*Draft* - Model Program for Existing Development Stormwater

Falls Lake Nutrient Strategy



Cedar Creek Arm, Falls Lake

For the January 2021 Meeting

of the N.C. Environmental Management Commission

Developed by the N.C. Division of Water Resources

Nonpoint Source Planning Branch



Table of Contents

[1.0 Introduction 4](#_Toc51102074)

[1.1 Preliminary Estimate of Stage I Load Reduction Need 5](#_Toc51102075)

[2.0 Required Elements of Local Programs 6](#_Toc51102076)

[2.1 Estimated Stage I Load Reduction Needs 6](#_Toc51102077)

[2.2 Load Reduction Measures Opportunity Assessment 6](#_Toc51102078)

[2.2.1 Updated Set of Measures 7](#_Toc51102079)

[2.2.2 Stormwater and Ecosystem Practices 8](#_Toc51102080)

[2.2.3 Wastewater Practices 8](#_Toc51102081)

[2.2.4 Optional Practices 9](#_Toc51102082)

[2.3 Implementation Plan 9](#_Toc51102083)

[2.3.1 Implementation Plan Elements Reorganized 10](#_Toc51102084)

[3.0 Calculation of Stage I Load Reduction Needs 13](#_Toc51102085)

[3.1 What is Existing Development 13](#_Toc51102086)

[3.1.1 Interim Development Period 14](#_Toc51102087)

[3.1.2 Spatial Extent of Development Analysis 14](#_Toc51102088)

[3.2 Overview - Calculating Stage I Load Reduction Needs 15](#_Toc51102089)

[3.3 Calculating Stormwater Loads 15](#_Toc51102090)

[3.4 Calculating Onsite Wastewater Loads 16](#_Toc51102091)

[3.4.1 Step 1: Determine number of onsite systems 17](#_Toc51102092)

[3.4.2 Step 2: Determine system malfunctioning rate(s). 17](#_Toc51102093)

[3.4.3 Step 3: Determine annual loads generated by malfunctioning septic systems. 17](#_Toc51102094)

[3.4.4 Step 4: Determine the number, types, and sizes of discharging sand filter systems. 18](#_Toc51102095)

[3.4.5 Step 5: Determine annual loads generated by discharging sand filter systems. 18](#_Toc51102096)

[3.5 Adjusting Stage I Load Reductions For Annexations 18](#_Toc51102097)

[4.0 Joint Compliance Option 19](#_Toc51102098)

[5.0 Process for Developing and Implementing Load Reduction Programs 21](#_Toc51102099)

[5.1 Updating Local Programs 22](#_Toc51102100)

[5.2 Special Implementation Considerations 22](#_Toc51102101)

[5.3 Terminating Participation in Joint Compliance Approach 22](#_Toc51102102)

[6.0 Annual Reporting 23](#_Toc51102103)

[6.1 Required Information 23](#_Toc51102104)

[6.2 Report Due Date 24](#_Toc51102105)

[7.0 Trading 25](#_Toc51102106)

[Appendix A - Lists of Affected Parties 26](#_Toc51102107)

[Appendix B - Applicable Rules 27](#_Toc51102108)

[Appendix C - Falls Lake Rules Regulatory Background & History 39](#_Toc51102109)

# 1.0 Introduction

The Falls Existing Development Rule (15A NCAC 02B .0278) requires local governments to develop and implement load reduction programs to reduce nutrient loading from existing developed lands under their control in the watershed. Implementation is divided into two Stages, with Stage I calling for reductions in loading back to 2006 baseline levels, and additional reductions called for in Stage II that equate to the full percentage reduction goals of the strategy.

The Rule calls on the Division of Water Resources to develop a model program that affected parties can use to guide development of their mandated load reduction programs. This model program was developed with input from the regulated community to provide an organizing structure for affected parties to utilize, and identify minimum elements to include in their Stage I program submittals. Also included is interpretive guidance addressing technical decisions associated with development of local programs.

Affected parties have the option to comply with the requirements of the Rule through either implementation of a local load reduction program, or by working together per Item (6) of the Rule, which allows for implementation through a joint compliance approach.

*(6) “A municipality shall have the option of working with the county or counties in which it falls, or with another municipality or municipalities within the same subwatershed, to jointly meet the loading targets from all lands within their combined jurisdictions within a subwatershed. A local government may utilize private or third party sellers. All reductions involving trading with other parties shall meet the requirements of Rule 15A NCAC 02B .0282.”*

The required elements for the local program and joint compliance options are discussed in Sections 2.0 and 4.0, respectively.

The Falls State & Federal Stormwater Rule (15A NCAC 02B .0281) also requires a model program to be developed for state and federal entities. This document is provided as a model for both local governments and state and federal entities. Much of its content will be useful for larger state & federal entities in the watershed, such as universities and state-owned hospitals and correctional facilities. State & federal entities with small parcel-sized holdings will have much simpler existing development implementation needs. Fundamentals of this model program’s guidance will be useful to them as well, and the Division.

Once this model program is approved by the Commission, affected parties have six months to submit and begin implementing their local programs. Load reduction programs submitted will be reviewed by Division staff for how fully they meet the approval standards identified in this model program. Staff will provide written feedback to parties identifying any further information needs or program deficiencies, and will request modifications accordingly.

## 1.1 Preliminary Estimate of Stage I Load Reduction Need

To provide an indication of the scale of reductions needed from existing development during Stage I of implementation, the Division developed a preliminary estimate of the combined reduction need for the fourteen local governments located in the watershed. This estimate, provided in Table 1, was generated using data compiled by the Falls local governments on development in their jurisdictions in the watershed between 2006 and 2012. It is a partial estimate of the Stage I existing development load reduction need, as it does not include estimates of loading from existing development attributed to state or federal entities, nor does it fully capture the load from failing onsite wastewater and discharging sand filter systems.

A preliminary GIS analysis of the state and federal lands parcel dataset found limited increases in impervious surface between 2006 and 2011 relative to the extent of private development, suggesting that state/federal Stage I reduction needs will be small in comparison to the local development estimates provided in Table 1 below.

Data on malfunctioning onsite wastewater systems installed during the interim period were provided by four of the six counties in the watershed. Division staff used the data to estimate onsite wastewater loading from these four counties, and included the results in the loading ranges provided in Table 1. Additional data collection will be needed by local governments before approval of their load reduction programs for a complete loading estimate that includes the contributions from malfunctioning onsite systems and discharging sand filters.

The Falls Rules task the Division with providing the methods affected parties will use for calculating their load reduction needs. Section 3 of this Model Program provides the basic instructions for calculating load reduction needs and expectations for supporting documentation. Loading estimates for state and federally owned lands with large holdings as well as complete accounting for loading from malfunctioning onsite wastewater treatment systems and discharging sand filter systems will be developed through future efforts with the appropriate local governments and state and federal entities and addressed in their individual Stage I local programs as needed.

The Division will provide assistance as needed as affected parties coordinate with staff to finalize their estimated load reduction assignments. Staff will review the Stage I estimates and work together with affected parties to resolved any issues before the load reduction needs are finalized.

**Table 1. Combined Preliminary Estimate of Stage I Load Reduction Needs for Falls Local Governments**

|  |  |
| --- | --- |
| **Total Nitrogen (lbs.)** | **Total Phosphorus (lbs.)** |
| 6,767 - 15,867 | 917 – 2,017 |

Any affected party choosing to meet the rule requirements through implementation of a local program will need to collaborate with the Division to develop their final individual Stage I load reduction needs following the methods discussed in Section 3.0 to include in their local program for Commission approval.

# 2.0 Required Elements of Local Programs

Item (4) of the rule sets out required and optional elements of local programs. This section offers a logical organization of the required elements along with interpretive guidance for meeting the rule’s intent. For each requirement set out in the rule, rule text is cited here and followed with interpretive guidance on how to comply. Rule requirements fall into the following four areas:

* Stage I Load Reduction Needs
* Load Reduction Measures Opportunity Assessment
* Implementation Plan
* Annual Reporting Plan

## 2.1 Estimated Stage I Load Reduction Needs

Sub-Item (3)(a) of the Rule establishes the following load reduction requirement for Stage I of implementation:

*(3)(a) “In Stage I, a local government subject to this Rule shall implement a load reduction program that provides estimates of, and plans for offsetting by calendar year 2020, nutrient loading increases from lands developed subsequent to the baseline period and not subject to the requirements of the local government's Falls Lake new development stormwater program."*

Thus, each local program shall include an estimate of the nitrogen and phosphorus loading from existing development to be offset during Stage I implementation, and shall provide supporting information and a description of how they calculated the loads in accordance with the Rule. **Section 3** provides detailed guidance on development of these load reduction targets.

The reference here to “loading”, given that it does not further specify, is taken as total loading, encompassing both stormwater surface runoff and subsurface inputs to streams and to the lake. As made plain through the rule, units of loading are annual mass load, in pounds per year.

Regarding the 2020 compliance date, subsequent legislation (S.L. 2016-94 and S.L. 2018-5) revised the end of Stage I implementation to correspond with the readoption of Stage II rules for Falls, which may occur in the 2026 -2027 timeframe, effectively giving parties seven years to achieve their Stage I load reduction needs.

## 2.2 Load Reduction Measures Opportunity Assessment

Per Sub-Items (4)(l) through (4)(n) of the Rule, local governments shall include in their programs an evaluation of the nitrogen and phosphorus load reduction potential, as well as potential opportunities for, and overall feasibility of, available nutrient reducing activities. This section first provides current information on the range of practices listed in these rule sub-items, and follows by outlining a recommended process a community can undertake to identify its practice implementation options and priorities.

### 2.2.1 Updated Set of Measures

Table 2 below provides the list of practices included in Sub-Items (4)(l) through (4)(n) of the Rule. Details of the nutrient credits and design standards for these practices and any additional practices developed by DWR or by a third party to be vetted by the Nonpoint Source Planning Program and approved by the Division Director are located in the North Carolina Nutrient Catalog. (Note: A copy of the Nutrient Catalog will be posted on the DWR’s Nonpoint Source Planning Branch website once it is approved by the Director).

The Nutrient Catalog was developed in 2020 as a single reference resource with the most up to date list of eligible nutrient-reducing practices. For most practices to date, design standards reside with the originating program, such as DEMLR’s Stormwater Program, and the Catalog provides reference information to those sources. Additionally, it outlines a streamlined process for approving design standards and associated credit for future candidate types of nutrient load-reducing measures. The catalog also includes supporting information for the different types of practices such as scoping-level cost estimates, efficiencies, operation/maintenance and monitoring requirements.

Some practices listed in Table 2 have changed in name since the rule was adopted. For such cases, the new name for the practice directly follows the rule name *in italics*. The table also identifies established credit methods, locations of credit methods, or other orienting practice information.

