



**Virginia Institute of Marine Science
Chesapeake Bay TMDL Action Plan**

September, 2015

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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Permit Number: VAR 040052

Date: October 1, 2015

2015 Chesapeake Bay Action Plan
Virginia Institute of Marine Science-Gloucester Point, Virginia

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Submitted to satisfy the terms of the
General VPDES Permit for Discharge of Stormwater from
Small Municipal Separate Storm Sewer Systems (MS4)

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Introduction

The Virginia Institute of Marine Science (VIMS) has developed this Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan (Action Plan) pursuant to the Special Condition for the Chesapeake Bay TMDL (General Permit Section I.C) as required by VIMS 2013-2018 Municipal Separate Storm Sewer System (MS4) Permit. The permit requires reductions of the Chesapeake Bay pollutants of concern (POCs) from existing development, including both impervious and pervious land that drains to VIMS MS4. The Chesapeake Bay POCs include nitrogen, phosphorous, and sediment. This Action Plan was developed to conform to the Virginia Department of Environmental Quality (DEQ) Guidance Memo No. 15-2005, dated May 18, 2015.

The Action Plan provides a review of the current MS4 program, which demonstrates VIMS ability to ensure compliance with the Special Conditions. It describes the required reduction in POCs, as well as the means and methods to be used in achieving 5.0% of the total reductions during the 2013-2018 permit cycle, as required by the permit. This is to be followed by a 35%, and 60% reduction in the following two cycles respectively. For the purposes of this Action Plan, the primary focus will be on Permit Cycle One and the associated 5% reduction requirements.

The Action Plan was completed in September, 2015, and will be submitted to DEQ with VIMS MS4 Program Annual Report for the reporting period of July 1, 2014 through June 30, 2015. Should the Action Plan need to be updated to reflect new project opportunities, to address projects deemed infeasible, or for any other reason, updates will be submitted to the Department in accordance with the Program Plan Modification section of the General Permit (GP Section II.F.1).

This Action Plan includes the following components as required by the General Permit:

1. ***Current Program and Existing Legal Authority*** – Permit Section I.C.2.a.(1)
2. ***New or Modified Legal Authority*** – Permit Section I.C.2.a.(2)
3. ***Means and Methods to Address Discharges from New Sources*** – Permit Section I.C.2.a.(3)
4. ***Estimated Existing Source Loads and Calculated Total (POC) Required Reductions*** – Permit Section I.C.2.a.(4) and I.C.2.a.(5)
5. ***Means and Methods to Meet the Required Reductions and Schedule*** – Permit Section 1.C.2.a(6)
6. ***Means and Methods to Offset Increased Loads from New Sources Initiating Construction Between July 1, 2009 and June 30, 2014*** – Permit Section 1.C.2.a.(7)
7. ***Means and Methods to Offset Increased Loads from Grandfathered Projects that Begin Construction after July 1, 2014*** – Permit Section 1.C.2.a.(8)

8. ***A List of Future Projects, and Associated Acreage that Qualifies as Grandfathered*** – Permit Section 1.C.2.a.(10)
9. ***A Estimate of the Expected Cost to Implement the Necessary Reductions*** – Permit Section 1.C.2.a.(11)
10. ***Public Comment Process*** – Permit Section 1.C.2.a.(12)

1.0 Current MS4 Program and Existing Legal Authority

The Virginia Institute of Marine Science falls under the Phase II MS4 regulations as a small municipal storm sewer system operator, based on the definition found in 40 CFR 122.26(b)(8). As an operator of a small MS4, VIMS must develop and implement a MS4 Program designed to reduce the discharge of pollutants from the small MS4 to the maximum extent practicable, to protect water quality and to satisfy the water quality requirements of the Clean Water Act and its regulations.

As the operator of the MS4, the Facilities Management Department has the responsibility to administer a comprehensive and compliant Stormwater Management Plan. VIMS has developed and administered a compliant MS4 program since it was first permitted in 2003. The program is based on the six minimum control measures (MCM) found in the Phase II MS4 General Permit. Best management practices implemented to comply with the minimum control measures can be found in the VIMS MS4 Plan and annual reports. The MCMs include:

1. Public education and outreach on stormwater impacts
2. Public involvement/participation
3. Illicit discharge detection and elimination (IDDE)
4. Construction site stormwater runoff control
5. Post-construction stormwater management
6. Pollution prevention/good housekeeping for municipal operations

The following is a list of VIMS relevant existing legal authority and policies:

- MS4 Program Plan
- Illicit Discharge Detection and Elimination. October, 2004
- Annual Standards and Specifications for Erosion and Sediment Control, March 2013, College of William and Mary

Regarding legal authority over contractor activities, all contractors performing land disturbing activities on VIMS property are required, through contract documents, to obtain all applicable permits before construction activity commences, and to follow the College of William and Mary Annual Standards and Specifications for Erosion and Sediment Control.

2.0 New or Modified Legal Authority

VIMS has no new or modified legal authorities such as ordinances, state and other permits, orders, specific contract language and/or inter-jurisdictional agreements implemented or needing to be implemented to meet the requirements of this special condition.

