



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF WATER MANAGEMENT
OFFICE OF OIL AND GAS MANAGEMENT

OFFICIAL USE ONLY

ID # _____

Date Received _____

**NOTICE OF INTENT (NOI) FOR COVERAGE
UNDER THE EROSION AND SEDIMENT CONTROL GENERAL PERMIT (ESCGP-2)
FOR EARTH DISTURBANCE ASSOCIATED WITH OIL AND GAS EXPLORATION,
PRODUCTION, PROCESSING, OR TREATMENT OPERATIONS OR TRANSMISSION FACILITIES**

READ THE INSTRUCTIONS PROVIDED IN THIS PERMIT APPLICATION PACKAGE BEFORE COMPLETING THIS FORM.
PLEASE PRINT OR TYPE INFORMATION IN BLACK OR BLUE INK.

SECTION A. APPLICANT INFORMATION

APPLICATION TYPE NEW RENEWAL MAJOR MODIFICATIONS EXPEDITED PHASED

Applicant's Last Name (If applicable) Gordon	First Name Matthew	MI L	Phone (610) 216-0583 (cell)
			FAX
Organization Name or Registered Fictitious Name Sunoco Pipeline, L.P.			Phone (610) 670-3284 (office)
			FAX
Mailing Address 535 Fritztown Road	City Sinking Spring	State PA	ZIP + 4 19608
Email Address mlgordon@sunocologistics.com			
Co-Applicant's Last Name (If applicable)	First Name	MI	Phone
			FAX
Organization Name or Registered Fictitious Name			Phone
			FAX
Mailing Address	City	State	ZIP + 4
Email Address			

SECTION B. SITE INFORMATION

Site Name Pennsylvania Pipeline Project				
Site Location Blair, Hutingdon, Juniata, Perry, Cumberland, York, Dauphin, Lebanon, Lancaster, and Berks Counties				
Site Location – City Juniata Township, Blair County to Caernarvon Township, Berks County	State PA	ZIP+4		
Detailed Written Directions to Site See Directions in Attachment 1				
County	Municipality	City	Boro	Twp.

Blair, Huntingdon, Juniata, Perry, Cumberland, York, Dauphin, Lebanon, Lancaster, and Berks Counties	See Municipalities Table in Attachment 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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SECTION C. PROJECT INFORMATION

1. Total Project Area/Project Site (Ac):	1,692	Total Disturbed Area (Ac):	1,692
2. Project Name Pennsylvania Pipeline Project			
3. Project Type (Check all that apply) <input type="checkbox"/> Oil/Gas Well <input checked="" type="checkbox"/> Transmission Facility <input type="checkbox"/> Gathering Facility <input type="checkbox"/> Processing Facility <input type="checkbox"/> Treatment Facility <input type="checkbox"/> Centralized Fresh Water Impoundment <input type="checkbox"/> Centralized Wastewater Impoundment <input type="checkbox"/> Water Pipeline <input type="checkbox"/> Ground/Surface Water Withdrawal Site <input type="checkbox"/> Other If Oil/Gas well, is the well conventional or unconventional? <input type="checkbox"/> Conventional <input type="checkbox"/> Unconventional			

Project Description

Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project that would expand existing pipeline systems to provide natural gas liquid (NGL). The project involves the installation of approximately two parallel pipelines within a 306.8-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania (PA) to SPLP's Marcus Hook facility in Delaware County, PA with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306.8 miles) and a second, 16-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, PA to the Marcus Hook facility, paralleling the initial line for approximately 255.8 miles. The majority of the new ROW will be co-located adjacent to existing utility corridors, including approximately 230 miles of pipeline that will be co-located in the existing SPLP Mariner East pipeline system. The 20-inch pipeline will be installed first, followed by the 16-inch line. Any temporary stabilization required will be implemented in accordance with the project's Erosion and Sediment (E&S) Plans. For a conventional lay, the pipelines would be installed within the same disturbance to the maximum extent practicable. For safety purposes, the installation would be staggered by what is estimated to be no more than 60 days. At some HDDs with longer drills, however, the time period between installation of the two pipelines may exceed 60 days. Any temporary stabilization required would be implemented in accordance with project's E&S Plans. Any permanent or temporary impacts associated with the second pipeline installation will be similar to the first installation, as described in more detail in the Application and the balance of these responses.

