

## NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) INDIVIDUAL PERMIT TO DISCHARGE STORMWATER FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) APPLICATION

Before completing this form, read the step-by-step instructions provided in this application package.

<b>Related ID#s (If Known)</b> Client ID# _____ Site ID# _____ Facility ID# _____ APS ID# _____ Auth ID# _____	<b>DEP USE ONLY</b> Date Received _____  PA _____ PDG? _____
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### GENERAL INFORMATION

Type of Permit:     New Permit     Renewal of Permit    Permit No.: PA \_\_\_\_\_

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Is a waiver of coverage being requested and is a waiver application attached to this application?     Yes     No

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Is individual permit coverage requested for more than one MS4 applicant?     Yes     No

If Yes, submit this application for each co-applicant and complete the information below (see instructions):

Joint Client Name: \_\_\_\_\_ Joint Client Phone: \_\_\_\_\_

Joint Client Address: \_\_\_\_\_ Joint Client Contact: \_\_\_\_\_

Joint Client City, State, Zip: \_\_\_\_\_

### MS4 CLIENT/OPERATOR INFORMATION

DEP Client ID#	Client Type/Code		
	<b>MUNI</b>		
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#	
<b>Upper Oxford Township</b>	<b>23-6000543</b>		
Mailing Address Line 1	Mailing Address Line 2		
<b>1185 Limestone Road</b>			
Address Last Line – City	State	ZIP+4	Country
Oxford	<b>PA</b>	<b>19363</b>	<b>USA</b>
Client Contact Last Name	First Name	MI	Suffix
<b>Daggett</b>	<b>Jane</b>		
Client Contact Title	Phone	Ext	
<b>Secretary</b>	<b>(610)932-9233</b>		
Email Address	FAX		
<b>upperoxford@hotmail.com</b>	<b>(610) 932-0962</b>		

### MS4 SITE INFORMATION

DEP Site ID#	Site Name				
	<b>Upper Oxford Township</b>				
Urbanized Area (UA) Name(s)	UA Area (specify acres or mi <sup>2</sup> )				
<b>Philadelphia, PA-NJ-DE-MD</b>					
County Name	Municipality Name	City	Boro	Twp	State
<b>Chester</b>	<b>Upper Oxford</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
County Name	Municipality Name	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site Location Address Line 1	Site Location Address Line 2				
<b>1185 Limestone Road</b>					

Site Location City <b>Oxford</b>	State <b>PA</b>	ZIP+4 <b>19363</b>
Detailed Written Directions to Site <b>Municipal Building - at intersection of PA-10 and Catamount Road</b>		
Site Contact Last Name <b>Daggett</b>	First Name <b>Jane</b>	MI Suffix
Site Contact Title <b>Secretary</b>	Site Contact Firm <b>Upper Oxford Township</b>	
Mailing Address Line 1 <b>1185 Limestone Road</b>	Mailing Address Line 2	
Address Last Line – City <b>Oxford</b>	State <b>PA</b>	ZIP+4 <b>19363</b>
Phone <b>(610) 932-9233</b>	Ext FAX <b>(610) 932-0962</b>	Email Address <b>upperoxford@hotmail.com</b>
SIC Code(s) (List All That Apply) <b>OWNOP</b>		NAICS Code(s) <b>92</b>
Site-to-Client Relationship <b>OWNOP</b>		

**STORMWATER DISCHARGE INFORMATION**

**Map(s).** Attach a map(s) to the application that identifies all stormwater discharge points (outfalls) from the MS4 to surface waters. For MS4s with existing permit coverage (that did not receive a waiver from DEP during the latest permit term), the map must include all elements required by MCM #3 in the NPDES permit. See instructions.

**Surface Water Information.** For each surface water body that receives stormwater discharges from the MS4, list the surface water, the furthest downstream outfall ID number, and the surface water's existing use, impairment and TMDL/WLA information in the table below. See instructions. **NOTE** – If the MS4 discharges to any surface water whose existing use is HQ or EV, the MS4 must apply for an individual permit.

Surface Water Name	Outfall No.	Ch. 93 Existing Use	Impaired?	Approved TMDL?	WLA?
East Branch Big Elk Creek/Chesapeake Bay	003	HQ-TSF-MF	Yes	No	No
Chesapeake Bay	N/A				

**Outfall Locations.** For each outfall identified in the table above, list the latitude and longitude coordinates. Identify the Horizontal Reference Datum used to determine the coordinates.

Outfall No.	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
003	39	48	59.1	75	53	56.3

Horizontal Reference Datum:     NAD of 1927     NAD of 1983     WGS of 1984     Unknown

**TMDL Details.** For any surface water with an approved TMDL in which a WLA is applicable to the MS4, provide the WLAs below.

Surface Water Name	TMDL Name	Pollutant Name	TMDL WLA (lbs/yr)	Specific or General

**MS4 Requirements.** Are requirement(s) specified in DEP's MS4 Requirements Table for the MS4?     Yes     No

If Yes, summarize the requirements below by checking all boxes that apply:

- Appendix A (AMD Metals and pH)
- Appendix B (Pathogens)
- Appendix C (Priority Organic Compounds)
- Appendix D (Chesapeake Bay Nutrients/Sediment)
- Appendix E (Impaired Waters Nutrients/Sediment)
- TMDL Plan
- Pollutant Reduction Plan attached to application
- Pollutant Reduction Plan attached to application
- TMDL Plan attached to application

**NOTE – Appendices D and E and the TMDL Plan require the applicant to submit documentation of a public involvement and participation process.**

**STORMWATER MANAGEMENT PROGRAM**

Check here if the applicant is relying and will continue to rely on Pennsylvania’s Chapter 102 program for erosion and sediment control (E&S) and post-construction stormwater management requirements. (If checked, there is no need to complete the information in the table below for MCM #4, BMPs #4 – #8, and MCM #5, BMPs #4 – #6).