3.0 Means and Methods to Address Discharges from New Sources

VIMS Erosion and Sediment Control (ESC) program operates under DEQ approved Annual Standards and Specifications administered by the College of William and Mary. VIMS is the graduate School of Marine Science (SMS) for the College. VIMS requires all development projects that are 2,500 square feet or greater to have an ESC plan that conforms to the Annual Standards and Specifications. The College of William and Mary does not have a Virginia Stormwater Management Program (VSMP) authorized by DEQ, so VIMS submits the Stormwater Pollution Prevention Plan (SWPPP) required for all construction projects to DEQ for review and approval. The SWPPP includes the following elements:

- Erosion and Sediment Control Plan
- Stormwater Management Plan
- Pollution Prevention Plan

The VIMS project manager is responsible for requiring site design that meets the technical criteria of the Virginia Stormwater Management Regulations, and that a VSMP Construction General Permit (CGP) is obtained from DEQ.

Pre-construction meetings are routinely held to clarify ESC and SWM expectations. Construction sites are inspected regularly by certified personnel to ensure compliance with the CGP, approved plans, and all applicable regulations, standards, and specifications. Inspection reports are issued to project personnel, and noncompliance corrected under the supervision of the project manager. The General Conditions of the Construction Contract requires contractors to have a Responsible Land Disturber on site.

Permanent stormwater facilities are inspected for conformance to plans, specifications, and standards, and as-built drawings are filed for long-term inspections. Inspections of stormwater facilities is conducted twice annually.

VIMS has two construction projects that are currently in preliminary design. The designs are between 30 and 50 percent complete. Both these projects are over one

acre and are being designed to collect and treat stormwater runoff in accordance with the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. The designs are actually by a single large professional civil and environmental engineering firm acting as a subcontractor to two different architectural and engineering firms. One project is being designed to handle the project specific runoff of 2,500 cubic feet and 0.75 lb/yr of total phosphorus removal and it will also be used to meet the MS4 Program, TMDL requirements for the permit cycle ending on June 30, 2018.

4.0 Estimated Existing Source Loads and Calculated Total POCs Required Reductions

Figure 1 shows VIMS property boundary and regulated MS4 area. It also shows the 2009 baseline pervious and impervious areas within the VIMS campus. Pervious and impervious acreage from which loads were derived were delineated by Bay Design Group in a 2013 study that was used by VIMS to develop a stormwater management plan.