Construction activities will involve clearing and grubbing, trenching, pipe installation, site restoration, and access road construction/improvement. Erosion and sediment controls will be in place during earth disturbance activities. Following completion of pipeline installation, the area will be returned to the general grade present prior to pipeline installation in order to maintain preconstruction elevations and drainage patterns. Disturbed areas will be seeded and mulched. Erosion and sedimentation control devices will be maintained until site work is complete and revegetation is successful.

The project will be constructed for approximately 162 miles in the PADEP South Central Region. The project disturbance (in acres) by county is as follows:

- Blair County: 230 Acres
- Huntingdon County: 267 Acres, Mt. Union Pump Station 2.83 acres (Total 270 acres)
- Juniata County: 31 Acres
- Perry County: 116 Acres, Doylesburg Pump Station 1.80 acres (Total 118 acres)
- Cumberland County: 306 Acres
- York County: 69 Acres
- Dauphin County: 121 Acres, Middletown Pump Station 9.1 acres (Total 131 acres)
- Lebanon County: 223 Acres
- Lancaster County: 75 Acres
- Berks County: 233 Acres, Beckersville Pump Station 5.98 acres (Total 239 acres)

4. Please provide the latitude and longitude coordinates for the center of the project. The coordinates should be in degrees, minutes seconds (DD MM SS.SS) and North American Datum 1983. For linear projects provide the project's termini.

Latitude 40° degrees 24' minutes 31.56" seconds Longitude 78° degrees 33' minutes 23.36" seconds

Latitude 40° degrees 09' minutes 21.15" seconds Longitude 75° degrees 50' minutes 34.44" seconds

Horizontal Collection Method: GPS Interpolated from U.S.G.S. Topographic Map DEP's eMAP

5. U.S.G.S. 7.5 min. Quad Map Name Cresson, Hollidaysburg, Frankstown, Williamsburg, Cassville, Entriaken, Huntingdon, Butler Knob, Aughwick, Blairs Mills, Blain, Andersonburg, Newburg, Newville, Landisburg, Plainfield, Carlisle, Shermans Dale, Mechanicsburg, Wetzville, Lemoyne, Steelton, Middletown, Elizabethtown, Hershey, Lebanon, Palmyra, Richland, Womelsdorf, Sinking Spring, Terre Hill, Reading, Morgantown, Elverson, and Washington. (Include a copy of the project area on the 7.5 min quad map)

6. Will the project be conducted as a phased permit project? Yes No

If Yes, Include Master Site Plan Estimated Timetable for Phased Projects. Additional sheet(s) attached.

Phase No. or Name	Description	Total Area	Disturbed Area	Start Date	End Date

7. List existing and previous land use for a minimum of the previous 5 years. Forested/ agricultural/ rural residential

8. Other Pollutants: Will the stormwater discharge contain polluttional substances other than sediment? Yes No
 If yes, explain and provide any available quantitative data.

9. Will fuels, chemicals, solvents, other hazardous waste or materials be used or stored on site during earth disturbance activities?
 Yes No **(If yes, a PPC Plan must be maintained on site during earth disturbance.)**

10. Does the project have the potential to discharge to siltation-impaired waters?
 Yes No **(If yes, show how the project will not result in a net change in volume, rate or water quality. See section G below.)**

11. Has the project site been investigated to identify naturally occurring geologic formations or soil types that may cause pollution when disturbed?
 Yes No
 Have naturally occurring geologic formations or soil types that may cause pollution when disturbed been identified?
 Yes No **(If yes, BMPs to avoid or minimize the potential pollution must be utilized.)**

12. Has the project site been analyzed to determine potential thermal impacts to surface waters of the Commonwealth?
 Yes No
 Have potential thermal impacts to surface water of the Commonwealth from earth disturbance activity been identified?
 Yes No **(If yes, BMPs to avoid, minimize or mitigated the thermal pollution must be utilized.)**

13. Have the E&S Plan and PCSM/SR Plan been planned, designed and implemented to be consistent?
 Yes No

14. Have existing and/or proposed Riparian Forest Buffers been identified?
 Yes N/A **(If not, they must be shown on the plans.)**

1. E & S Plan

The E & S Plan must satisfy at least one of subparagraph A or B below.

Provide a brief summary of proposed BMPs and their performance to manage E & S for the project. If E & S BMPs and their application do not follow the guidelines referenced in the Pa. Erosion and Sediment Pollution Control Program Manual, provide documentation to demonstrate performance equivalent to, or better than, the BMPs in the Manual.