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#1 – Public Education and Outreach	1	Develop, implement and maintain a written Public Education and Outreach Program.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	2	Develop and maintain lists of target audience groups that are present within the areas served by the permittee’s regulated small MS4.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	3	The permittee shall annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a website that includes general stormwater educational information, a general description of the permittee’s SWMP, and/or information about the permittee’s stormwater management activities.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	4	Distribute stormwater educational materials and/or information to the target audiences using two methods annually.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
#2 – Public Participation and Involvement	1	Develop, implement and maintain a written Public Involvement and Participation Program (PIPP).	Upper Oxford	Jane Daggett	910.932.9233	<input type="checkbox"/>
	2	Provide adequate public notice and opportunities for public review, input, and feedback prior to adoption of any ordinance, SOP or plan required by the General Permit.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	3	Regularly solicit public involvement and participation from the target audience groups using available distribution and outreach methods.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
#3 – Illicit Discharge Detection and Elimination	1	Develop and implement a written program for the detection, elimination, and prevention of illicit discharges into the regulated MS4.	Upper Oxford	Jane Daggett	910.932.9233	<input type="checkbox"/>
	2	Develop and maintain a map of the regulated small MS4’s outfalls and surface waters.	Upper Oxford	Jane Daggett	910.932.9233	<input type="checkbox"/>
	3	In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), new permittees shall show, and existing permittees shall update, the entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, and any other features of the permittee’s storm sewer system including municipal boundaries and/or watershed boundaries.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#3 – Illicit Discharge Detection and Elimination (continued)	4	The permittee shall conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	5	Enact a Stormwater Management Ordinance (municipal permittees) or SOP (non-municipal permittees) to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	6	Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
#4 – Construction Site Stormwater Runoff Control	1	If an NPDES permit is required for earth disturbance activities, do not issue a building permit or approval until confirmation that a valid NPDES permit is obtained.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	2	Notify DEP or CCD within 5 days of the receipt of an application for a permit involving an earth disturbance activity consisting of one acre or more.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	3	Enact, implement, and enforce an ordinance to require the implementation of erosion and sediment control BMPs, as well as sanctions to ensure compliance.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	4	Review Erosion and Sediment (E&S) control plans to ensure that such plans adequately consider water quality impacts and meet regulatory requirements.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	5	Conduct inspections regarding installation and maintenance of E&S control measures during earth disturbance activities. Maintain records of site inspections, including dates and inspection results, in accordance with the record retention requirements in this General Permit.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	6	Conduct enforcement when installation and maintenance of E&S control measures during earth disturbance activities does not comply with permit and/or regulatory requirements.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	7	Develop and implement requirements for construction site operators to control waste at construction sites that may cause adverse impacts to water quality. The permittee shall provide education on these requirements to construction site operators.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#4 – Construction Site Stormwater Runoff Control (continued)	8	Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public to the permittee regarding local construction activities. The permittee shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
#5, Post-Construction Stormwater Management in New Development and Redevelopment	1	Enact, implement, and enforce an ordinance or other regulatory mechanism to address post-construction stormwater runoff from new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	2	Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new development and redevelopment.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	3	Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all development or redevelopment projects that disturb greater than or equal to one acre.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	4	Review PCSM Plans and require the implementation of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts and that are designed to maintain pre-development runoff conditions, and implement a tracking system for qualifying projects and associated PCSM BMPs.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	5	Inspect all qualifying development or redevelopment projects to ensure proper installation of the approved structural PCSM BMPs.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	6	Develop a written program that describes how the permittee shall implement and enforce all required components of this MCM.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
	#6 – Pollution Prevention / Good Housekeeping	1	Identify and document all operations that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4.	Upper Oxford	Jane Daggett	610.932.9233
2		Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the regulated small MS4.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>
3		Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from operations to the regulated small MS4.	Upper Oxford	Jane Daggett	610.932.9233	<input type="checkbox"/>

**STORMWATER MANAGEMENT PROGRAM**

**MOU or Agreement.** Attach any Memorandum of Understanding (MOU) or other written agreement that describes the BMP(s) identified above as being the responsibility of another party or a shared responsibility with another party.

**Stormwater Management Ordinance.** For municipal applicants that are renewing permit coverage, complete the information below and attach the applicant's Stormwater Management Ordinance to the NOI. The box for "Yes" must be checked for one of the three options below. Applicants that lack the authority to enact ordinances and are renewing permit coverage must attach their stormwater management SOP(s).

1.	Has a Stormwater Management Ordinance been enacted that is consistent with either the 2013 or 2022 DEP Model Ordinances?	<input checked="" type="checkbox"/> Yes	Date: <b>12/9/2013</b>	<input type="checkbox"/> No
2.	Has a Stormwater Management Ordinance been enacted that is consistent with an Act 167 Plan approved by DEP in 2005 or later?	<input checked="" type="checkbox"/> Yes	Date: <b>12/9/2013</b>	<input type="checkbox"/> No
3.	Has a Stormwater Management Ordinance been enacted that meets the requirements of the Stormwater Management Ordinance Checklist (for either 2013 or 2022)? If Yes, attach Checklist (3800-PM-BCW0100g).	<input type="checkbox"/> Yes	Date:	<input checked="" type="checkbox"/> No

**COMPLIANCE HISTORY**

**Existing Permits** – Identify all existing environmental permits issued by DEP or EPA to the applicant in the past five years.

Type of Permit	Permit No.	Date Issued	Issued By
			PADEP

Was/Is the facility owner or operator in violation of any DEP regulation, permit, order or schedule of compliance at this or any other facility?  Yes  No

If "Yes," list each permit, order or schedule of compliance and provide current compliance status. Use additional sheets to provide information on all permits.

Permit Program: \_\_\_\_\_ Permit No.: \_\_\_\_\_

Brief Description of Non-Compliance: \_\_\_\_\_

Steps Taken to Achieve Compliance	Date(s) Compliance Achieved

Current Compliance Status:  In Compliance  In Non-Compliance

**CERTIFICATION**

I certify under penalty of law and subject to the penalties of 18 Pa. C.S.A. Section 4904 (relating to unsworn falsification to authorities) 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 gathered and evaluated 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.

Jane Daggett

\_\_\_\_\_  
**Name** (type or print legibly)

Secretary

\_\_\_\_\_  
**Official Title**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date Signed**



# Pollutant Reduction Plan (PRP) for Chesapeake Bay: Big Elk Creek Watershed

This Plan is required by PADEP and US EPA as part of a permit issued to allow discharge of stormwater to streams and other surface waters when it originates in any part from a Municipal Separate Storm Sewer System (MS4).