**Table 2. Status of Practices Listed in Sub-Items (4)(l) through (4)(n) of Rule .0278**

|  |
| --- |
| **Stormwater & Ecosystem Restoration Activities***(4) (l) The program shall address the extent of load reduction proposed from the following stormwater and ecosystem restoration activities:*  |
| **Practice Name (Updated name in *Italics*)** | **Credit Status**  | **Reference / Notes** |
| Bioretention | Approved | SNAP Tool |
| Constructed wetland | Approved  | SNAP Tool |
| Sand filter | Approved  | SNAP Tool |
| Filter strip / *Level Spreader Filter Strip* | Approved | SNAP Tool |
| Grassed swale / *Pollutant Removal Swale* | Approved | SNAP Tool |
| Infiltration device | Approved  | SNAP Tool |
| Extended dry detention / *Dry Pond* | Approved  | SNAP Tool |
| Rainwater harvesting system | Approved  | SNAP Tool |
| Treatment of redevelopment | Approved  | SNAP Tool |
| Overtreatment of new development | Approved | SNAP Tool |
| Removal of Impervious Surface / *Impervious Surface Conversion* | Approved | SNAP Tool |
| Retrofitting treatment into existing stormwater ponds | Approved | SNAP Tool |
| Off-line Regional Treatment Systems | Not developed | n/a |
| Wetland Restoration | Not developed | n/a |
| Riparian Buffer Restoration / *Riparian Revegetation* | Approved\* | Ag Buffers Only |
| Reforestation w/ conservation easement of protective covenant | Approved | SNAP Tool |
| **Wastewater Activities***(4) (m) The program shall evaluate the load reduction potential from the following wastewater activities:*  |
| Creation of surplus relative to allocation established in rule | Approved | Per .0279 |
| Expansion of surplus allocation through regionalization | Approved | Per .0279 |
| Connection of DSF and MSS to sewer or other remedy | Approved\* | Director Approved, DSF Only |
| Removal of illegal discharges | Approved | Director Approved |
| Improvement of wastewater collection systems | Approved | Director Approved |
| **Optional Practices***(4)(n) A local government may propose in its load reduction program the use of the following measures in addition to items listed in (l) and (m), or may propose other measures for which it can provide accounting methods acceptable to the Division:*  |
| Redirecting runoff away from impervious surface / *Disconnecting Impervious Surfaces (DIS)* | Approved | SCM Credit Document |
| Soil Amendments | Approved | Director Approved |
| Stream Restoration | Under development | Developing separable components |
| Improved Street Sweeping | Approved | Director Approved |
| Source control: pet waste and fertilizer ordinances | Not developed | n/a |

Reference Documents:

 **NC DEMLR SCM Credit Document:** <https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/BMP%20Manual/SSW-SCM-Credit-Doc-20170807.pdf> **NC DWR SNAP TOOL:** <https://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-offset-information#stormwater-nutrient-accounting-tools>

### 2.2.2 Stormwater and Ecosystem Practices

Fourteen of the sixteen stormwater and ecosystem restoration activities listed in Sub-Item (4)(l) have been approved for nutrient reduction credit calculated with the Division’s Stormwater Nitrogen and Phosphorus Accounting Tool (SNAP). Credit accounting for riparian revegetation is currently limited to the practice of restoring riparian forested buffers on agricultural lands. However, the Division is developing design standards and crediting for the practice of improving riparian zones in urban landscapes. Regarding the remaining two stormwater or ecosystem activities, the Division does not intend to develop stand-alone credit accounting; wetland restoration remains a highly site-specific activity with a highly varied research literature, and off-line regional treatment systems encompasses several potential practices which would need to be addressed individually as implementation potential and interest dictate.

### 2.2.3 Wastewater Practices

All five wastewater activities listed in Sub-Item (4)(m) of the Rule have approved nutrient accounting*.* The creation of surplus credit relative to point source allocations and expansion of surplus allocation through regionalization are activities that can be pursued under the requirements set forth in the Falls Wastewater Rule (.0279). Removal of illegal discharges and improvements to wastewater collection systems, and the practice of remedying discharging sand filters were approved for credit by the Division in 2017 and 2019, respectively. Design specifications and nutrient crediting for remedying malfunctioning septic systems is currently under development and is expected to utilize results of additional watershed modeling being conducted by the Upper Neuse River Basin Association in the Falls watershed, which will provide updated data on the nutrient loading from these systems.

### 2.2.4 Optional Practices

The evaluation of practices listed in Sub-Item (4)(n) is optional for affected parties, unlike the practices listed in Sub-Items (4)(l) and (m). The practice of redirecting runoff away from impervious surfaces (now referred to as Disconnecting Impervious Surface) is credited through use of the NCDEMLR SCM Credit Document. Soil amendments (now referred to as Soil Improvement) as well as the practice of Street Sweeping were approved for credit by the Division in 2017 and 2019, respectively.

Credit has not yet been established for source controls such as pet waste and fertilizer ordinances, but their potential will be evaluated through future collaborative efforts with affected parties and subject matter experts. Stream restoration is arguably the most challenging and complex credit determination of all the optional practices. The Division has conducted significant evaluation of this practice, starting with the Chesapeake crediting approach, and has funded in-state research to address knowledge gaps. Based in part on the findings of this research, staff is still exploring the best approach for developing design specifications and credit accounting for the multiple components of this practice. Given the complex nature of this practice the Division plans to engage relevant subject matter experts and the NSAB to assist in the development and approval of by the end of 2021.

Affected parties may also propose using other measures beyond those they are required to evaluate per the Rule if they can provide accounting methods acceptable to the Division. The Division approval process for such measures is detailed in the Catalog***.*** The Catalog also provides guidance on establishing credit for novel practice installations where a practice’s nutrient reduction performance may be insufficiently studied to provide a basis for assigning presumptive credit.

## 2.3 Implementation Plan

A central element of a local program is the implementation plan laying out a projected implementation schedule, annual implementation expectations regarding the number and type of measures and activities to be implemented and the associated the nutrient reductions to be achieved. The complete list of elements to address in the plan are found in sub-items (4)(i) through (4)(k) and (4)(o) of the Rule. The requirements of these sub-items are all interrelated and in many cases require additional guidance. In order to provide affected parties a clearer understanding of the elements to be addressed in the implementation plan the applicable rule language is provided below. This is followed by a reorganization of the elements in a consolidated more logical order followed by guidance for addressing the specific requirements.

The required elements have been rearranged in order to provide clarity on how the different components of the rule relate to one another. Affected parties are free to reorganize these elements in their proposed plans in the manner that makes the most sense to them just so long as they address all of the elements listed.

*(4)(i) “The program shall include a proposed* ***implementation schedule*** *that includes annual implementation expectations. The load reduction program shall identify the* ***types of activities*** *the local government intends to implement and* ***types of existing development*** *affected, a* ***prioritization of practices****,* ***magnitude of reductions*** *it expects to achieve from each, and the* ***costs and efficiencies*** *of each activity to the extent information is available. The program shall identify the* ***duration of anticipated loading reductions****, and may seek activities that provide long-term reductions;*

*(4)(j) “The load reduction program shall identify anticipated* ***funding mechanisms or sources*** *and discuss* ***steps take or planned to secure such funding****;”*

*(4)(k) “The program shall address the* ***extent of load reduction opportunities*** *intended from the following* ***types of lands****:*

*(i) Lands owned or otherwise controlled by the local government;*

*(ii) Each land use type of privately owned existing development including projected redevelopment, on which the local government's load reduction need is based as described in this Item; and*

*(iii) Lands other than those on which the local government's load reduction need is based as described in this Item, including lands both within and outside its jurisdiction and including the use of interlocal agreements and private third party sellers;”*

*(4)(o) “The program shall include evaluation of* ***load reduction potential*** *relative to the following*

***factors****:*

*(i) Extent of physical opportunities for installation;*

*(ii) Landowner acceptance;*

*(iii) Incentive and education options for improving landowner acceptance;*

*(iv) Existing and potential funding sources and magnitudes;*

*(v) Practice cost-effectiveness (e.g., cost per pound of nutrient removed);*

*(vi) Increase in per capita cost of a local government's stormwater management program to implement the program;*

*(vii) Implementation rate without the use of eminent domain; and*

*(viii) Need for and projected role of eminent domain.”*

### 2.3.1 Implementation Plan Elements Reorganized

 **Types of Lands**

* Jurisdiction-owned
* Private ED w/in jurisdiction
* Other

**Types of Practices**

* Prioritized set
* Associated with land type

**Reductions Projected & Duration**

* Extent of physical opportunities
* Landowner willingness and LG ability to improve willingness
* Cost-effectiveness
* Funding, cost to LG
* Role of eminent domain

**Annual implementation schedule**

* Pace of implementation

#### 2.3.1.1 Types of Lands Affected

While affected parties may choose to implement practices on lands already under their control, the provisions in Sub-Items (4)(k)(ii) and (iii) of the Rule provide the flexibility of achieving reductions on both public and private lands including lands other than those that their load reduction needs are based on. The implementation plan must address the extent to which public and private lands are intended to be used and the extent to which they are located within or outside of the affected parties planning jurisdiction.

In some cases, the most cost-effective reduction opportunities may include implementing practices on lands located in another jurisdiction through legal agreements between jurisdictions or third party sellers such as nutrient offset banks. If reductions are proposed to be achieved outside the affected parties’ jurisdiction the implementation plan must address how these reductions will be administered and include descriptions and references to any interlocal agreement or similar legal instrument used to formalize the arrangements.

The options described in (4)(k) only need to be addressed to the extent that the affected party intends to use them. In cases where an option is identified for use, it will be necessary to provide the scale of reliance in load magnitude along with timeframes and evidence of necessary arrangements in order to avoid the possibility of double counting of credits.

#### 2.3.1.2 Types of Practices

Per Sub-Item (4)(i) of the Rule, the Implementation Plan must identify the types of activities the affected party plans to implement and types of existing development affected. This includes a prioritization of practices that were identified in the measures opportunity assessment discussed in Section 2.2. That initial assessment should be followed by a more detailed watershed or sub-watershed level assessment focused on land cover patterns and the associated extent and locations of potential sites in watersheds within the jurisdiction in order to focus resources on a prioritized set of candidate sites and practices. The Division can provide references for watershed assessment resources upon request. Types of existing development treated by practiced implemented should be broken down by category as either residential, commercial, industrial or recreational acres affected.

Where affected parties have already conducted watershed planning and have already identified programs or practices for initial implementation, and have documents summarizing those planning efforts, those planning documents may be referenced in their local programs. Practices and programs identified by those plans that the affected party expects to implement can be provided as attachments to the implementation plan.

#### 2.3.1.3 Reductions Projected and Duration

In evaluating the reductions projected and their duration, the Program shall use the evaluation factors set forth in Sub-Item (4)(o) of the Rule by considering the extent of physical opportunities along with the additional evaluation factors of that sub-item related to the extent of opportunity for each type of measure identified in the initial measures opportunity assessment.

The overall requirement for the practices implemented under Stage I is to collectively equal the jurisdiction’s load reduction target. The magnitude of reductions expected for each practice is the unit credit combined with the number of installations planned. Cumulatively, load reductions achieved in Stage I are to be maintained in perpetuity, thus longer-term, lower maintenance practices are more desirable. Conversely, the shorter-duration or higher maintenance the practice, the more detailed and well-developed the replacement or maintenance plans will need to be up front in the implementation plan.

Evaluating the factors listed in Sub-Item (4)(o) will help to provide an indication of the feasibility of available nutrient reduction opportunities as well as an assessment of any challenges they face. Documenting the extent of physical opportunities can be in the form of a list of suitable project sites for a given nutrient reducing practice. Since many suitable sites may be located on private land it may be necessary to reach out to landowners and document their willingness to allow practices to be implemented on their land. In cases where public outreach or incentives are used to encourage implementation on private lands these efforts shallbe documented in the local program.

Estimated costs for each practice should attempt to capture the full costs to the greatest extent practicable. This would include the cost of planning, designing, land acquisition, construction, and maintenance for the duration of the credit life of the practice. Estimates of practice cost-effectiveness for many of the practices identified in the Rule are provided in the Nutrient Credit Catalog and can be used here to help prioritize potential practices. For practices not already addressed, site specific cost estimates along with the most recent North Carolina based research on the practice’s reduction efficiency shall be used to make these estimates. Actual costs of practices can be site specific and highly dependent on landscape conditions and project design characteristics. For the purposes of developing Stage I local programs the Division would not require anything beyond planning-level (generally accurate when averaged across the jurisdiction or watershed) cost estimates for beyond the first couple of years.

