Department of Public Works and Environmental Services

Technical Bulletin

Subject: Stormwater Management Ordinance - Use of Nutrient Credits to Meet Water Quality Control Requirements for Time Limits and Grandfathered Projects and Infill Lot Grading Plans in the Water Supply Protection Overlay District (WSPOD)

Date: May 28, 2015 **No.: 15-01**

Summary: This bulletin provides a clarification of existing Stormwater Management Ordinance requirements. Nutrient credits may be used to meet water quality control requirements in accordance with the table below.

Plan Type	Article 4 (new construction)	Article 5 (time limits & grandfathered)
Site & Subdivision Plans (outside the WSPOD)	YES	YES
Site & Subdivision Plans (in the WSPOD)	NO	NO
Infill Lot Grading Plans (outside the WSPOD)	YES	YES
Infill Lot Grading Plans (in the WSPOD)	YES	YES

Guidelines for computing phosphorus loads for Time Limits and Grandfathered projects are provided herein. As a reminder, nutrient credits may not be used to meet water quantity control requirements.

Effective Date: Immediately

Background: Except for site and subdivision plans in the WSPOD, nutrient credits may be used to meet the water quality control requirements of Articles 4 and 5 of the Stormwater Management Ordinance based on provisions in § 62.1-44.15:35 of the Virginia Stormwater Management Act (the Act). Nutrient credits may be used to meet the water quality control criteria of the Stormwater Management Ordinance for infill lot grading plans within the WSPOD because the WSPOD water quality control requirement only applies to plans subject to the Subdivision Ordinance or the Site Plan provisions of the Zoning Ordinance.

Article 5 of the Stormwater Management Ordinance contains the technical criteria applicable to Time Limits and Grandfathered projects. Article 5 does not explicitly provide for the use of nutrient credits for Time Limits and Grandfathered projects nor does the Part II C (9VAC25-870-93 et seq.) technical criteria of the Virginia Stormwater Management Program (VSMP) Regulation upon which Article 5 is based. Because the use of nutrient credits is explicitly provided for in Article 4 of the Stormwater Management Ordinance and Part IIB of the VSMP Regulation for construction subject to the new water quality control criteria, these omissions

from Article 5 and Part IIC could be interpreted as not allowing the use of nutrient credits for Time Limits and Grandfathered projects.

The allowance for the use of nutrient credits in the VSMP Regulation is derived from provisions in the Act. The provisions of the Act for use of nutrient credits do not preclude the use of nutrient credits for Time Limits and Grandfathered projects. The provisions of the Act take precedence over provisions in associated regulations. Therefore, the use of nutrient credits for Time Limits and Grandfathered projects is allowed subject to the criteria in the Act, with the exception that nutrient credits are not allowed to be used to meet the 50% phosphorus reduction requirement for site and subdivision plans in the WSPOD (i.e. Occoquan watershed). Nutrientcredits cannot be used in the WSPOD for site and subdivision plans because the Virginia Stormwater Management Act does not allow nutrient credits to be used in contravention of local water quality standards. Note that the conditions placed on the use of nutrient credits by the Virginia Stormwater Management Act (less than 5 acres of disturbed area, or less than 10 pounds of phosphorus, etc.) are the same for construction projects subject to the new Article 4 water quality control criteria and the Article 5 water quality control criteria for Time Limits and Grandfathered projects. Guidelines for the computation of phosphorus loads, which need to be determined to purchase nutrient credits, are provided below. See Technical Bulletin No. 14-13 Stormwater Management Ordinance Guidelines for Implementation, Part 2 for general information on using nutrient credits.

Guidelines for Computing Phosphorus Loads: The determination of compliance with the water quality control requirements for Time Limits and Grandfathered projects, 40% phosphorus reduction, uses what is referred to as the "Occoquan Method" which is a spreadsheet method that determines post-development compliance by multiplying water quality control (BMP) facility efficiencies by area weighted "C" factor ratios and area ratios of the subareas treated by the facilities. The product of the weighted "C" factors and area ratios is equivalent to the proportion of post-development phosphorus loads coming from each subarea used in the analysis. When these values are multiplied by the removal efficiencies of the BMP facilities serving each subarea and summed, the result is the total removal achieved for the site which is then compared to the required removal efficiency. Phosphorus loads are not explicitly computed with the "Occoquan Method."

In order to determine the amount of nutrient credits in pounds of phosphorus required in lieu of BMP facilities for Time Limits and Grandfathered projects, the post-development phosphorus load needs to be determined and multiplied by 40% (0.40). This value is the reduction required in pounds of phosphorus. If no BMP facilities will be provided, this computation may be performed either for the site as a whole or the site broken into subareas and summed. If some BMPs will be provided, computations must be performed using subareas in order to determine the reduction in pounds of phosphorus provided by the BMP facilities. The difference between reduction provided by the BMP facilities and the required reduction is the amount of nutrient credits in pounds of phosphorus that needs to be purchased.

Phosphorus loads for Time Limits and Grandfathered projects are determined using the "Chesapeake Bay Method" a.k.a. the "simple method" which is:

$L = 2.28072 \times [0.05 + (0.009 \times I)] \times A$
(Source: Eqn. 5-21 in the 1999 edition of the Virginia Stormwater Management Handbook)

Where:

L = total phosphorous load (pounds per year)
I = percent impervious cover (percent expressed in whole numbers)
A = applicable area (acres) [i.e. disturbed area]

If you only have Rational Method runoff coefficients ("C" factors) for the site subareas, you can convert the "C" factors to percent imperviousness using the following equation derived from the relationship between water quality control storage requirements and "C" factor or percent imperviousness depicted in Public Facilities Manual Plate 2-6.

I = 140 x "C" – 28 (If the "C" factor is 0.9, use a value of 100% impervious not the value of 98% impervious computed using the equation.)

Please note that only the "Chesapeake Bay Method" may be used to compute phosphorus loads for Time Limits and Grandfathered projects and that the Virginia Runoff Reduction Method may not be used.

If you have any questions, please contact the Site Code Research and Development Branch at **703-324-1780, TTY 711.**

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