May 10, 2021

Revised July 9, 2021

Prepared For:

UPPER OXFORD TOWNSHIP  
CHESTER COUNTY, PENNSYLVANIA

Prepared By:

Ragan Engineering Associates, Inc.  
310 Walnut Glen Road  
Lincoln University, PA 19352  
Phone: 610.255.3400  
Email: ron.rea@verizon.net

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Exhibit 4 Pollutant Load Summary  
Exhibit 5 Existing BMP Inventory  
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Exhibit 7 Proposed BMP Inventory  
Exhibit 8 Public Notice

## **OVERVIEW**

Upper Oxford Township was covered under a Pennsylvania Department of Environmental Protection (PADEP), National Pollutant Discharge Elimination System (NPDES) Permit, but it was not administratively extended. So, technically the Township does not have a permit at this time. This type of permit is required by both PADEP and the US Environmental Protection Agency (EPA) in order to comply with the Federal Clean Water Act and Pennsylvania's Clean Streams Law. This Application is for a new permit to be reinstated.

Along with the application, a Pollutant Reduction Plan (PRP) for sediment (siltation) and nutrients (nitrogen and phosphorus) must be submitted along with the permit application. The Pollutant Reduction Plan (PRP) is for the land categorized as: 1) urbanized area based on the 2010 Census prepared by the US Census Bureau and 2) draining to non-attaining waters as determined by PADEP. The Chesapeake Bay Pollutant Reduction Plan (PRP) is applicable in Upper Oxford Township. Please note that when describing surface waters, non-attaining, impaired and polluted have the same meaning and are interchangeable. See Exhibit 1 - Urbanized Area and Impaired Streams Map for the extent of the urbanized area and non-attaining streams in Upper Oxford Township. Exhibit 2 - MS4 Requirements Table for the PADEP requirement identifies the pollutants of concern in the Township. The Township is supposed to remove 3% of the Total Nitrogen (TN), 5% of the Total Phosphorus (TP) and 10% of the Total Suspended Solids (TSS) in the next permit cycle.

To achieve the goals identified in the previous paragraph, the Township followed the following five steps:

For the first step, calculations were performed to estimate the TN, TP and TSS load generated from each individual area draining to 15 MS4 Outfalls. The 15 MS4 Outfalls all discharge into the Big Elk Creek watershed and then into the Chesapeake Bay. Refer to Exhibit 3 – Work Map – Existing and Proposed Stormwater Facilities and Storm Sewersheds Map. The pollutant load was determined multiplying the loading rates for each pollutant for impervious and pervious areas in each Storm Sewershed (see Exhibit 3). The loading rates for impervious and pervious cover as provided in the PRP Instructions are presented in Table 1. A detailed breakdown of the pollutant load calculations sewershed by sewershed is presented in Exhibit 4 – Pollutant Load Summary.

**Table 1**

<b>Cover</b>	<b>TN (lbs/ac/yr)</b>	<b>TP (lbs/ac/yr)</b>	<b>TSS (lbs/ac/yr)</b>
Impervious	21.15	1.46	1504.78
Pervious	14.09	0.36	185.12

For the second step, calculations were performed to estimate the amount of TN, TP and TSS load removed by existing BMP's. Exhibit 5 – Existing BMP Inventory identifies the two existing BMPs in the urbanized area. The total TN, TP and TSS load removed was determined based on the removal efficiency of the type of BMP. The removal efficiency for various type of BMPs is presented in Exhibit 6.

For the third step, the reduced sediment load calculated in the second step was multiplied by 3% for TN, 5% for TP and 10% for TSS to determine the required pollutant load to be removed during the upcoming 5-year permit cycle. The total TN, TP and TSS load (base load) after considering the pollutant removed by existing BMPs is presented in Table 1. Table 2 then applies the target removal rates and presents the target load to be removed.

**Table 2**

<b>Load</b>	<b>TN (lbs/yr)</b>	<b>TP (lbs/yr)</b>	<b>TSS (lbs/yr)</b>
Base Load	1935.5	61.2	41,574.5
Removal Load	58.1	3.1	4157.5

For the fourth step, the type and location of the best management practices (BMPs) were selected to achieve the required sediment load reduction for this 5-year permit cycle. Refer to Exhibit 3 – MS4 Work Map – Existing and Proposed Stormwater Facilities and Storm Sewersheds for the locations of the proposed BMP locations. Exhibit 7 – Proposed BMP Inventory identifies the three proposed BMPs in the urbanized area. Two of the Proposed BMPs are retrofitted Existing BMPs and one is a new facility.

For the fifth step, calculations were performed to estimate the amount of TN, TP and TSS load generated by the area draining to the proposed BMPs. That load was then reduced by the incremental removal efficiency from the second step with or without an existing BMP and this step with the proposed BMPs installed. The resultant removal percentage was determined and compared to the target removal percentages. In all cases the proposed removal rates exceeded the target for the first 5-year permit cycle. Selection of proposed BMP locations within the Chesapeake Bay Pollutant Reduction Plan (PRP) area is restricted by the small amount of urbanized area and the absence of public lands within the urbanized area. All proposed BMPs within the Chesapeake Bay Pollutant Reduction Plan (PRP) are required to be installed on private property.

**Table 3**

<b>Scenario</b>	<b>TN (lbs/yr)</b>	<b>TP (lbs/yr)</b>	<b>TSS (lbs/yr)</b>
Loads w/o Ex. BMPs	1957.5	62.8	42,735.8
Loads w/ Ex. BMPs	1935.5	61.2	41,574.5
Loads w/ Pro. BMPs	1676.3	54.3	37,325.9
Target Load Reduction	58.1	3.1	4157.5
Achieved Load	259.2	3.9	4248.6
Reduction (%)	13.4	11.3	10.2

## **ASSUMPTIONS**

In preparing the PRP, Upper Oxford Township made the following assumptions:

- The use of the Chester County surface water GIS map is acceptable to delineate the streams on Upper Oxford Township's MS4 maps.
- The Township will use the PA BMP Manual for the design requirements for a Dry Extended Detention Basin.
- If an existing BMP is retrofitted, the existing BMP must be counted as both an existing BMP and the retrofitted BMP must be counted as a proposed BMP. The retrofitted BMP may not be counted as only a proposed BMP. A list of the required information necessary to document an existing BMP was provided.
- For a retrofit to a Dry Extended Detention Basin, amended soils are proposed to be added to the bottom. The designer shall determine how much amended soil is required to be added to the bottom of the existing BMP to achieve the desired result.
- Drainage areas tributary to the existing BMPs and the proposed BMPs are shown, but not required to be provided on Upper Oxford Township's MS4 maps.
- Cost estimates for proposed BMPs are not required to be provided with the PRP Narrative. Cost estimates for proposed BMPs should be included with the annual reports during the 5-year permit cycle.