Compost Filter Socks - This temporary sedimentation control measure consists of wood or metal posts driven through a compost filled mesh tube. Filter socks will be located as needed on side-slope and down-slope boundaries of disturbed areas. Compost filter socks will be sized using the DEP Construction Detail.

Tarpaulin Covers - Tarpaulin covers may be used, as necessary, to protect topsoil storage stockpiles from wind and precipitation erosion. Stockpile slopes will be 2:1 or less. A minimal amount of soil will be stockpiled so that the height of the stockpile is less than 35 feet.

Rock Construction Entrance – Temporary access routes will be established on and proximate to the site to facilitate construction activities. The use of access routes will help confine truck and equipment traffic to specific corridors thus minimizing land disturbance and protecting vegetation. Site traffic during wet weather will be limited. No vehicles will be permitted in streams or rivers.

Wash Racks – Wash racks will be used at rock construction entrances and will be designed to accommodate anticipated vehicular traffic. A water supply will be made available at wash racks to wash the wheels of vehicles exiting the site.

Pumped Water Filter Bag – Pumped water filter bags may be used to filter water pumped from disturbed areas prior to discharging to surface waters. Compost filter socks shall be installed within 50 feet of any receiving surface water or where grassy area is not available.

Erosion Control Blanket - A manufactured erosion control blanket shall be installed on all slopes 3:1 (H:V) or steeper and within 100 feet of stream banks, where applicable. The blanket shall be biodegradable but capable of providing protection for two growing seasons. Straw or similar fiber material shall be placed between two biodegradable nets. The top net shall be heavyweight and UV stabilized; the bottom net shall be a lightweight netting. Erosion control blankets shall be anchored and stapled in place in accordance with the manufacturer's recommendations and the detail on the construction drawings. For slopes between 3:1 and 1:1 (H:V) use erosion control blanket SC 150 as manufactured by North American Green or Owner approved equal material or equal method.

Waterbars – Waterbars shall be installed across the right-of-way on all slopes greater than 5%. Waterbars should be constructed at a slope of 2% and discharge to a well-vegetated area. Waterbars should not discharge into an open trench. Waterbars should be oriented so that the discharge does not flow back onto the right-of-way. Obstructions (e.g. compost filter socks etc.) should not be placed in any waterbars. Where needed, they should be located below the discharge end of the waterbar.

Trench Plugs - To be used to prevent piping along the pipeline.

- A. E & S plan is designed using BMPs in the Pennsylvania Erosion & Sedimentation Pollution Control Manual (ESPC) (Technical Guidance #3632134-008/March 2012)

OR

- B. E & S plan is designed using an alternative BMP or design standard

2. Riparian Buffer Information

- A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as a part of this project?
Protect Yes No Convert Yes No Establish Yes No
- B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this project?
 Yes No
- C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is required as part of the Chapter 78 permit authorization in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?
 Yes No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.
- D. If the regulations require a riparian buffer or riparian forest buffer and you are not providing one, list the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(2)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing riparian buffer will remain undisturbed to the extent practicable.

This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The limit of disturbance has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the LOD near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the LOD to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible.

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. Thermal Impacts Analysis

Please explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. The disturbed areas will be reseeded as soon as practicable following construction

SECTION E. SITE RESTORATION (SR) PLAN BMPS
See the attached Instructions on how to complete this section.

If this section is not applicable to your project, please indicate by checking this box: N/A

For earth disturbance projects involving oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure provide the information outlined below. If your project includes both oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure and other activities requiring Post Construction Stormwater Management, provide the information outlined in this Section as well as Section F.

Site Restoration BMPs should be designed to use natural measures to eliminate pollution, infiltrate runoff, not require extensive construction/maintenance activity, promote pollutant reduction, and preserve the integrity of stream channels. The Department recommends the use of PA Stormwater BMP manual to achieve this goal. The SR Plan must meet the requirements of Pa Code § 102.8(n) and be submitted with the NOI.

1. Site Restoration Plan Information – The Site Restoration Plan should be designed to maximize volume reduction technologies, eliminate (where possible) or minimize point source discharges to surface waters, preserve the integrity of stream channels, and protect the physical, biological and chemical qualities of the receiving surface water.

Design standards applied to develop the Site Restoration Plan. Check those that apply.

Act 167 Plan – The attached SR Plan is consistent with an applicable approved Act 167 Plan.