Typically, local governments implementing stormwater programs have historically used a mix of federal, state, and local funding sources. In discussing anticipated funding mechanisms and sources for a local program the expectation here is a reasonably stable source of funds to cover projected installation costs over Stage I, and to plan for maintenance or replacement at levels anticipated to the extent possible now, considering chosen practice types and associated expenses and frequencies. In cases where funding sources have not yet been identified please discuss steps take or planned to secure such funding and address any anticipated increases in per capita costs for implementing the local program.

The use of eminent domain is not a requirement of the Rule, but affected parties are required to discuss their plans with regard to its use, and their projected implementation rate of practices without its use.

#### 2.3.1.4 Annual Implementation Schedule

Sub-Item (4)(i) of the Rule requires affected parties provide a proposedimplementation schedulethat includes annual implementation expectations with regard to practices implemented and pounds of nutrients reduced for each year of Stage I implementation. This schedule is required out of a desire to encourage a manageable distribution of costs over the implementation period and to avoid back-loading of implementation, particularly since the end date of Stage I is not fixed and depends on the duration of rulemaking.

As more cost-effective measures are identified, or more suitable sites become available, affected parties have the flexibility of modifying their implementation plan and submitting a revised local program to the Division for approval. The process for updating implementation plans is discussed in Section 5.0.

# 3.0 Calculation of Stage I Load Reduction Needs

Affected parties that choose to implement a local load reduction program will need to coordinate with the Division to finalize the Stage I load reduction assignments to include and address in their program submittals. This section of the Model Program provides basic instructions for calculating these loads and guidance on DWR’s expectations for supporting documentation of decisions and assumptions related to each parties’ calculations.

## 3.1 What is Existing Development

The general requirements for the type of development and sources to include in the calculation of Stage I load reduction needs are addressed by Sub-Items (4)(e) through (g) of the Rule.

*(4)(e) “A local government's load reduction need shall be based on the developed lands that fall within its general police powers and within the Falls watershed;”*

Police powers are the general ordinance-making powers conferred by the legislature that allow local governments to govern their affairs and the conduct of people within their jurisdictions. For cities, police power jurisdiction coincides with municipal boundaries unless the legislature expressly authorizes an extension for specific purposes, which it has not for the purposes of stormwater control on existing development. Similarly, county police power applies to any part of a county not within a city. Thus it appears that load assignments under the existing development regulations for both cities and counties shall be based on municipalities’ corporate limits.

*(4)(f) “The load reduction need shall not include lands under state or federal control, and a county shall not include lands within its jurisdictional boundaries that are under municipal police powers;”*

Existing development includes impervious and managed pervious covers, including those with tree canopy, of all types of development typically regulated, e.g. residential, commercial, industrial, institutional, mixed use, etc. This includes both private and public landholdings, although state and federal entities’ existing development is regulated under separate rules from that of local governments.

Existing development does not include forest. Forest is considered land with a tree canopy and a vegetated understory/ground cover that is not at least occasionally maintained during a typical year. Forest does not require a specific tax status, management status, or protective zoning, regulatory or ownership status or other protective legal status. Developed land that is impervious or managed pervious cover with a well-developed tree canopy shallbe treated as the underlying cover for estimating loads until a method can be established that adequately represents the loading benefits provided by that tree cover.

Existing development does not include agricultural land. For the purposes of this rule, agricultural land would be land on which agricultural operations occur as defined in the Falls Agriculture rule, 15A NCAC 2B .0280 (4). Rural residential development is considered existing development, even where it is surrounded by agriculture lands as described here. The nutrient loading from this development, including the residences of agricultural producers and workers and the roads and driveways accessing those residences shall be accounted for in the loads subject to the requirements of this Rule. However, structures and travelways that directly support agricultural activity are not to be included in the existing development footprint or the load calculations.

### 3.1.1 Interim Development Period

Falls Stage I Existing Development requirements are limited to offsetting loading increases from development that occurred since the baseline period of 2006 and that is not subject to the Falls New Development Stormwater Rule requirements. For convenience in this document, this time period is referred to as the “interim development period”. The starting point for the interim development period is January 1, 2007, and all development that took place after that date, regardless of when it was approved, will be included in the analysis. Developments built after an entity’s new development ordinance went into effect, but vested before, are also included in this set.

### 3.1.2 Spatial Extent of Development Analysis

Calculations are to include all New Development projects that received local approval during the interim period, including all expansion projects. Local programs will need to document how these development areas were identified from available records. If there are developments that were partway completed as of January 1, 2007, please describe how it was determined which portions to include or exclude from analysis.

Calculations shallinclude all land cover types in the spatial extent of issued permits (include forest and roads to be dedicated to DOT), i.e. whole project areas (not just disturbed area). In some cases, the exact areas of different land covers may not have been recorded. In these cases, the program will need to describe the process used to convert other information, such as lot sizes and land use type or zoning, to an estimate of amounts of the different land cover types used in the calculation. Note assumptions made, resources referenced such as aerial photography or stormwater utility records, or tools used such as lot size impervious calculators.

## 3.2 Overview - Calculating Stage I Load Reduction Needs

The determination of load reduction needs is based primarily on Item (4)(g) of the rule:

*(4)(g) “Nitrogen and phosphorus loading from existing development, including loading from onsite wastewater treatment systems to the extent that accounting methods allow, shall be calculated by applying the accounting tool described in Sub-Item (7)(a) and shall quantify baseline loads of nitrogen and phosphorus to surface waters in the local government's jurisdiction as well as loading changes post-baseline. It shall also calculate target nitrogen and phosphorus loads and corresponding load reduction needs;”*

The load reduction needs are to be based on the combined nitrogen and phosphorus load increases from the following sources which will be estimated and aggregated to produce total nutrient load increases expressed in units of pounds per year from lands developed during interim development period within the affected parties’ jurisdiction.

* Stormwater Surface Runoff
* Malfunctioning Onsite Systems
* Discharging Sand Filter Systems

## 3.3 Calculating Stormwater Loads

Calculation of stormwater load increases due to development requires a comparison of the post-development condition to a pre-development condition. The preferred method for calculation of loads for pre- and post-development is to use one of the available DWR-approved calculation tools: Neuse method, Tar-Pamlico Piedmont tool, Jordan-Falls v2 tool, or the SNAP tool (please note version number), with the same tool used for both pre- and post-development calculations. Please describe which tool(s) were used, noting the version number and any custom modifications that may have incorporated in addition to all assumptions that were made and how they were applied to input data. Please note whether known local pre-development land cover data was used, or an estimate of pre-development condition based on likely land uses and describe if this required some conversion or assumptions to fit land cover types available in the tool used.

Developments without SCMs can be lumped together into a single calculation of load. Developments with SCMs shall be individually modelled in one of the DWR-approved calculation tools. Report the pre-development calculated load for the total area, and separately report the post-development load of areas not treated by SCMs (note area) and the post-development (with SCMs) load of areas that are treated by SCMs (note area). If an alternative method for SCMs is used, please describe it.

If a party elects to use the Rules’ default pre-development loading rate in Sub-Item (3)(a), which is a total loading rate rather than stormwater loading rate, they will be required to provide a post-development total load estimate using a total-load model in consultation with DWR. The model used will require detailed documentation of assumptions and input variables. The Division’s interpretation of the Falls Existing Development Rule with regard to calculation of the Stage 1 load reductions requires the use of similar calculation methods for developing pre-development and post-development loads for the interim period. Sub-Item (3)(a) of the Rule provides a specific option for determining the pre-development load:

*(3)(a) “Alternatively, a local government may assume uniform pre-development loading rates of 2.89 pounds/acre/year N and 0.63 pounds/acre/year P for these lands.”*

Nutrient reduction credit will be recognized for early implementation of nutrient reducing practices. Where practices or other activities have already been implemented during the interim development period and for which credit is due, it is recommended that the affected party list the credit practice or programmatic measures in their local program, with documentation of credits to follow in annual reports.

*(4)(h) “The Commission shall recognize reduction credit for early implementation of policies and practices implemented after January 1, 2007 and before timeframes required by this Rule, to reduce runoff and discharge of nitrogen and phosphorus per Session Law 2009-486. The load reduction program shall identify specific load-reducing practices implemented to date subsequent to the baseline period and for which the local government is seeking credit. It shall estimate load reductions for these practices and their anticipated duration using methods provided for in Sub-Item (5)(a);”*

Nutrient offsets (buy-down credits) shall be reported separately regardless of where in the Neuse watershed the credit-generating project was located. Offset credits can only be factored into post-development loading estimate if all parts of the project are included in export calculations.

Stage I stormwater loads shall be expressed as loads delivered to stream only. Assume that nutrient delivery to the lake for all land cover changes and installed SCMs is 100% for purposes of calculating Stage 1 loads.

## 3.4 Calculating Onsite Wastewater Loads

In addition to loading from stormwater runoff from existing development, the Rule also requires loading from onsite wastewater treatment systems to be included as part of the total load from lands developed during the Stage I interim period.

*(7)(a)(iii) of the rule directs DWQ to provide "Methods to account for discharging sand filters, malfunctioning septic systems, and leaking collection systems;" in the model program.*

The following are step-by-step instructions for calculating nutrient loads contributed by onsite wastewater systems installed in during the interim period. These guidelines are based on the TetraTech report prepared for the Piedmont Triad Regional Council, NC DWR (as “NC Division of Water Quality”), and the Nutrient Scientific Advisory Board BMP Subcommittee, dated September 2013, “North Carolina Piedmont Nutrient Load Reducing Measures Technical Report”. A copy of this report can be downloaded from the DWR website. (provide link)

### 3.4.1 Step 1: Determine number of onsite systems

Each affected party needs to first determine the number of onsite systems installed in their jurisdiction during the interim period and provide documentation of how this number was determined. In many cases the rule required local governments to conduct inventories in 2013; each jurisdiction’s inventory report described in detail how this was done. It is sufficient to refer to that inventory if it describes all the details.

For the interim load estimate, an estimate of household size (measured as number of bedrooms or number of persons is needed. Jurisdictions may use known or estimated household sizes but shall document how these values were determined and any assumptions made.

### 3.4.2 Step 2: Determine system malfunctioning rate(s).

During the process of completing the 2013 inventories, Falls Lake jurisdictions took variable approaches to determining a rate of onsite system malfunctions. Some jurisdictions estimated malfunction rates for all systems in their jurisdictions, others estimated rates for newly-installed systems. In some cases, these rates were further broken down by type of malfunction. The 2013 TetraTech report lists loading rates for three different kinds of system malfunction:

* Direct Septic Tank Effluent (STE) Discharge
* Illicit Greywater (e.g. laundry) Discharge
* Drainfield Malfunction (e.g. surfacing effluent, effluent < 1’ below trench bottom, system backup into the house).

In developing their Stage I load reduction program, local governments that have not already done so will need to refine their inventories to account for all onsite and discharging sand filter systems installed in the interim period. They will also need to develop the malfunction rate for the systems installed during that time period. DWR also recommends jurisdictions characterize the proportions of malfunctions that they determine and how that determination was made.

### 3.4.3 Step 3: Determine annual loads generated by malfunctioning septic systems.

Apply the onsite system malfunction rate (Step 2) to the number of onsite systems installed in the interim period (Step 1) to determine the number of malfunctioning septic systems. Since there are three different major kinds of malfunction, it may be necessary to estimate three different malfunction rates. Please note whether household size is implicated in malfunction rate, or whether it is assumed that malfunctions occur evenly across all household sizes.

Using the estimate of the number, type, and household sizes of malfunctioning septic systems, refer to the 2013 TetraTech report for estimation of baseline annual nitrogen and phosphorus loads:

* Table 3-3 (pg 21) for Direct Septic Tank Effluent Discharges
* Table 3-4 (pg 22) for Illicit Greywater Discharges
* Table 3-9 (pg 27) for Drainfield Malfunctions

### 3.4.4 Step 4: Determine the number, types, and sizes of discharging sand filter systems.

Determine the number of discharging sand filter systems installed in the jurisdiction during the interim period. The TetraTech document provides actual nutrient load delivery rates for four different types of discharging sand filter systems:

* Single-pass filters with regular discharges
* Single-pass filters with infrequent discharges
* TS-II or equivalent systems
* Malfunctioning sand filter systems of all types.