## **REQUIRED ELEMENTS**

In their PRP instructions document, PADEP identifies seven elements, A through G, that are required to be included in the PRP. These are addressed as follows:

- A. Public Participation - This Pollutant Reduction Plan (PRP) has been advertised as available for public comment for a period of 30 days including at a public meeting of the Board of Supervisors. The advertisement occurred 45 days prior to the deadline for submission to PADEP. See a copy of the public notice in Exhibit 8. If any comments are received, they will be considered, and a response provided and included in Exhibit 8.
- B. Map - A map identifying land uses and the storm sewershed boundary to each MS4 outfall that discharges to impaired waters is required. As noted above, there are 15 MS4 Outfalls to the Chesapeake Bay via the Big Elk Creek. All required elements are shown on Exhibit 3.
- C. Pollutants of Concern - The pollutants of concern for Big Elk Creek/Chesapeake Bay are sediment and nutrients as shown in Exhibit 2.
- D. Determine Existing Loading for Pollutants of Concern - The existing loading estimate date is required to be as of the date of the development of the PRP which in Upper Oxford Township's case is July 2021. Use of the "simplified method" was chosen to calculate existing loads and is shown below. Impervious/pervious surfaces were based on estimates of the impervious/pervious cover developed by the Chester County Planning Commission as of June 2018 (see Exhibit 4). Loading rates were taken from Attachment B of the PRP

Instructions (see Table 2). The total area in storm sewersheds for 15 MS4 outfalls = 131.98 acres. The impervious surface in storm sewersheds for the 15 MS4 outfalls is 13.87 acres and the pervious surface in storm sewersheds for 15 MS4 outfalls is 118.11 acres. The existing loading for pollutants of concern are shown in Table 3.

- E. Deduct Loading for Existing BMPs - Use of the "simplified method" was chosen to calculate existing loads and is shown below (see D above). There are two storm sewersheds that have BMPs that treat their runoff. Both of the BMPs are detentions basins. Using the BMP Effectiveness Values Table (see Exhibit 6), the pollutant loads were reduced by the applicable removal rates for TN, TP and TSS for a detention basin. The resultant pollutant load is presented in Table 3. The base loads to which the pollutant load reduction target was applied is shown in Table 3 in the "w/ BMP row".
  
- F. Select BMPs to Achieve the Minimum Required Reduction in Pollutant Loading - As part of this application, the Township has performed limited preliminary investigations, including site visits and calculations of several BMP candidates that include riparian buffer plantings, stream bank restoration, and detention basin retrofits in order to determine the extent of work that may be required to meet the reduction goal. It should be noted that PADEP's BMP Effectiveness Values table offers up to 16 BMP types that could be selected to meet sediment reduction loads. Any combination of BMPs could ultimately be evaluated and determined to meet the load reduction needs. Upper Oxford Township will ultimately select from the list provided on PADEP's BMP Effectiveness Values table. The location for the BMP would typically be located within the urbanized area, with the exception of the stream restoration that is permitted to be located outside of the urbanized area.
  
- G. Identify Funding Mechanism(s) - It is expected that design and construction of the proposed BMP for this 5-year permit cycle will be part of the Township's general fund budget. The Township is hereby committing to the installation of the BMP identified or as revised with the approval of PADEP. No partners or sponsors are expected at this time but may be explored in the future.
  
- H. Identify Responsible Parties for Operation & Maintenance (O&M) of BMPs - O&M is required to assure that existing BMPs and proposed BMPs continue to function properly and provide the expected reduction in sediment and nutrient loads. For existing BMPs and proposed BMPs located on private property, it is the responsibility of the individual property owner or Homeowners Association to ensure that the existing and proposed BMPs are operated and maintained properly. Upper Oxford Township has always taken an active role in assuring that all stormwater infrastructure within the entire Township is operated and maintained as designed. It is the Township's intention to continue inspecting all existing BMPs and proposed BMPs constructed in the Township and to continue monitoring and facilitating needed repairs whether they be the financial responsibility of an individual, a Homeowners Association or the Township itself. Perpetual O & M procedures will be completed per the Pennsylvania Stormwater Best Management Practices Manual,

