsite or using regional offsite, treating any runoff volume Cumulative BUA that is not already treated by an SCM or equivalent volume. This is regardless of already-acquired nutrient offsets.

- Treatment of runoff volume from Existing BUA or offsite run-on can be used in place of treatment of runoff volume from Cumulative BUA.
- New or redesigned SCM must be sized for whatever volume drains to it. This may include more than the required volume.
- Recommend contacting DWR for guidance on all nutrient calculations in this scenario.
- Nutrient offsets may be used to meet remaining nutrient reduction need after determining reduction provided by stormwater treatment and any previous offsets.
- Nutrient export and treatment calculations are held steady (i.e. old values are honored in spite of calculation changes with new Tool) for Existing BUA and Existing SCMs unless there is change to the SCM or the SCM's catchment. See the DWR Nutrient Catalog for general principles and contact DWR for guidance on nutrient calculation.
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