Affected parties shall document how the numbers and types of systems in use were determined or estimated and any assumptions made.

For all interim load estimates, an estimate of household size (measured as number of bedrooms or number of persons) is needed. Jurisdictions may use known or estimated household sizes but shalldocument how these values were determined and any assumptions made.

### 3.4.5 Step 5: Determine annual loads generated by discharging sand filter systems.

Using the estimate of the number of discharging sand filter systems and household sizes from Step 5, refer to the TetraTech report for estimation of baseline annual nitrogen and phosphorus loads:

* Table 4-3 (pg 46) for Single-Pass Filters with Regular Discharges
* Table 4-4 (pg 46) for Single-Pass Filters with Irregular Discharges
* Table 4-5 (pg 47) for TS-II and Equivalent Systems
* Table 4-6 (pg 48) for malfunctioning sand filter systems of all types

## 3.5 Adjusting Stage I Load Reductions For Annexations

Load reduction needs are tied to the timeframe on which the estimates are based. As jurisdictional boundaries are moved by way of annexation, control over that lands follows and any transfer of interim development lands between jurisdictions necessitates the transfer of associated load reduction needs. As a result, the load reduction portion of reduction needs based on the previous jurisdictional boundaries will need to be updated accordingly.

In cases where annexation of interim developed lands occurs load increases from such development shall be added to the overall reduction needs of the annexing municipality and deducted from the overall reduction needs of the annexed county. The affected parties will be required to address the jurisdictional boundary change and resulting load transfers in their annual reports for the Division to review.

# 4.0 Joint Compliance Option

Joint compliance is a voluntary implementation option where regulated entities may choose to merge individual nutrient reduction within a compliance “bubble.” So long as the terms of the joint compliance approach are met, the individual nutrient reduction requirements are not enforced. In such an arrangement, participating members are free to negotiate among themselves the terms by which each contributes to jointly meeting requirements.

The Falls Lake Existing Development rule allows local governments to group together to meet existing development obligations within the same subwatershed, an option that will be referred to as group compliance. See rule .0278(6). Also, the Falls trading rule (.0282(4)) allows an individual local government that has both wastewater and existing development nutrient reduction obligations to combine those obligations and meet them jointly. The Division interprets that these two separate rule provisions may be utilized together to create a single joint compliance bubble for combined Wastewater rule and Existing Development rule purposes. This option will be referred to as combined compliance.

The Upper Neuse Compliance Association, with collaborative input from the Division and other stakeholders, has proposed a combined compliance option for Stage I known as the Interim Alternative Implementation Approach (IAIA). This approach recognizes that the major wastewater treatment plants in the Falls Lake watershed have, as of 2019, exceeded their required Stage I nutrient load reductions by approximately 50,000 pounds of nitrogen per year and 10,000 pounds of phosphorus per year. When compared to preliminary estimates of Stage I existing development load reduction requirements, the Stage I credits at the wastewater treatment plants exceed total Stage I existing development load reduction requirements by close to a factor of 10.

The three major wastewater treatment plants in the basin (North Durham Water Reclamation Facility, South Granville Water and Sewer Authority, and Town of Hillsborough) operate in good standing with performance records that provide reasonable assurance to DWR that Stage I nutrient load reductions would be met under a combined compliance system. The IAIA is intended to focus on implementation of additional practices to further offset nutrient loading impacts from existing development and to undertake actions that provide water quality benefits within the watershed and Falls Lake. This integrated watershed approach includes a broad set of actions that expand the state’s existing set of approved nutrient reduction practices.

The IAIA is an investment-based approach that relies on a list of approved, eligible practices and minimum funding commitment levels by participating jurisdictions. The eligible practices have been identified and included in the IAIA in consultation with DWR and other stakeholders, including environmental advocacy groups, to ensure their implementation will result in nutrient reductions and water quality benefits. Taking into consideration actions on point source nutrient reductions already achieved and the provisions of the IAIA, this approach provides reasonable assurance to DWR that Stage I loading reduction requirements have been met and that continued progress toward nutrient reductions will be made. It is anticipated that participants in the IAIA will develop projects through their own jurisdictional authority, under an interlocal agreement where two or more jurisdictions collaborate on a project, or through local organizations such as Soil and Water Conservation Districts, County Health Departments, conservation trusts, etc. (as specified in the IAIA program guidelines). Nutrient offset credits can also be obtained from private nutrient offset banks or the Division of Mitigation Services. The costs for acquisition of these credits would also apply to the participating jurisdiction’s financial commitment under the IAIA.

To demonstrate compliance with the current rule, the Division will require the following information from participants of the IAIA or any similar combined compliance group:

* A joint statement of intent signed by all participating jurisdictions or entities.
* A joint program description with general guidelines and a list of practices and activities that are eligible for IAIA implementation
* A commitment of minimum funding levels by each participant within a fiscal year (July 1 to the following June 30) with ongoing participation based on annual renewals
* An estimate of the **combined** watershed-wide Stage I existing development load reduction needs and the **combined** watershed-wide post-baseline reductions already achieved or planned for participating jurisdictions pursuant to rules Falls Lake Wastewater and Existing Development Rules. All wastewater reductions achieved since the baseline period will be creditable.
* Annual reports from each participant documenting the investment amounts, the practices funded, location of projects, funding partners, anticipated project implementation duration in years, and in-kind matches for technical service hours or equipment use if claimed as part of the investment.
* A summary of the previous three years of point source nutrient loading compared to baseline loading and Stage I wasteload allocations and a review of the most recent growth trends for the areas served to provide reasonable assurance that the combined nutrient reductions will continue to meet or exceed the combined Stage I loading offset needs for the duration of the IAIA.
* Demonstration of compliance with Sub-Items (4)(a) or (b) of Rule .0278, which can be accomplished with a brief description of relevant programs or activities being implemented (e.g., heightened permitting or land use requirements, education programs, recurring program expenditures) by the applicable jurisdictions. Programs or activities implemented to meet these requirements are considered eligible practices under the IAIA and therefore recognized in the combined compliance approach.

Jurisdictions in the Falls Lake Watershed that do not participate in the IAIA will be required to comply with the Falls Lake Existing Development Rule by submitting an individual local program to the Division that meets the requirements described in Section (TBD). Because participation in the IAIA is renewable on an annual basis, withdrawal from the program will require a jurisdiction to complete its IAIA commitment in the year the jurisdiction withdraws. Prior to the next renewal period (July 1), a withdrawing jurisdiction shall submit an individual local program under the Falls Lake Existing Development Rule prior to the start of the next renewal period (July 1).

# 5.0 Process for Developing and Implementing Load Reduction Programs

After collaborating with stakeholders and providing the opportunity for input on the development of this document, the final draft of this model program document was submitted to the Environmental Management Commission for approval in January 2021. Per the Rule, development of local programs is triggered by Commission approval of the model program.

*(7)(b) “Within six months after the Commission's approval of the Stage I model local program, subject local governments shall submit load reduction programs that meet or exceed the requirements of Items (3) and (4) of this Rule to the Division for review and preliminary approval and shall begin implementation and tracking of measures to reduce nutrient loads from existing developed lands within their jurisdictions;”*

Approval of the model program in January 2021 means affected parties will be required to submit and begin implementing their local programs by July 2021 while the Division review of the programs for final approval is ongoing. The Rule provides at least 14 months for the Division to review and make recommendations to the Commission. If the Commission disapproves a program, the Rule provides follow-up timelines for revision, resubmittal and return to the Commission.

*(7)(c) “Within 20 months of the Commission's approval of the Stage I model local program, the Division shall provide recommendations to the Commission on existing development load reduction programs. The Commission shall either approve the programs or require changes based on the standards set out in Item (4) of this Rule.* ***Should*** *the Commission require changes, the applicable local government shall have two months to submit revisions, and the Division shall provide follow-up recommendations to the Commission within two months after receiving revisions;”*

 *(7) (d) “Within three months after the Commission's approval of a Stage I local existing development load reduction program, the local government shall complete adoption of and begin implementation of its existing development Stage I load reduction program;”*

Once a local program is approved by the Commission the affected party can formally complete adoption of their program. The final version of the adopted program may be significantly different than the initial submittal due to revisions based on feedback from the Division and the Commission. This final step of formal adoption ensures that the final program is fully implemented as amended during the review process. Even though the rule provides fourteen months for review by the Division staff intend to expedite the review process and complete them in a much shorter timeframe in order to allow for more time to implement the approved program before the end of Stage I.

## 5.1 Updating Local Programs

As more cost-effective measures are identified, or more suitable sites become available affected parties have the flexibility of modifying their implementation plan and submitting a revised local program to the Division for approval.

*(4)(g) A local government may, at any time after commencing implementation of its load reduction program, submit program revisions to the Division for approval based on identification of more cost-effective strategies or other factors not originally recognized;*

The Division plans to request delegation of authority when the model program is approved by the Commission which will allow for a shorter turnaround time on review and approval of revised plans. Affected parties are encouraged to notify the Division as early as possible if they identify the need to update their plan so the Division can provide assistance and answer any questions that come up in the process.

The Division will notify the affected party of approval of a modified plan or request more information to assist with the review process within 30 days of receiving the revised plan. During that time the affected party shall continue implementing the rule requirements per their current approved plan.

## 5.2 Special Implementation Considerations

Sub-Items (4)(a) and (b) of the Rule include unique program requirements for jurisdictions located in the Eno River and Little Rive subwatersheds and any subwatershed with chlorophyll a levels exceeding 40 micrograms/liter in more than seventy-five percent of the monitoring events in a given year.

 *(a) “Jurisdictions in the Eno River and Little River subwatersheds shall, as a part of their Stage I load reduction programs, begin and continuously implement a program to reduce loading from discharging sand filters and malfunctioning septic systems discharging into waters of the State within those jurisdictions and subwatersheds;”*

*(b) “Jurisdictions within any Falls subwatershed in which chlorophyll a levels have exceeded 40 micrograms/liter in more than seventy-five percent of the monitoring events in any calendar year shall, as part of their Stage I load reduction programs, begin and continuously implement a program to reduce nutrient loading into the waters of the State within those jurisdictions and that subwatersheds;”*

Demonstration of compliance with these provisions can be accomplished with a brief description of relevant programs or activities in the implementation program (e.g., heightened permitting or land use requirements, education programs, recurring program expenditures).

## 5.3 Terminating Participation in Joint Compliance Approach

A local government participating in an approved joint compliance approach as described in Section 4.0 may seek to terminate its participation under certain conditions with respect to Existing Development rule compliance. The local government shall provide advance written notice to the Division of the year in which it intends to assume individual compliance, and will be required to have a Division-approved individual local program in place at the start of that year. Division approval will be based on meeting the requirements of Section 2.0. This will ensure that there will be no lapse in implementing the requirements of the rule. Parties interested in making a major implementation change such as this are encouraged to reach out to the Division as early as possible to coordinate the transition from a joint compliance approach to a local program approach.

# 6.0 Annual Reporting

Item (7)(e) of the Rule requires affected parties to track and report on their ongoing progress towards achieving their load reduction requirements by submitting annual reports to the Division.

*(7)(e) “Upon implementation of the programs required under Item (4) of this Rule, local governments shall provide annual reports to the Division documenting their progress in implementing those requirements within three months following each anniversary of program implementation date until such time the Commission determines they are no longer needed to ensure maintenance of reductions or that standards are protected. Annual reports shall include accounting of total annual expenditures, including local government funds and any state and federal grants used toward load reductions achieved from existing developed lands. Local governments shall indefinitely maintain and ensure performance of implemented load-reducing measures;"*

These annual reports will document the details of implementation activities for previous year demonstrating ongoing compliance with the rule. Annual reports will also provide insight for future implementation planning efforts and inform the adaptive implementation process in the watershed. The remainder of this section provides additional explanation concerning the type of information and analysis to include in annual report submittals.