**CONCLUSION**

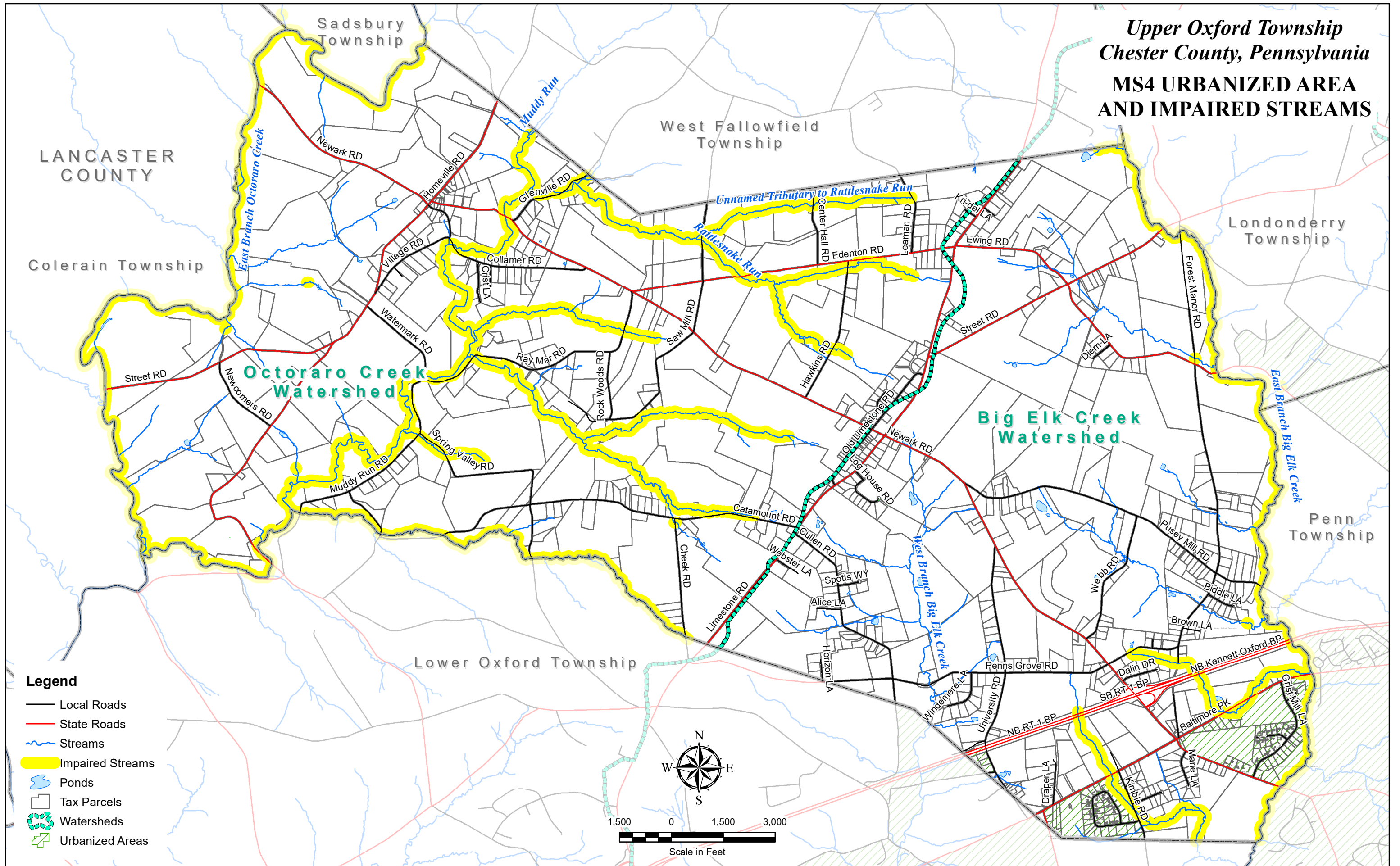
The short-term required pollutant reduction of 3% TN, 5% TP and 10% TSS can be achieved by Upper Oxford Township for Big Elk Creek/Chesapeake Bay watershed due to the addition of proposed BMPs. The actual proposed load reduction is TN = 13.4%, TP = 11.3% and TSS = 10.2%.

# Exhibit 1

## MS4 Urbanized Area and Impaired Streams Map



**Upper Oxford Township  
Chester County, Pennsylvania  
MS4 URBANIZED AREA  
AND IMPAIRED STREAMS**



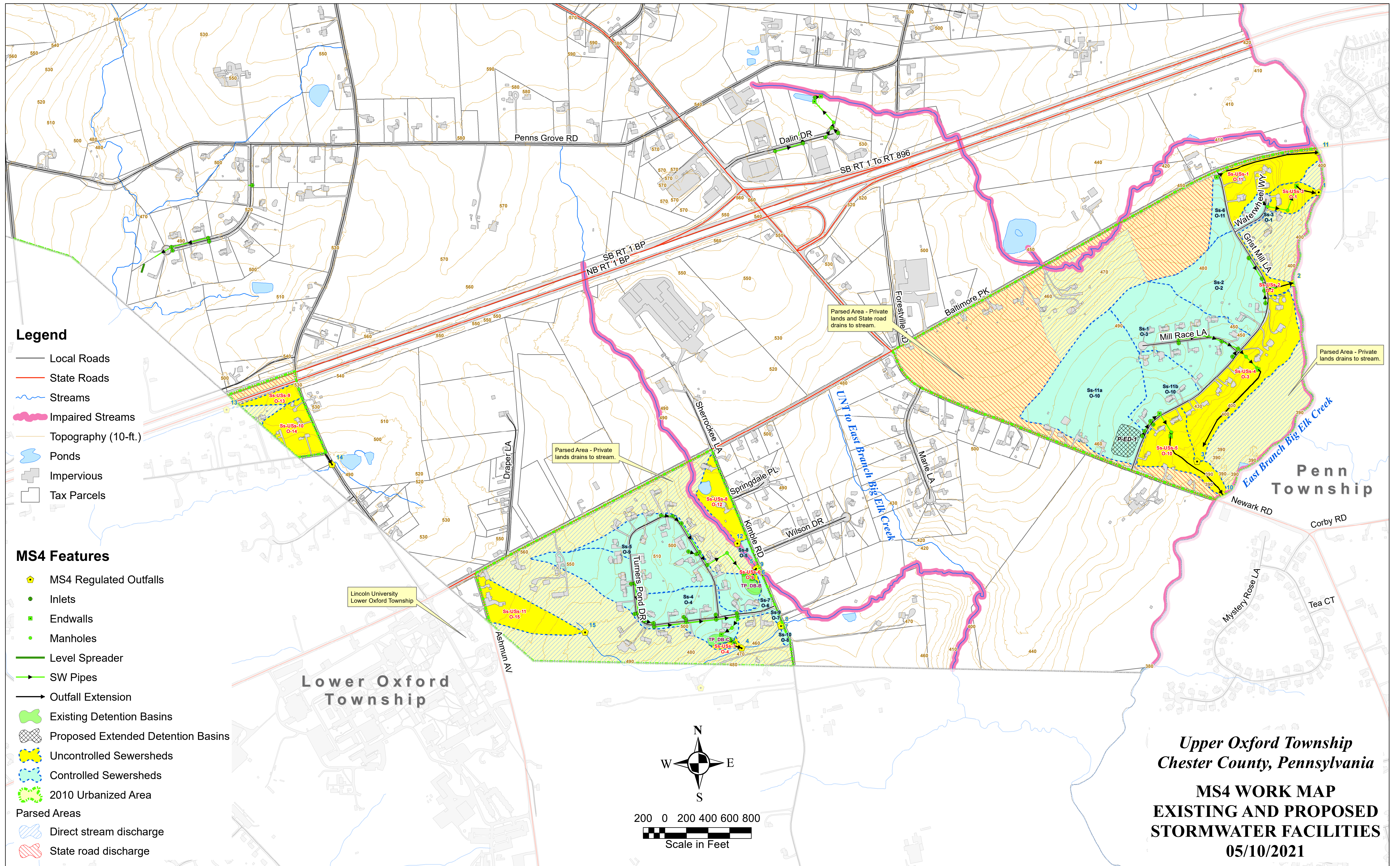
## Exhibit 2

MS4 Requirements Table  
(by PADEP, one selected page)