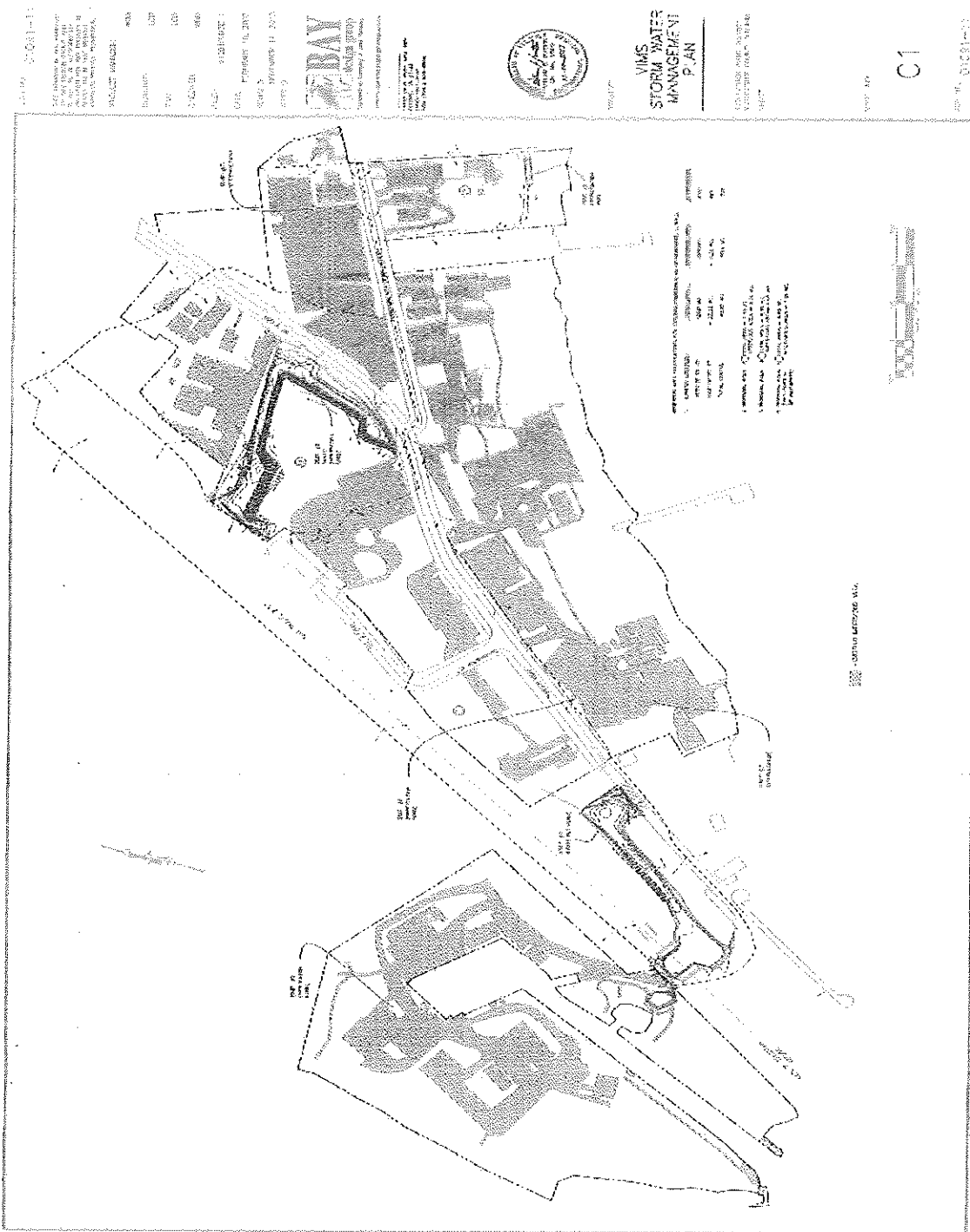


Figure 1: VIMS regulated Area

Table 2d provides the baseline existing source loads.

Table 2d: Calculation Sheet for Estimating Existing Source Loads for the York River Basin				
*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre/yr)	Estimated Total POC Load Based on 2009 Progress Run (lb/yr)
Regulated Urban Impervious	Nitrogen	15.14	7.31	110.67
Regulated Urban Pervious		25.28	7.65	193.39
Regulated Urban Impervious	Phosphorous	15.14	1.51	22.86
Regulated Urban Pervious		25.28	0.51	12.89
Regulated Urban Impervious	Total Suspended Solids	15.14	456.68	6,914.14
Regulated Urban Pervious		25.28	72.78	1839.88

Table 3d provides the required pollutant reductions.

Table 3d: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the York River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2				
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre/yr)	Estimated Total POC Load Based on 2009 Progress Run (lb/yr)
Regulated Urban Impervious	Nitrogen	15.14	0.03	0.45
Regulated Urban Pervious		25.28	0.02	0.51
Regulated Urban Impervious	Phosphorous	15.14	0.01	0.15
Regulated Urban Pervious		25.28	0.002	0.05
Regulated Urban Impervious	Total Suspended Solids	15.14	4.60	69.64
Regulated Urban Pervious		25.28	0,32	8.09

5.0 Means and Methods to Meet the Required Reductions and Schedule

VIMS plans to meet the required reductions and schedule through a renovation project that will use pervious pavers for an existing impervious parking lot and collecting stormwater that currently falls on another impervious parking lot by replacing it with a building and courtyard with drains. Both these areas will drain to a biofiltration bed.

The renovation project is currently in preliminary design as mentioned earlier. The drainage collection system used and stormwater calculations performed to date show that the required reductions in total POC can be met by this renovation project. Funding for construction is expected to be received in July, 2016 and construction completed in early 2017 a year ahead of the required June 30, 2018 deadline.

6.0 Means and Methods to Offset Increase Loads from New Sources Initiating Construction Between July 1, 2009 and June 30, 2014

There was only one construction project that occurred at VIMS during this period and the limits of disturbance were 31,308 square feet, under the one acre limit. There was a net increase of pervious area of 11.6 per cent for this project. A Stormwater Management Plan was developed by DJG Engineers which determined no treatment was required and the calculation was approved by the Department of Conservation and Recreation on October 22, 2010.

7.0 Means and Methods to Offset Increased Loads from Grandfathered Projects that Begin Construction After July 1, 2014

VIMS has no projects that have obligated funding in whole, or in part, prior to July 1, 2012, no state permits have been issued prior to July 1, 2014, and there has been no land disturbance prior to July 1, 2014. Therefore, VIMS has no grandfathered projects as defined by 9VAC25-870-48.B. 1 through 3.

8.0 A List of Future Projects, and Associated Acreage that Qualify as Grandfathered

VIMS has no projects that have obligated funding in whole, or in part, prior to July 1, 2012, no state permits have been issued prior to July 1, 2014, and there has been no land disturbance prior to July 1, 2014. Therefore, VIMS has no grandfathered projects as defined by 9VAC25-870-48.B. 1 through 3.

9.0 An Estimate of the Expected Cost to Implement the Necessary Reductions

The estimated cost to renovate the existing parking lot with pervious pavers and collect stormwater from the new paved area courtyard and building roof and channel it to a biofiltration bed is provided in Table 9.0 below. This summary is based on a preliminary cost estimate for the design plans by the firm of RRMM Architects and is subject to change upon bids received for construction.

Design Cost	\$8,000
Construction Cost	\$270,000
Total Cost	\$278,000

10.0 Public Comments on the Draft Action Plan

The Draft Action Plan was posted on the VIMS Facilities Management website for at least three weeks in order to receive comments and feedback from any member of the VIMS faculty, staff, student body, or the community. The webpage is located at http://www.vims.edu/intranet/facilities_management/stormwater_management/index.php. One person commented but those comments were not incorporated into this Action Plan.