## 6.1 Required Information

Annual Reports shall report on activities conducted from July 1st through June 30th of each reporting cycle and contain the following information:

**Summary of load reducing activities implemented and terminated during reporting cycle**

* Types and number of new activities implemented or terminated
	+ Includes structural practices, programmatic measures, nutrient offsets and trades
* Estimated annual reductions or increases from each activity (lb/yr)
* Duration of anticipated loading reductions for new activities (yrs)
* Type and number of measures due for credit renewal, and annual reductions affected (lb/yr)
* Costs/efficiencies of each activity (to extent possible)
* Total annual expenditures (Including Local Government funds and State & Federal Grants)

**Accounting / Tracking Progress**

* Reductions achieved by new measures, load increases from terminated measures
* Resulting net change in loading from actions taken in that reporting cycle (lb/yr)
* Adjustments to allocations & load reduction needs via annexation or demolitions
* Summary tabulation of load reduction progress (lb/yr)
* Comparison to that proposed load reduction progress in approved program (lb/yr)

**Inspection and maintenance activities and issues**

* Numbers of types of measures inspected relative to cumulative number of measures
* Summary of maintenance and repairs performed
* Parties performing inspections, maintenance and repairs

**Evaluation of implementation challenges or obstacles encountered**

* Issues encountered
* Actions taken / Addition resource needs

**Summary of anticipated activities for the next reporting period**

* Measures planned for next reporting cycle
* Anticipated reductions (lb/yr)
* Comparison of current reductions & planned reductions to overall reduction needs

## 6.2 Report Due Date

To allow adequate time for affected parties to compile and process the information for each reporting cycle annual reports are to be submitted by October 31st of each year. The Division supports consolidating reporting requirements to the greatest extent feasible and believe an October timeframe would allow affected parties to report the information above as an addendum to their Phase II Stormwater or New Development Stormwater reports if they find that advantageous. Affected parties are encouraged to discuss alternative submittal ideas to consolidate reporting efforts as well as the need for an alternative due date with the Division and shallinclude the agreed upon date in their local program submittal.

7.0 Trading

Parties subject to the Falls Existing Development Rule have the option of meeting their load reduction by obtaining or purchasing credits for nutrient load-reducing activities conducted by other parties or third party sellers. This allows flexibility for the regulated community to identify the most cost effective means to obtain their required nutrient reductions. The cross-strategy nutrient offset rule (15A NCAC 02B .0703) is the primary rule governing the creation of nutrient offset credits and includes procedural requirements for nutrient offset credit transactions. The Falls nutrient management strategy also contains a stand-alone trading rule (15A NCAC 02B .0282), that explicitly authorizes trading for all regulated parties according to specific conditions. Together these two rules provide the combined criteria guiding trades under the Existing Development Rule.

The details of any executed trades, including the type of nutrient reducing activity and duration and credit amount of the trade or nutrient offset credit purchase shall be included as part of the annual reporting process described in Section 6.0.

# Appendix A - Lists of Affected Parties

Local Governments in Falls Lake Watershed

|  |  |
| --- | --- |
| **Municipalities** | **Counties** |
| Butner | Durham  |
| Creedmoor | Franklin  |
| Durham | Granville  |
| Hillsborough | Orange  |
| Raleigh | Person  |
| Roxboro | Wake  |
| Stem |  |
| Wake Forest |  |

State & Federal Entities in Falls Lake Watershed

|  |  |  |  |
| --- | --- | --- | --- |
| **State & Federal Entities** | **Acres** |  | **Acres** |
| **US Army Corps of Engineers**  | 24,844 | **Health & Human Services** |  |
| **Agriculture and Consumer Services** |  | * Butner Town Complex
 | 20 |
| * Food Distribution Warehouse
 | 13 | **Division of Motor Vehicles** |  |
| * Plant Industry Site Durham County
 | 76 | * Durham District Office

Durham District OfficeDurham District Office | 3 |
| * Umstead Farm Unit
 | 4,165 | **State Hospitals** |  |
| **Crime Control & Prevention** |  | * John Umstead Hospital
 | 1,211 |
| * Butner National Guard Armory
 | 24 | * Murdoch Center
 | 240 |
| * Butner Public Safety
 | 2 | **Juvenile Justice** |  |
| * Durham National Guard Armory
 | 5 | * C A Dillion School
 | 96 |
| * Roxboro Highway Patrol Fuel Facility
 | 3 | * Training Center
 | 3 |
| * National Guard Training Site
 | 4,980 | **Education** |  |
| * Roxboro National Guard Armory
 | 5 | School of Math and Science | 27 |
| **Corrections** |  | **North Carolina Central University** |  |
| * Butner Correctional Institution
 | 161 | Chancellor’s Residence | 2 |
| * Durham Correction Center
 | 19 | North Carolina State University | 3,160 |
| * Orange Correction Center
 | 35 | Cattle Field Laboratory | 2,391 |
| * Roxboro Satellite Training Center
 | 3 | Hill Demonstration Forest | 261 |
| * Umstead Correctional Facility
 | 38 | Organic Farm Research Center | 160 |
| **Parks & Recreation** |  |  |  |
| * Eno River State Park
 | 3,790 |  |  |
| * Occoneechee Mountain Natural Area
 | 32 |  |  |
| * Butner Falls Game Land
 | 68 |  |  |

Notes:

* Does not include NC DOT lands which have separate requirements under the Falls Rules
* Acres = Total acres of land NOT acres of development

# Appendix B - Applicable Rules

**15a ncac 02b .0278 falls water supply nutrient strategy: stormwater management for existing development**

This Rule establishes a staged, adaptive approach by which municipalities and counties shall contribute to achieving the nonpoint source loading objectives of the Falls Reservoir nutrient strategy by reducing or otherwise offsetting nutrient contributions from existing development. It provides local governments three years to develop programs that propose Stage I load reduction actions to the Division and requires local governments to begin and track measures to reduce nutrient loads from existing developed lands within their jurisdiction by January 15, 2014, as specified in Item (7). Local governments shall submit for approval and implement Stage II load reduction programs by January 15, 2021 and submit revised load reductions programs every five years thereafter. The following is the watershed stormwater strategy, as prefaced in Rule 15A NCAC 02B .0275, for existing development in the Falls watershed:

(1) PURPOSE. The purposes of this Rule are as follows:

(a) To achieve and maintain the nonpoint source nitrogen and phosphorus percentage reduction objectives established for Falls Reservoir in Rule 15A NCAC 02B .0275 on nutrient loading from existing development in the Falls watershed relative to the baseline period defined in that rule. Existing development is defined in Rule 15A NCAC 02B .0276; and

(b) To protect the water supply, aquatic life, and recreational uses of Falls Reservoir.

(2) APPLICABILITY. This Rule shall apply to municipalities and counties in the Falls watershed as identified in Rule 15A NCAC 02B .0275.

(3) STAGED AND ADAPTIVE IMPLEMENTATION REQUIREMENTS. Local governments shall employ the following staged and adaptive implementation program. All local governments subject to this Rule shall develop load-reducing programs for submission to and approval by the Commission that include the following staged elements and meet the associated minimum standards for each stage of implementation:

(a) In Stage I, a local government subject to this Rule shall implement a load reduction program that provides estimates of, and plans for offsetting by calendar year 2020, nutrient loading increases from lands developed subsequent to the baseline period and not subject to the requirements of the local government's Falls Lake new development stormwater program. For these post-baseline existing developed lands, the current loading rate shall be compared to the loading rate for these lands prior to development for the acres involved, and the difference shall constitute the load reduction need in annual mass load, in pounds per year. Alternatively, a local government may assume uniform pre-development loading rates of 2.89 pounds/acre/year N and 0.63 pounds/acre/year P for these lands. The local government shall achieve this Stage I load reduction by calendar year 2020. This Stage I program shall meet the criteria defined in Item (4) of this Rule;

(b) By January 15, 2021 and every five years thereafter, a local government located in the Upper Falls Watershed shall submit and begin implementing a Stage II load reduction program that meets the following requirements:

(i) If a local government achieves the Stage I reduction objectives described in this Item, a local government's initial Stage II load reduction program shall, at the local government's election, either (A) achieve additional annual reductions in nitrogen and phosphorus loads from existing development greater than or equal to the average annual additional reductions achieved in the last seven years of Stage I or (B) provide for an annual expenditure that equals or exceeds the average annual amount the local government has spent to achieve nutrient reductions from existing development during the last seven years of Stage I. A local government's expenditures shall include all local government funds, including any state and federal grant funds used to achieve nutrient reductions from existing developed lands. The cost of achieving reductions from municipal wastewater treatment plants shall not be included in calculating a local government's expenditures. Notwithstanding this requirement, the EMC may approve an initial Stage II load reduction program based on a lower annual level of reduction or a lower annual level of expenditure if the local government demonstrates that continuing the prior annual level of reduction or annual level of expenditure is not reasonable or cost-effective given the reductions that will be achieved, or the expenditure would cause serious financial hardship to the local government;

(ii) If Stage I reduction objectives are not achieved, a local government's initial Stage II load reduction program shall, at the local government's election, either (A) achieve additional annual reductions in nitrogen and phosphorus loads from existing development greater than or equal to the average annual additional reductions achieved in the highest three years of implementation of Stage I or (B) provide for an annual expenditure that equals or exceeds the average annual amount the local government has spent to achieve nutrient reductions from existing development during the highest three years of implementation of Stage I. Annual expenditures shall be calculated in accordance with Sub-Item (3)(b)(i) of this Item;

(iii) Subsequent five year programs shall be designed to achieve the Stage II percent load reduction goals from existing developed lands in a local government's jurisdiction, shall include timeframes for achieving these goals and shall meet the requirements of Item (4) of this Rule;

(4) ELEMENTS OF LOAD REDUCTION PROGRAMS. A local government's Stage I and Stage II load reduction program shall address the following elements:

(a) Jurisdictions in the Eno River and Little River subwatersheds shall, as a part of their Stage I load reduction programs, begin and continuously implement a program to reduce loading from discharging sand filters and malfunctioning septic systems discharging into waters of the State within those jurisdictions and subwatersheds;

(b) Jurisdictions within any Falls subwatershed in which chlorophyll a levels have exceeded 40 micrograms/liter in more than seventy-five percent of the monitoring events in any calendar year shall, as part of their Stage I load reduction programs, begin and continuously implement a program to reduce nutrient loading into the waters of the State within those jurisdictions and that subwatersheds;

(c) The total amount of nutrient loading reductions in Stage I is not increased for local jurisdictions by the requirements to add specific program components to address loading from malfunctioning septic systems and discharging sand filters or high nutrient loading levels pursuant to Sub-Items (4)(a) and (b) of this Item;

(d) In preparation for implementation of their Stage I and Stage II load reduction programs, local governments shall develop inventories and characterize load reduction potential to the extent that accounting methods allow of the following by January 2013:

(i) Wastewater collection systems;

(ii) Discharging sand filter systems, including availability of or potential for central sewer connection;

(iii) Properly functioning and malfunctioning septic systems;

(iv) Restoration opportunities in utility corridors;

(v) Fertilizer management plans for local government-owned lands;

(vi) Structural stormwater practices, including intended purpose, condition, potential for greater nutrient control; and

(vii) Wetlands and riparian buffers including potential for restoration opportunities;

(e) A local government's load reduction need shall be based on the developed lands that fall within its general police powers and within the Falls watershed;

(f) The load reduction need shall not include lands under state or federal control, and a county shall not include lands within its jurisdictional boundaries that are under municipal police powers;