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment			
CHESTER COUNTY	THORNBURY TWP	PAG130067	TMDL Plan	Walsh Run	Appendix E-Siltation (5)	Other Habitat Alterations, Water/Flow Variability (4c)			
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	Water/Flow Variability (4c)			
				Radley Run		Water/Flow Variability (4c)			
				West Branch Chester Creek	Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)			
				Goose Creek TMDL	TMDL Plan-Nutrients (4a)	Cause Unknown (4a)			
				East Branch Chester Creek	Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)			
				Chester Creek	Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Flow Alterations, Other Habitat Alterations, Water/Flow Variability (4c)			
				Schuylkill River	Appendix C-PCB (4a)				
				Trout Creek	Appendix E-Siltation (5)	Cause Unknown (4a), Water/Flow Variability (4c)			
				Crum Creek	Appendix E-Siltation (5)	Cause Unknown (5), Water/Flow Variability (4c)			
TREDYFFRIN TWP	PAI130504	SP, IP	Gulph Creek	Appendix E-Siltation (5)	Water/Flow Variability (4c)				
			Valley Creek	Appendix C-PCB (4a), Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)				
			Little Valley Creek	Appendix C-PCB (4a), Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)				
			Darby Creek	Appendix C-PCB (5), Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)				
			Little Darby Creek	Appendix C-PCB (5)	Cause Unknown (5), Water/Flow Variability (4c)				
			Crow Creek	Appendix E-Siltation (5)	Water/Flow Variability (4c)				
			East Branch Big Elk Creek	Appendix E-Organic Enrichment/Low D.O. (5)					
			Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)					
			East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)				
			Pickering Creek	Appendix B-Pathogens (5)	Cause Unknown (5)				
UPPER OXFORD TWP	PAI130004	SP, IP	East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)				
			Pickering Creek	Appendix B-Pathogens (5)	Cause Unknown (5)				
			West Valley Creek	Appendix E-Siltation (4a)	Water/Flow Variability (4c)				
			Pine Creek		Cause Unknown (5), Water/Flow Variability (4c)				
			Shamona Creek	Appendix E-Siltation (4a)	Water/Flow Variability (4c)				
			Unnamed Tributaries to Valley Creek	Appendix E-Siltation (4a)	Water/Flow Variability (4c)				
			Unnamed Tributaries to East Branch Brandywine Creek	Appendix E-Siltation (4a)	Water/Flow Variability (4c)				
			UPPER UWCHLAN TWP	PAI130527	Yes	SP, IP			
			UWCHLAN TWP	PAI130505	Yes	SP, IP	East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
							Pickering Creek	Appendix B-Pathogens (5)	Cause Unknown (5)

## Exhibit 3

### MS4 Work Map Existing and Proposed Stormwater Facilities and Storm Sewersheds



**Legend**

- Local Roads
- State Roads
- Streams
- Impaired Streams
- Topography (10-ft.)
- Ponds
- Impervious
- Tax Parcels

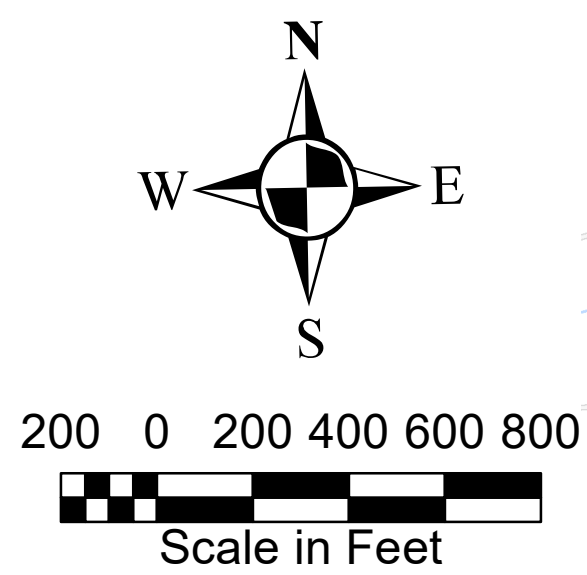
**MS4 Features**

- MS4 Regulated Outfalls
- Inlets
- Endwalls
- Manholes
- Level Spreader
- SW Pipes
- Outfall Extension
- Existing Detention Basins
- Proposed Extended Detention Basins
- Uncontrolled Sewersheds
- Controlled Sewersheds
- 2010 Urbanized Area
- Parsed Areas
  - Direct stream discharge
  - State road discharge

Lower Oxford Township

Upper Oxford Township  
Chester County, Pennsylvania

**MS4 WORK MAP  
EXISTING AND PROPOSED  
STORMWATER FACILITIES  
05/10/2021**



Penn Township

Lincoln University  
Lower Oxford Township

Parsed Area - Private lands and State road drains to stream.

Parsed Area - Private lands drains to stream.

Parsed Area - Private lands drains to stream.