(g) Nitrogen and phosphorus loading from existing development, including loading from onsite wastewater treatment systems to the extent that accounting methods allow, shall be calculated by applying the accounting tool described in Sub-Item (7)(a) and shall quantify baseline loads of nitrogen and phosphorus to surface waters in the local government's jurisdiction as well as loading changes post-baseline. It shall also calculate target nitrogen and phosphorus loads and corresponding load reduction needs;

(h) The Commission shall recognize reduction credit for early implementation of policies and practices implemented after January 1, 2007 and before timeframes required by this Rule, to reduce runoff and discharge of nitrogen and phosphorus per Session Law 2009-486. The load reduction program shall identify specific load-reducing practices implemented to date subsequent to the baseline period and for which the local government is seeking credit. It shall estimate load reductions for these practices and their anticipated duration using methods provided for in Sub-Item (5)(a);

(i) The program shall include a proposed implementation schedule that includes annual implementation expectations. The load reduction program shall identify the types of activities the local government intends to implement and types of existing development affected, a prioritization of practices, magnitude of reductions it expects to achieve from each, and the costs and efficiencies of each activity to the extent information is available. The program shall identify the duration of anticipated loading reductions, and may seek activities that provide long-term reductions;

(j) The load reduction program shall identify anticipated funding mechanisms or sources and discuss steps take or planned to secure such funding;

(k) The program shall address the extent of load reduction opportunities intended from the following types of lands:

(i) Lands owned or otherwise controlled by the local government;

(ii) Each land use type of privately owned existing development including projected redevelopment, on which the local government's load reduction need is based as described in this Item; and

(iii) Lands other than those on which the local government's load reduction need is based as described in this Item, including lands both within and outside its jurisdiction and including the use of interlocal agreements and private third party sellers;

(l) The program shall address the extent of load reduction proposed from the following stormwater and ecosystem restoration activities:

(i) Bioretention;

(ii) Constructed wetland;

(iii) Sand filter;

(iv) Filter strip;

(v) Grassed swale;

(vi) Infiltration device;

(vii) Extended dry detention;

(viii) Rainwater harvesting system;

(ix) Treatment of redevelopment;

(x) Overtreatment of new development;

(xi) Removal of impervious surface;

(xii) Retrofitting treatment into existing stormwater ponds;

(xiii) Off-line regional treatment systems;

(xiv) Wetland or riparian buffer restoration; and

(xv) Reforestation with conservation easement or other protective covenant;

(m) The program shall evaluate the load reduction potential from the following wastewater activities:

(i) Creation of surplus relative to an allocation established in Rule 15A NCAC 02B .0279;

(ii) Expansion of surplus allocation through regionalization;

(iii) Connection of discharging sand filters and malfunctioning septic systems to central sewer or replacement with permitted non-discharge alternatives;

(iv) Removal of illegal discharges; and

(v) Improvement of wastewater collection systems;

(n) A local government may propose in its load reduction program the use of the following measures in addition to items listed in (l) and (m), or may propose other measures for which it can provide accounting methods acceptable to the Division:

(i) Redirecting runoff away from impervious surfaces;

(ii) Soil amendments;

(iii) Stream restoration;

(iv) Improved street sweeping; and

(v) Source control, such as pet waste and fertilizer ordinances;

(o) The program shall include evaluation of load reduction potential relative to the following factors:

(i) Extent of physical opportunities for installation;

(ii) Landowner acceptance;

(iii) Incentive and education options for improving landowner acceptance;

(iv) Existing and potential funding sources and magnitudes;

(v) Practice cost-effectiveness (e.g., cost per pound of nutrient removed);

(vi) Increase in per capita cost of a local government's stormwater management program to implement the program;

(vii) Implementation rate without the use of eminent domain; and

(viii) Need for and projected role of eminent domain;

(5) The Commission shall approve a Stage I load reduction program if it is consistent with Items (3) and (4) of this Rule. The Commission shall Approve a Stage II load reduction program if it is consistent with Items (3) and (4) of this Rule unless the Commission finds that the local governments can, through the implementation of reasonable and cost-effective measures not included in the proposed program, meet the Stage II nutrient load reductions required by this Rule by a date earlier than that proposed by the local government. If the Commission finds that there are additional or alternative reasonable and cost-effective measures, the Commission may require the local government to modify its proposed program to include such measures to achieve the required reductions by the earlier date. If the Commission requires such modifications, the local government shall submit a modified program within two months. The Division shall recommend that the Commission approve or disapprove the modified program within three months after receiving the modified program. In determining whether additional or alternative load reduction measures are reasonable and cost effective, the Commission shall consider factors identified in Sub-Item (4)(o) of this Rule. The Commission shall not require additional or alternative measures that would require a local government to:

(a) Install or require installation of a new stormwater collection system in an area of existing development unless the area is being redeveloped;

(b) Acquire developed private property; or

(c) Reduce or require the reduction of impervious surfaces within an area of existing development unless the area is being redeveloped.

(6) A municipality shall have the option of working with the county or counties in which it falls, or with another municipality or municipalities within the same subwatershed, to jointly meet the loading targets from all lands within their combined jurisdictions within a subwatershed. A local government may utilize private or third party sellers. All reductions involving trading with other parties shall meet the requirements of Rule 15A NCAC 02B .0282.

(7) RULE IMPLEMENTATION. This Rule shall be implemented as follows:

(a) By July 2013, the Division shall submit a Stage I model local program to the Commission for approval that embodies the criteria described in Items (3)(a) and (4) of this Rule. The Division shall work in cooperation with subject local governments and other watershed interests in developing this model program, which shall include the following:

(i) Model local ordinances as applicable;

(ii) Methods to quantify load reduction requirements and resulting load reduction assignments for individual local governments;

(iii) Methods to account for discharging sand filters, malfunctioning septic systems, and leaking collection systems; and

(iv) Methods to account for load reduction credits from various activities;

(b) Within six months after the Commission's approval of the Stage I model local program, subject local governments shall submit load reduction programs that meet or exceed the requirements of Items (3) and (4) of this Rule to the Division for review and preliminary approval and shall begin implementation and tracking of measures to reduce nutrient loads from existing developed lands within their jurisdictions;

(c) Within 20 months of the Commission's approval of the Stage I model local program, the Division shall provide recommendations to the Commission on existing development load reduction programs. The Commission shall either approve the programs or require changes based on the standards set out in Item (4) of this Rule. Should the Commission require changes, the applicable local government shall have two months to submit revisions, and the Division shall provide follow-up recommendations to the Commission within two months after receiving revisions;

(d) Within three months after the Commission's approval of a Stage I local existing development load reduction program, the local government shall complete adoption of and begin implementation of its existing development Stage I load reduction program;

(e) Upon implementation of the programs required under Item (4) of this Rule, local governments shall provide annual reports to the Division documenting their progress in implementing those requirements within three months following each anniversary of program implementation date until such time the Commission determines they are no longer needed to ensure maintenance of reductions or that standards are protected. Annual reports shall include accounting of total annual expenditures, including local government funds and any state and federal grants used toward load reductions achieved from existing developed lands. Local governments shall indefinitely maintain and ensure performance of implemented load-reducing measures;

(f) By January 15, 2021 and every five years thereafter until accounting determines that assigned load reductions have been achieved, standards are met in the lake, or the Commission takes other actions per Rule 15A NCAC 02B .0275, local governments located in the upper Falls watershed as defined in Item (3) of Rule 15A NCAC 02B .0275 shall submit and begin implementation of a Stage II load reduction program or program revision to the Division. Within nine months after submittal, the Division shall make recommendations to the Commission on approval of these programs. The Commission shall either approve the programs or require changes based on the standards set out in this Rule. If the Commission require changes, the applicable local governments shall submit revisions within two months, and the Division shall provide follow-up recommendations to the Commission within three months after receiving revisions. Upon program approval, local governments shall revise implementation as necessary based on the approved program;

(g) A local government may, at any time after commencing implementation of its load reduction program, submit program revisions to the Division for approval based on identification of more cost-effective strategies or other factors not originally recognized;

(h) Once either load reductions are achieved per annual reporting or water quality standards are met in the lake per Rule 15A NCAC 02B .0275, local governments shall submit programs to ensure no load increases and shall report annually per Sub-Item (e) on compliance with no increases and take additional actions as necessary;

(i) At least every five years after the effective date, the Division shall review the accounting methods stipulated under Sub-Item (7)(a) to determine the need for revisions to those methods and to loading reductions assigned using those methods. Its review shall include values subject to change over time independent of changes resulting from implementation of this Rule, such as untreated export rates that may change with changes in atmospheric deposition. It shall also review values subject to refinement, such as nutrient removal efficiencies.

*History Note: Authority G.S. 143-214.1; 143-214.5; 143-214.7; 143-214.12; 143-214.21; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143-215.8B; 143B-282(c); 143B-282(d); S.L. 2005-190; S.L. 2006-259; S.L. 2009-337;*

*Eff. January 15, 2011 (this permanent rule replaces the temporary rule approved by the RRC on December 16, 2010).*

**15a ncac 02b .0282 Falls water supply nutrient strategy: options for offsetting nutrient loads**

PURPOSE. This Rule provides parties subject to other rules within the Falls nutrient strategy with options for meeting rule requirements by obtaining or buying credit for nutrient load-reducing activities conducted by others (sellers). It provides the potential for parties who achieve excess load reductions under the Falls nutrient strategy to recover certain costs by selling such credits, and it provides opportunity for third parties to produce reductions and sell credits. Overall it provides the potential for more cost-effective achievement of strategy reduction objectives. Accounting is required to ensure and track the availability and use of trading credits. This accounting will be compared against compliance accounting required under other rules of the Falls nutrient strategy to ensure that crediting is properly accounted for. This Rule furthers the adaptive management intent of the strategy to protect the water supply, aquatic life, and recreational uses of Falls Reservoir. The minimum requirements for the exchange of load reduction credits are:

(1) PREREQUISITES. The following buyers shall meet applicable criteria identified here and in rules imposing reduction requirements on them before utilizing the option outlined in this Rule:

(a) Agriculture Rule .0280: Owners of agricultural land shall receive approval from the Watershed Oversight Committee to obtain offsite credit pursuant to the conditions of Sub-Item (7)(b)(vii) of Rule .0280;

(b) New Development Rule .0277: Developers shall meet onsite reduction requirements enumerated in Sub-Item (4)(b) of Rule .0277 before obtaining offsite credit;

(c) Wastewater Rule .0279: New and expanding dischargers shall first make all reasonable efforts to obtain allocation from existing dischargers as stated in Sub-Items (7)(a)(ii) and (8)(a)(ii), respectively of Rule .0279; and

(d) State and Federal Entities Stormwater Rule .0281:

(i) Non-DOT entities shall meet onsite new development reduction requirements enumerated in Sub-Item (4)(b) of Rule .0281; and

(ii) NC DOT shall meet onsite non-road new development reduction requirements enumerated in Sub-Item (9)(c) of Rule .0281 before obtaining offsite credit.

(2) The party seeking approval to sell load reduction credits pursuant to this Rule shall demonstrate to the Division that such reductions meet the following criteria:

(a) Load reductions eligible for credit shall not include reductions that result from actions required to mitigate nutrient load-increasing actions under any regulation, except where a rule in this Section expressly allows such credit; and

(b) The party seeking to sell credits shall define the nature of the activities that would produce reductions and define the magnitude and duration of those reductions to the Division, including addressing the following items:

(i) Quantify and account for the relative uncertainties in reduction need estimates and load reduction estimates;

(ii) Ensure that load reductions shall take place at the time and for the duration in which the reduction need occurs; and

(iii) Demonstrate means adequate for assuring the achievement and claimed duration of load reduction, including the cooperative involvement of any other involved parties;

(c) Geographic Restrictions. Eligibility to use load reductions as credit is based on the following geographic criteria:

(i) Impacts in the upper Falls watershed as defined in Item (19) of 15A NCAC 02B .0276 may be offset only by load reductions achieved in the upper Falls watershed; and

(ii) Impacts in the lower Falls watershed as defined in Item (20) of 15A NCAC 02B .0276 shall be offset by load reductions achieved anywhere within the Falls watershed.

(3) The party seeking approval to sell load reduction credits shall provide for accounting and tracking methods that ensure genuine, accurate, and verifiable achievement of the purposes of this Rule, and shall otherwise meet the requirements of Rule .0703 of this Subchapter, which establishes procedural requirements for nutrient offset payments. The Division shall work cooperatively with interested parties at their request to develop such accounting and tracking methods to support the requirements of Item (2) of this Rule.

(4) Local governments have the option of combining their reduction needs from NPDES dischargers assigned allocations in 15A NCAC 02B .0279 and existing development as described in 15A NCAC 02B .0278, including loads from properly functioning and malfunctioning septic systems and discharging sand filters, into one reduction and allocation requirement and meet them jointly.

(5) Proposals for use of offsetting actions as described in this Rule shall become effective after determination by the Director that the proposal contains adequate scientific or engineering standards or procedures necessary to achieve and account for load reductions as required under Items (2) and (3) of this Rule, and that specific accounting tools required for these purposes in individual rules have been adequately established. In making this determination, the Director shall also evaluate the potential for load offset elsewhere that results in localized adverse water quality impacts that contribute to impairment of classified uses of the affected waters.

(6) A party seeking to purchase nutrient offset credit from the NC Ecosystem Enhancement Program or from a public or private seller of reduction credit shall meet the applicable requirements of Rule .0703 of this Subchapter, which establishes procedural requirements for nutrient offset payments, in addition to applicable requirements of this Rule. Requirements of Rule .0703 include, but are not limited to, the requirement for non-governmental entities to purchase credit from a provider other than the NC Ecosystem Enhancement Program if such credit is available.

(7) The Watershed Oversight Committee under Rule 15A NCAC 02B .0280 may satisfy the seller requirements of Items (2) and (3) of this Rule and the trading provisions of Rule .0280 for individual agricultural land owners by submitting to the Division for approval a trading program, or revisions to such a program, that demonstrates how individual trades shall meet the requirements of this Rule and Rule .0280, and by subsequently including in annual reports required under Rule .0280 separate tracking and accounting for such trades.

*History Note: Authority G.S. 143-214.1; 1432-214.3; 143-214.5; 143-214.7; 143-215.1; 1432-15.3; 143-215.3(a)(1); 143-215.6A; 143-215.6B; 143-215.6C; 143-215.8B; 143B-282(c); 143B-282(d); S.L. 2005-190; S.L. 2006-259; S.L. 2009-337; S.L. 2009-486;*

*Eff. January 15, 2011 (this permanent rule replaces the temporary rule approved by the RRC on December 16, 2010);*

*Amended Eff. April 1, 2020.*

**15A NCAC 02B .0703 Nutrient Offset CREDIT TRADING**

(a) PURPOSE. The purpose of this Rule is to establish standards and procedures applicable to providers for approval of nutrient reduction projects and associated nutrient offset credits that will be transferred to persons or entities subject to nutrient rules of this Subchapter. Nutrient offset credit is distinct from nutrient accounting for direct compliance with individual nutrient strategy rules, which is not governed by this Rule. Nutrient accounting includes joint compliance by multiple local governments as authorized in individual nutrient strategy rules. Nutrient offset credits represent a compliance option to the extent allowed by nutrient rules of this Subchapter, including:

(1) the Neuse Nutrient Strategy as set forth in Rule .0710 of this Section;

(2) the Tar-Pamlico Nutrient Strategy as set forth in Rule .0730 of this Section;

(3) the Jordan Lake Nutrient Strategy as set forth in Rule .0262 of this Subchapter, including to the extent that the requirements of this Rule related to the nutrient offset credits are incorporated by the Jordan Lake rules; and

(4) the Falls Lake Nutrient Strategy as set forth in Rule .0275 of this Subchapter, including to the extent that the requirements of this Rule related to the nutrient offset credits are incorporated by the Falls Lake rules.

(b) GEOGRAPHIC RESTRICTIONS. Nutrient offset credits may be used to satisfy regulatory obligations only when generated by a nutrient reduction project within an allowable geographic area identified in G.S. 143-214.26, as designated by the U.S. Geological Survey, with the following additional restrictions:

(1) Nutrient offset credits may be used to satisfy regulatory obligations incurred in the upper Falls watershed only if they were generated by a nutrient reduction project located within the upper Falls watershed, as this geographic area is described in 15A NCAC 02B .0276.

(2) Nutrient offset credits may be used to satisfy regulatory obligations incurred in the lower Falls watershed only if they were generated by a nutrient reduction project located within the Falls Lake watershed, as these geographic areas are described in 15A NCAC 02B .0276.

(3) Nutrient offset credits may be used to satisfy regulatory obligations incurred in the Jordan Lake watershed only if they were generated by a nutrient reduction project in the same subwatershed of the Jordan Lake watershed, as these geographic areas are described in 15A NCAC 02B .0262.

(4) Nutrient offset credits may be used to satisfy regulatory obligations incurred in the Neuse 01 8-digit cataloguing unit, as designated by the U.S. Geological Survey, outside of the Falls Lake watershed only if they were generated by a nutrient reduction project located outside of the Falls Lake watershed.

(5) Nutrient offset credits generated by nutrient reduction projects for compliance with an estuarine nutrient strategy shall be generated in an area that is within or drains to:

(A) surface waters identified for restoration under the applicable nutrient-related TMDL or nutrient strategy; or

(B) surface waters classified as SA, SB, or SC that fails to meet the chlorophyll-a water quality standard in a subsequent integrated report.

(c) NUTRIENT OFFSET CREDIT APPROVAL STANDARD. Providers shall demonstrate that a nutrient reduction project is designed, constructed, implemented, and sustained in a manner that, according to the best available scientific evidence, studies, and principles, will generate the estimated nutrient load reduction for the duration of time for which credits are approved. Nutrient offset credits shall be generated and transferred in accordance with G.S. 143-214.26.

(d) QUANTIFYING NUTRIENT OFFSET CREDITS. The quantity of nutrient offset credits eligible to be generated by a nutrient reduction project shall be determined according to the following provisions:

(1) Nutrient reduction credit sought on developed lands shall be calculated in relation to load reductions achieved relative to the project site's current loading condition, as determined by the provider and verified by the Division;

(2) Nutrient load reductions shall be site-specific estimates of decreases in annual mass load of nitrogen or phosphorus to the nearest receiving surface water feature. Such estimates shall be supported by the weight of evidence from available, current and applicable research, may involve water quality modeling or engineering formulas and calculations, and shall reflect as closely as possible project design specifications.

(3) Unless specifically excepted in Rule, reductions shall not include those already implemented to satisfy other requirements under the same nutrient strategy; other local, State or federal requirements; or those resulting from State or federal compensatory mitigation requirements. Specifically, a nutrient reduction project shall not generate nutrient offset credits and buffer or wetland mitigation credits in spatially overlapping areas. However, restored forest buffer areas associated with stream mitigation projects may generate both stream and nutrient offset credits in spatially overlapping areas within 50 feet from the top of the stream bank.

(4) Stream, buffer, or wetland mitigation credit that has not been used to satisfy a mitigation requirement may be converted into nutrient offset credit if the credit-generating project or portion thereof complies with this Rule.

(5) A nutrient reduction project may generate both nitrogen and phosphorus offset credits in the same area.

(6) A nutrient reduction project may be designed to generate permanent nutrient offset credit or term nutrient offset credit and shall specify which, or both, in the project plan. Permanent nutrient reduction credits and term nutrient reduction credits shall be maintained separately, even if associated with the same nutrient offset project.

(7) Permanent nutrient offset credits may be utilized for temporary compliance purposes. If so, for each pound of annual term compliance credit received, 1/30th of one pound of permanent nutrient offset credit shall be utilized and retired by removal from the applicable ledger.

(8) Nutrient offset credits that were approved prior to the adoption of this Rule may make application to be reclassified. The Division shall approve the application associated with any nutrient offset project to reclassify credits as permanent that meet the requirements for permanent credits at the time of the application to be reclassified. Other nutrient offset credits that were approved prior to the adoption of this Rule or that were conditionally approved pursuant to a mitigation banking instrument or other agreement with DEQ prior to the adoption of this Rule, shall be considered term credits and may be transferred between term and permanent ledgers at a ratio of 30 years of term nutrient offset credit to one permanent nutrient offset credit.

(9) Term nutrient offset credits shall be associated with the calendar year or years in which the associated nutrient load reductions are generated.

(e) PROJECT APPROVAL STANDARDS. Providers shall comply with the following requirements to request approval from the Division to implement a nutrient reduction project for the purpose of generating nutrient offset credits.

(1) NUTRIENT OFFSET BANKING INSTRUMENT. Providers seeking approval of a nutrient offset bank shall submit their draft nutrient offset banking instrument to the Division prior to seeking approval of project plans. A nutrient offset banking instrument shall provide legal and financial assurances that a provider will implement, maintain, and sustain nutrient reduction projects as proposed in subsequent project plans and associated nutrient reduction practice design specifications.

(2) PROJECT PLAN REQUIREMENTS. Prior to initiating a nutrient reduction project, providers shall submit a project plan proposal to the Division for review and approval that includes the following elements:

(A) A site location and site boundaries of the proposed project.

(B) The geographic area eligible to be served by nutrient offset credits in accordance with Paragraph (b) of this Rule or in compliance with in-lieu fee nutrient offset requirements applicable at the time an in-lieu fee payment was accepted.

(C) Documentation of the conditions of the site at the time of the submittal of the project plan.

(D) Documentation of the condition of the site during the baseline period of the applicable nutrient strategy, unless excepted by Subparagraph (d)(1) of this Paragraph. The Division may accept more recent documentation if it determines such documentation establishes the probable loading condition of the site during the baseline period.

(E) A description of the proposed project that supports compliance with the standard in Paragraph (c) of this Rule. Projects conforming to minimum design criteria for stormwater control measures in 15A NCAC 02H .1050 through .1062 shall be deemed as meeting this requirement. Design criteria for stormwater control measure variants and additional nutrient reduction practices established in the Division's Catalog of Nutrient Reduction Practices also meet this requirement.

(F) Nutrient credit calculations determined in conformance with Paragraph (d) of this Rule.

(G) Identification of the property owner and parties responsible for obtaining all permits and other authorizations needed to:

(i) establish the proposed project;

(ii) construct and ensure initial performance of the project;

(iii) report on and successfully complete the project by completing all crediting milestones;

(iv) hold and enforce all easement or other protection mechanisms; and

(v) ensure maintenance of the project for its credited duration.

(H) A description of how the project will be implemented, which shall include a timeline and a commitment to provide an as-built report upon the full project construction or installation.

(I) A description of how the project will be maintained and monitored after it has been installed and for its duration.

(J) A description of how the project will be sustained for its credited life, including a commitment to repair and renovate it as needed to maintain its performance, to keep records of all such operation, maintenance, monitoring, repair and renovation, and to notify the Division of any significant performance remediation needs and plans.

(K) Identification of federal or State grant funding contributing to project implementation.

(3) FINANCIAL ASSURANCES. Providers seeking approval of a nutrient offset bank shall provide the financial assurance that a project plan will be constructed as proposed. The financial assurance shall be in the form of a completion bond, credit insurance, letter of credit, escrow, or other vehicle acceptable to the Division in accordance with this Subparagraph, payable to, or for the benefit of, the Division, to ensure the involved property is secured in fee title or by easement and that planting or construction, monitoring or maintenance are completed as necessary to meet the requirements of the project plan.