Ashmun AV

Lincoln University  
Lower Oxford Township

Ashmun AV

200 0 200 400 600 800

Scale in Feet

Penns Grove RD

Dalin DR

SB RT 1 To RT 896

SB RT 1 BP  
NB RT 1 BP

Foreshville D

Baltimore PK

East Branch Big Elk Creek

Newark RD

Corby RD

Tea CT

Mystery Rose LA

Foreshville D

Baltimore PK

Mill Race LA

East Branch Big Elk Creek

Newark RD

Corby RD

Tea CT

Mystery Rose LA

Sherrooke LA

Springdale PL

Wilson DR

Maire LA

Turners Pond DR

Kimble PD

Wilson DR

Maire LA

Turners Pond DR

Kimble PD

Wilson DR

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Turners Pond DR

Kimble PD

Wilson DR

Maire LA

## Exhibit 4

### Pollutant Load Summary

**UPPER OXFORD TOWNSHIP  
POLLUTION REDUCTION PLAN (PRP)  
TN - POLLUTION REDUCTION CALCULATIONS**

Sewershed Data				Existing TN Baseload w/o BMPs						Existing TN Baseload w/ Existing BMPs				Existing/Proposed TN Baseload w/ Proposed BMPs			
HUC12 DA ID	Outfall ID	Sewershed ID	Total Area	Impervious Area		Pervious Area		TN Load	Existing BMP		Adjusted Baseload	TN Removal %	Existing/Proposed BMP		Permit Load	TN Removal %	
			AC	AC	LBS/YR	AC	LBS/YR	LBS/YR			LBS/YR				LBS/YR		
020600020201	3	Ss-1	15.12	1.92	40.6	13.2	186.0	226.6	No BMP	23	226.6	0%	No BMP	23	226.6	0%	
020600020201	8	Ss-10	0.22	0.05	1.1	0.17	2.4	3.5	No BMP	23	3.5	0%	No BMP	23	3.5	0%	
020600020201	10	Ss-11a	21.45	0.38	8.0	21.07	296.9	304.9	No BMP	23	304.9	0%	Infiltration Basin	5	45.7	85%	
020600020201	10	Ss-11b	6.09	0.95	20.1	5.14	72.4	92.5	No BMP	23	92.5	0%	No BMP	23	92.5	0%	
020600020201	2	Ss-2	11.68	0.55	11.6	11.13	156.8	168.5	No BMP	23	168.5	0%	No BMP	23	168.5	0%	
020600020201	1	Ss-3	1.44	0.47	9.9	0.97	13.7	23.6	No BMP	23	23.6	0%	No BMP	23	23.6	0%	
020600020201	4	Ss-4	14.36	2.19	46.3	12.17	171.5	217.8	Detention Basin	3	206.9	5%	Detention Basin	3	206.9	5%	
020600020201	9	Ss-5	14.51	2.56	54.1	11.95	168.4	222.5	Detention Basin	3	211.4	5%	Detention Basin	3	211.4	5%	
020600020201	11	Ss-6	1.94	0.25	5.3	1.69	23.8	29.1	No BMP	23	29.1	0%	No BMP	23	29.1	0%	
020600020201	6	Ss-7	0.94	0.25	5.3	0.69	9.7	15.0	No BMP	23	15.0	0%	No BMP	23	15.0	0%	
020600020201	5	Ss-8	0.34	0.07	1.5	0.27	3.8	5.3	No BMP	23	5.3	0%	No BMP	23	5.3	0%	
020600020201	7	Ss-9	0.44	0.11	2.3	0.33	4.6	7.0	No BMP	23	7.0	0%	No BMP	23	7.0	0%	
020600020201	11	Uss-1	6.64	0.77	16.3	5.87	82.7	99.0	No BMP	23	99.0	0%	No BMP	23	99.0	0%	
020600020201	15	Uss-10	4.01	0.47	9.9	3.54	49.9	59.8	No BMP	23	59.8	0%	No BMP	23	59.8	0%	
020600020201	16	Uss-11	5.29	0.42	8.9	4.87	68.6	77.5	No BMP	23	77.5	0%	No BMP	23	77.5	0%	
020600020201	2	Uss-2	0.99	0.18	3.8	0.81	11.4	15.2	No BMP	23	15.2	0%	No BMP	23	15.2	0%	
020600020201	13	Uss-3	2.12	0.13	2.7	1.99	28.0	30.8	No BMP	23	30.8	0%	No BMP	23	30.8	0%	
020600020201	3	Uss-4	12.94	1.44	30.5	11.5	162.0	192.5	No BMP	23	192.5	0%	No BMP	23	192.5	0%	
020600020201	10	Uss-5	6.14	0.37	7.8	5.77	81.3	89.1	No BMP	23	89.1	0%	No BMP	23	89.1	0%	
020600020201	9	Uss-6	0.16	0	0.0	0.16	2.3	2.3	No BMP	23	2.3	0%	No BMP	23	2.3	0%	
020600020201	4	Uss-7	0.33	0	0.0	0.33	4.6	4.6	No BMP	23	4.6	0%	No BMP	23	4.6	0%	
020600020201	12	Uss-8	3.5	0.31	6.6	3.19	44.9	51.5	No BMP	23	51.5	0%	No BMP	23	51.5	0%	
020600020201	14	Uss-9	1.33	0.03	0.6	1.3	18.3	19.0	No BMP	23	19.0	0%	No BMP	23	19.0	0%	
			131.98														
								<b>Total TN Load:</b>			<b>1957.5</b>				<b>1676.3</b>		
								<b>Percent Reduction:</b>							<b>13.4%</b>		