(4) PROJECT PLAN APPROVAL. The Division shall approve the provider's project plan proposal after verifying the provider's compliance with Subparagraphs (1), (2) and (3) of this Paragraph and completing an onsite review to verify that preconstruction site conditions are suitable to generate the credits proposed by the project plan. However, the Division may partially or fully waive these requirements for term practices or projects if it determines that the burden of compliance is disproportionate to the value of the credits being generated and alternative means are used to satisfy the basic credit approval standard set forth in Paragraph (c) of this Rule.

(f) RELEASE AND ACCOUNTING FOR NUTRIENT OFFSET CREDITS. The Division shall release nutrient offset credits from an approved project in the following manner:

(1) The Division shall release credits to providers upon confirmation that project-specific milestones reflected in the project plan's credit release schedule have been met. Project-specific milestones for permanent nutrient offset credits shall conform to the following requirements:

(A) Credits shall not be released until the property is secured in fee title or by easement and financial assurance is posted for planting or construction of the project.

(B) No more than 50 percent of the credits shall be released for a project until financial assurance is provided for monitoring and maintenance activities lasting until project completion.

(C) No more than 80 percent of the credits shall be released for a project until the provider complies with the requirements of Paragraph (g).

(2) Once credits are released for a nutrient offset bank and until bank closure, nutrient offset bank providers shall provide a credit/debit ledger to the Division at intervals no less frequently than quarterly.

(3) The Division shall not release any credits for a project if that project is financed in whole or in part by State grant funding or federal grant funding.

(g) MAINTAINING PERMANENT NUTRIENT OFFSET CREDITS. All permanent nutrient offset projects shall comply with the following requirements:

(1) A provider shall transfer responsibility for oversight of a completed permanent project to a perpetual steward in accordance with this Paragraph and the approved project plan. A perpetual steward may also transfer responsibility to another perpetual steward in accordance with the terms of this Paragraph, subject to DWR approval. Perpetual stewards may not assume project maintenance or restoration responsibilities.

(2) The provider shall create and transfer to the perpetual steward a non-wasting endowment or other dedicated financial surety to provide for the oversight of the completed permanent project. The endowment amount shall be proportionate to the duties accepted by the perpetual steward.

(3) For projects utilizing conservation easements, the provider shall acquire and then transfer a conservation easement to a perpetual steward in accordance with 26 U.S.C. 170(h) and the Conservation and Historic Preservation Agreements Act, G.S. 121, Article 4. The terms of the conservation easement shall be consistent with a Division-approved template or be approved by the Division as conforming to Paragraph (c) of this Rule. Non-governmental perpetual stewards shall be accredited by the Land Trust Accreditation Commission or approved by the Division.

(4) For projects utilizing SCMs, they shall be placed in and protected by recorded drainage easements with recorded access easements to the nearest public right-of-way for purposes of operation and maintenance. These easements shall be granted in favor of the person or entity responsible for operating and maintaining the structures, with a note as to the responsible person or entity. Easements shall be of sufficient width for inspection and maintenance of the project.

The Division may temporarily or permanently invalidate permanent credits generated by an SCM if it determines that the SCM has been impacted due to failure to comply with the terms of an associated project plan, nutrient offset banking instrument, easement, maintenance agreement, other protective agreement, or this Rule.

(5) Projects designed to restore a natural ecological community at the project site, which are completed and then damaged by natural causes, may be passively restored exclusively through natural ecological processes.

(h) RENEWING TERM NUTRIENT OFFSET CREDITS. Expiring term nutrient offset credits may be renewed by the provider upon providing documentation to the Division that the project meets the credit approval standard

set forth in Paragraph (c) of this Rule for the duration of the renewal period.

(i) ADDITIONAL PROVISIONS REGARDING THE DIVISION OF MITIGATION SERVICES.

(1) DMS shall establish and revise nutrient offset rates as set out in 15A NCAC 02R .0602. Offset payments accepted by DMS shall be placed into the Riparian Buffer Restoration Fund administered by the Department pursuant to G.S. 143-214.21.

(2) On or before November 30 of each year, DMS shall provide an annual report to the Division concerning the nutrient in-lieu fee program that includes a requirement ledger. The requirement ledger shall include all nutrient offset credit requirements paid by 8-digit cataloguing unit or for each geographic area identified in Paragraph (b) of this Rule, the date by which the requirement shall be satisfied by a project, and the projects and credits that have been applied to all requirements.

(3) Subject to the geographic restrictions in Paragraph (b) of this Rule, DMS may accept payments for nutrient offset credits prior to initiating projects. After accepting payment, DMS shall construct projects that, upon completion as described in the approved project plan, will generate nutrient offset credits sufficient to fulfill all new requirements generated by these payments. Projects shall be instituted before the end of the first full State fiscal year after DMS receives payment and constructed before the end of the third full State fiscal year after DMS receives payment. DMS may also acquire credits from another provider to apply toward its requirements.

(4) If DMS fails to meet deadlines associated with project institution or construction as specified in Subparagraph (3) of this Paragraph, then DMS shall develop an action strategy to include in the annual report specified in Subparagraph (2) of this Paragraph. Action strategies shall include all of the following:

(A) a list of factors resulting in delays or deficiencies in procurement, project implementation, or construction;

(B) specific actions and a timeline planned by DMS to satisfy outstanding credit requirements such that a project will be instituted before the end of the first full state fiscal year after the action strategy is submitted to the Division in the annual report and constructed before the end of the third full state fiscal year after the action strategy is submitted to the Division in the annual report, unless otherwise specified in the action strategy;

(C) the anticipated date by which all outstanding nutrient offset credit requirements will be satisfied; and

(D) an evaluation of current progress in relation to any prior action strategies.

(j) NUTRIENT OFFSET CREDIT TRANSACTIONS. Parties who seek to acquire nutrient offset credits under rules of this Subchapter shall do so in compliance with those rules, the requirements of Paragraph (b) of this Rule, G.S. 143-214.26, and the following:

(1) Offset payments made to DMS shall be contingent upon acceptance of the payment by DMS. DMS shall consider its financial, temporal, and technical ability to satisfy the request to make its determination.

(2) Where persons seek to satisfy regulatory obligations for more than one nutrient type, they shall acquire nutrient reduction credits to address each type.

(3) Projects shall be approved and the associated offset credits released by the Division before they may be utilized for NPDES wastewater permit compliance purposes.

(4) For offset credits used to meet NPDES wastewater discharge requirements, the applicant shall provide 50 percent additional credits to address the uncertainty factor for using unmonitored nonpoint source reductions to meet point source discharge limits. Application of this ratio is in addition to other ratios that may be applied, including delivery or transport factors where applicable. Exceptions to the application of this uncertainty factor are as follows:

(A) The uncertainty factor for wastewater dischargers in the Jordan Lake watershed shall instead be determined in accordance with 15A NCAC 02B .0273(2)(d)(ii) until final action is taken with respect to that rule's next readoption pursuant to G.S. 150B-21.3A, S.L. 2016-94, and S.L. 2018-5.

(B) The uncertainty factor for wastewater dischargers in the Falls Lake watershed shall instead be determined in accordance with 15A NCAC 02B .0282(2)(b)(i) until final action is taken with respect to that rule's next readoption pursuant to G.S. 150B-21.3A, S.L. 2016-94, and S.L. 2018-5.

(5) Delivery factors shall be applied to estimate nutrient reductions to an impaired water body subject to a nutrient strategy if required under rules of this Subchapter for that strategy.

(6) Term credits may be utilized for compliance only during the year in which they are generated and as described in Subparagraph (d)(2) of this Rule. They may not be cumulatively banked for future years.

(k) DEVELOPER-RESPONSIBLE NUTRIENT OFFSET PROJECTS. A developer subject to new development stormwater requirements of this Subchapter may satisfy its nutrient reduction obligations by generating its own offsite credits. It may do so by establishing a nutrient offset bank and generating credits in accordance with this Rule. Alternatively, the developer shall comply with all provisions of this Rule governing the generation of nutrient offset credits by a provider with the following modifications:

(1) Instead of a credit release schedule, credit for the project may be assigned upon construction of the project and submission to the Division of the as-built report as described in the project plan;

(2) Credit shall be assigned at a 50 percent rate based on the design specifications of the fully completed project(s); and

(3) Liability for the generation of credits as described in the project plan remains with the developer until the completion of all milestones associated with the project.

(l) NPDES WASTEWATER PERMITTEE-RESPONSIBLE NUTRIENT OFFSET PROJECTS. A locality, authority, utility, or sanitation district operating a permitted wastewater facility subject to wastewater rules of this Subchapter may generate nutrient offset credits by installing projects in accordance with this Rule. Any credits generated may then be utilized for compliance purposes as if acquired from another provider.

*History Note: Authority G.S. 143-214.1; 143-214.20; 143-214.21; 143-214.26;*

*Eff. August 1, 1998;*

*Amended Eff. August 1, 2006;*

*Amended Eff. September 1, 2010;*

*Recodified from 15A NCAC 02B .0240 Eff. April 1, 2020;*

*Readopted Eff. April 1, 2020.*

# Appendix C - Falls Lake Rules Regulatory Background & History

Following an extensive stakeholder and rulemaking process the Falls Lake nutrient rules were adopted by the Environmental Management Commission in 2010 and went into effect in January 2011. In preparation for implementation of their Stage I load reduction programs, local governments were required to develop inventories and characterize load reduction potential of various nutrient reducing activities by January 2013. During that same year the Division developed a preliminary draft model program to assist local governments with developing their local load reduction programs. This model program was presented to the Commission in July 2013, at which time the Division requested more time to work with affected parties to continue developing credit accounting for additional nutrient reducing measures.

Over the next seven years the Division worked in collaboration with the Upper Neuse River Basin Association to develop nutrient credit for additional practices to add to the state’s Nutrient Catalog expanding the available options and to help affected parties achieve loading reductions in the most cost effective manner possible. During this time Staff also consulted with member local governments on the calculation of their preliminary Stage I jurisdictional load estimates and updated the Stormwater Nitrogen and Phosphorus accounting tool (SNAP) to allow for crediting of over and under-sized stormwater control measures. The updated SNAP tool was approved by the Division Director in 2018 and is currently being used for compliance with the Falls New Development Stormwater Rules.

While work on practices was ongoing the North Carolina General Assembly passed HB 74 in 2014 which requires the periodic readoption of all of the Department’s rules every ten years. In July 2016 S.L. 2016-94 was passed calling for an evaluation of the Falls and Jordan nutrient strategies and separating these rules from the rest of the periodic rules readoption process, setting later rulemaking timelines for these two watersheds. This legislation directed the University of North Carolina at Chapel Hill to oversee studies of the Jordan and Falls strategies and to provide recommendations to the Commission to guide further rulemaking. This was followed by S.L. 2018-5 which revised the due dates for the final UNC Falls study to December 2023 and extended the deadline for formally beginning the Falls rules readoption process to December 31, 2024. The UNC Collaboratory’s Falls Lake Study is currently underway with interim reports due to the Commission in 2021 and 2022.

In addition to the work by the UNC Collaboratory, the UNRBA has been conducting a re-examination process of the lake and nutrient management strategy that included collecting additional water quality monitoring data from the Falls watershed between August 2014 and October 2018. This additional data along with DWR’s annual lake monitoring data is being used by the UNRBA to remodel the lake and watershed and provide analyses to support the re-examination of Stage II of the Falls Lake Rules. The UNRBA’s ongoing modeling effort is scheduled to be completed in 2023. The results of this re-examination effort will be made available for consideration by the UNC Collaboratory to help guide any recommendations put forth in final UNC Falls Lake Study Report and will inform the Division's readoption of the Falls Lake nutrient management strategy.