**UPPER OXFORD TOWNSHIP  
POLLUTION REDUCTION PLAN (PRP)  
TSS - POLLUTION REDUCTION CALCULATIONS**

Sewershed Data				Existing TSS Baseload w/o BMPs					Existing TSS Baseload w/ Existing BMPs				Existing/Proposed TSS Baseload w/ Proposed BMPs			
HUC12 DA ID	Outfall ID	Sewershed ID	Total Area	Impervious Area		Pervious Area		TSS Load	Existing BMP		Adjusted Baseload	TSS Removal %	Existing/Proposed BMP		Permit Load	TSS Removal %
			AC	AC	LBS/YR	AC	LBS/YR	LBS/YR			LBS/YR				LBS/YR	
020600020201	3	Ss-1	15.12	1.92	2889.2	13.2	2443.6	5332.8	No BMP	23	5332.8	0%	No BMP	23	5332.8	0%
020600020201	8	Ss-10	0.22	0.05	75.2	0.17	31.5	106.7	No BMP	23	106.7	0%	No BMP	23	106.7	0%
020600020201	10	Ss-11a	21.45	0.38	571.8	21.07	3900.5	4472.3	No BMP	23	4472.3	0%	Infiltration Basin	5	223.6	95%
020600020201	10	Ss-11b	6.09	0.95	1429.5	5.14	951.5	2381.1	No BMP	23	2381.1	0%	No BMP	23	2381.1	0%
020600020201	2	Ss-2	11.68	0.55	827.6	11.13	2060.4	2888.0	No BMP	23	2888.0	0%	No BMP	23	2888.0	0%
020600020201	1	Ss-3	1.44	0.47	707.2	0.97	179.6	886.8	No BMP	23	886.8	0%	No BMP	23	886.8	0%
020600020201	4	Ss-4	14.36	2.19	3295.5	12.17	2252.9	5548.4	Detention Basin	3	4993.5	10%	Detention Basin	3	4993.5	10%
020600020201	9	Ss-5	14.51	2.56	3852.2	11.95	2212.2	6064.4	Detention Basin	3	5458.0	10%	Detention Basin	3	5458.0	10%
020600020201	11	Ss-6	1.94	0.25	376.2	1.69	312.9	689.0	No BMP	23	689.0	0%	No BMP	23	689.0	0%
020600020201	6	Ss-7	0.94	0.25	376.2	0.69	127.7	503.9	No BMP	23	503.9	0%	No BMP	23	503.9	0%
020600020201	5	Ss-8	0.34	0.07	105.3	0.27	50.0	155.3	No BMP	23	155.3	0%	No BMP	23	155.3	0%
020600020201	7	Ss-9	0.44	0.11	165.5	0.33	61.1	226.6	No BMP	23	226.6	0%	No BMP	23	226.6	0%
020600020201	11	Uss-1	6.64	0.77	1158.7	5.87	1086.7	2245.3	No BMP	23	2245.3	0%	No BMP	23	2245.3	0%
020600020201	15	Uss-10	4.01	0.47	707.2	3.54	655.3	1362.6	No BMP	23	1362.6	0%	No BMP	23	1362.6	0%
020600020201	16	Uss-11	5.29	0.42	632.0	4.87	901.5	1533.5	No BMP	23	1533.5	0%	No BMP	23	1533.5	0%
020600020201	2	Uss-2	0.99	0.18	270.9	0.81	149.9	420.8	No BMP	23	420.8	0%	No BMP	23	420.8	0%
020600020201	13	Uss-3	2.12	0.13	195.6	1.99	368.4	564.0	No BMP	23	564.0	0%	No BMP	23	564.0	0%
020600020201	3	Uss-4	12.94	1.44	2166.9	11.5	2128.9	4295.8	No BMP	23	4295.8	0%	No BMP	23	4295.8	0%
020600020201	10	Uss-5	6.14	0.37	556.8	5.77	1068.1	1624.9	No BMP	23	1624.9	0%	No BMP	23	1624.9	0%
020600020201	9	Uss-6	0.16	0	0.0	0.16	29.6	29.6	No BMP	23	29.6	0%	No BMP	23	29.6	0%
020600020201	4	Uss-7	0.33	0	0.0	0.33	61.1	61.1	No BMP	23	61.1	0%	No BMP	23	61.1	0%
020600020201	12	Uss-8	3.5	0.31	466.5	3.19	590.5	1057.0	No BMP	23	1057.0	0%	No BMP	23	1057.0	0%
020600020201	14	Uss-9	1.33	0.03	45.1	1.3	240.7	285.8	No BMP	23	285.8	0%	No BMP	23	285.8	0%
			131.98	13.87		118.11										
								<b>Total TSS Load:</b>			<b>41574.5</b>				<b>37325.9</b>	
								<b>Percent Reduction:</b>							<b>10.2%</b>	

## Exhibit 5

### Existing BMP Inventory

**Existing BMP Inventory**

<b>BMP ID</b>	<b>Date Approved</b>	<b>NPDES Permit # (If applicable)</b>	<b>BMP Description</b>	<b>Location</b>	<b>Coordinates</b>	<b>Owner (O&amp;M Responsible Party)</b>	<b>Inspection and Maintenance Requirements</b>	<b>BMP Status</b>
TP_DB-B	Jun-01	N/A	Detention Basin	Turners Pond	39°48'40"N / 75°54'56"W	Susan J. Rakestraw	Cleanut sediment, debris and trash, stabilize disturbed areas, mow/trim vegetation, remove invasive vegetation on a monthly basis.	Detention basin is functioning as designed. This BMP is a candidate for a retrofit to an extended basin.
TP_DB-C	Jun-01	N/A	Detention Basin	Turners Pond	39°48'35"N / 75°55'00"W	Kenneth J. & Megan M. Coalson	Cleanut sediment, debris and trash, stabilize disturbed areas, mow/trim vegetation, remove invasive vegetation on a monthly basis.	Detention basin is functioning as designed. This BMP is a candidate for a retrofit to an extended basin.

## Exhibit 6

### BMP Effectiveness Values Table (by PADEP, 5 selected pages)

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
STORMWATER DISCHARGES FROM  
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS  
BMP EFFECTIVENESS VALUES**

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) ([www.casttool.org](http://www.casttool.org)). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, [RA-EPPAMIS4@pa.gov](mailto:RA-EPPAMIS4@pa.gov). Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can be credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.



BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	<p>This BMP (also referred to as “Storm Drain Cleaning”) involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards.</p> <p>To determine pollutant reductions for this BMP, these steps must be taken:</p> <ol style="list-style-type: none"> <li>1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected.</li> <li>2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter).</li> <li>3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations.</li> </ol> <p>DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.</p>

## Exhibit 7

### Proposed BMP Inventory

**Proposed BMP Inventory**

<b>BMP ID</b>	<b>Date Retrofit Approved</b>	<b>NPDES Permit # (If applicable)</b>	<b>BMP Description</b>	<b>Location</b>	<b>Coordinates</b>	<b>Owner (O&amp;M Responsible Party)</b>	<b>Inspection and Maintenance Requirements</b>	<b>BMP Status</b>
P-ED-1	Oct-21	N/A	Infiltration Basin	Grist Mill	39°48'52"N / 75°54'11"W	Jeanne A. Dyson & Dorothy A. Galloway (UOT Easement)	Cleanut sediment, debris and trash, stabilie disturbed areas, mow/trim vegetation, remove invasive vegettion on a monthly basis.	New Infiltration Basin

## Exhibit 8

### Public Notice

## UPPER OXFORD TOWNSHIP

### PUBLIC NOTICE

The Upper Oxford Township Pollutant Reduction Plan (PRP) for the Big Elk Creek/Chesapeake Bay watershed are available for public review on the Township website at <http://www.upperoxford.net> and at the Township Building at 1185 Limestone Road, Oxford, PA 19363 between the hours of 8 a.m. and 4 p.m. Monday through Friday. Written comments from the public will be accepted for a period of 30 days from the date of this public notice via email to [upperoxford@hotmail.com](mailto:upperoxford@hotmail.com) or mailed to 1185 Limestone Road, Oxford, PA 19363. Verbal and written comments will also be accepted during the Board of Supervisors meetings scheduled for \_\_\_\_\_, 2021 at 7:00 pm at the Township Building. The Pollutant Reduction Plan describes proposed measures to be taken to reduce sediment and nutrient pollution of the Big Elk Creek/Chesapeake Bay watershed within Upper Oxford Township and they are a requirement of the Township's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit.

If any person who wishes to attend these meetings has a disability and/or requires auxiliary aid, service, or other accommodation to observe or participate in the proceedings, please contact the Township (610-932-9233) to discuss how those needs may best be accommodated.

Jane Daggett  
Township Secretary