Complete the following for all approved Act 167 Stormwater Management Plans. (Use additional sheets if necessary)

Act 167 Plan Name _____ Date Adopted _____ Consistency Letter Included

See Table in Attachment 5 _____ Verification Report Included

NOTE: A consistency letter is not required if a verification report is provided. Please see NOI Instructions. The Site Restoration Plan must satisfy either sub paragraph A, B, or C below. Check those that apply.

- A. Act 167 Plan approvals on or after January 2005 - The attached PCSM Plan, in its entirety, is consistent with all requirements pertaining to rate, volume, and water quality from an Act 167 Stormwater Management Plan approved by DEP on or after January 2005. Letter A must be checked if a current, DEP approved Act 167 plan exists.
- B. The PCSM meets the standard design criteria from the PA Stormwater BMP Manual. For projects involving oil and gas activities authorized by a permit issued under Chapter 78 (well pads) or pipelines and other similar utility infrastructure, post construction stormwater management requirements are met for all areas that are restored to preconstruction conditions or to a condition of meadow in good condition or better.
- C. Alternative Design Standard – The attached PCSM Plan was developed using approaches other than 102.8(g)(2). Demonstrate/explain in the space provided below how this standard will be either more protective than what is required in 102.8(g)(2) or will maintain and protect existing water quality and existing and designated uses.

2. Riparian Buffer Information

- A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as part of this activity?
Protect Yes No Convert Yes No Establish Yes No
- B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this activity?
 Yes No
- C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is required under a permit issued under the authority of the 2012 Oil and Gas Act and Chapter 78 in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?
 Yes No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.

- D. If the regulations require a riparian buffer or riparian forest buffer and you are **not** providing one, list below the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing riparian buffer will remain undisturbed to the extent practicable.

(See Attachment 6 for Riparian Buffer Waiver Request Information)

This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The LOD has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the LOD near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the LOD to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible.

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA

See Attachment D in the Instructions on how to Complete This Section

This section does not need to be completed for areas of projects involving oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure which will be restored to meadow in good condition or better or existing conditions.

Watershed Name: N/A - Restoring pipeline right of way to a meadow condition. See Section F for stormwater management calculations associated with the permanent access roads and block valves.

Design storm frequency _____ Rainfall amount _____ inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)			
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs			
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs			
Stormwater discharge rate for the design frequency storm	Pre-construction	Post Construction	Net Change
1) 2-Year/24-Hour			
2) 10-Year/24-Hour			
3) 50-year/24-Hour			
4) 100-year/24-Hour			

4. SUMMARY DESCRIPTION OF SITE RESTORATION BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Site Restoration <input checked="" type="checkbox"/> Restore Site to Meadow in Good Condition or Better, or Existing Conditions	Infiltration/Recharge Detention/WQ Treatment	_____	_____
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input checked="" type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____	_____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input checked="" type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and Site Restoration Plans that the discharge will not cause erosion, damage, or a nuisance to off-site properties.

See Attachment 8

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

SECTION F. POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN BMPS
See the attached Instructions on how to complete this section.

If this section is not applicable to your project, please indicate by checking this box: N/A

For earth disturbance projects requiring post construction stormwater management, provide the information outlined below. If your project includes both oil and gas activities authorized under a well permit issued under the 2012 Oil and Gas Act and Chapter 78 (well pads) or pipelines and other similar utility infrastructure and other activities requiring Post Construction Stormwater Management, provide the information outlined in this Section as well as Section E.

Post Construction Stormwater Management BMPs should be designed to use natural measures to eliminate pollution, infiltrate runoff, not require extensive construction/maintenance activity, promote pollutant reduction, and preserve the integrity of stream channels. The Department recommends the use of PA Stormwater BMP manual to achieve this goal. If PCSM BMPs and their application do not follow the guidelines referenced in the PA Stormwater BMP Manual, provide documentation to demonstrate performance equivalent to, or better than, the BMPs in the Manual.

1. Post Construction Stormwater Management Plan Information – The Post Construction Stormwater Management Plan must meet the requirements in 25 Pa. Code §102.8 and should be designed to maximize volume reduction technologies, eliminate (where possible) or minimize point source discharges to surface waters, preserve the integrity of stream channels, and protect the physical, biological and chemical qualities of the receiving surface water.

Design standards applied to develop the Post Construction Stormwater Management Plan. Check those that apply.

Act 167 Plan – The attached PCSM Plan is consistent with an applicable approved Act 167 Plan.

Complete the following for all approved Act 167 Stormwater Management Plans. (Use additional sheets if necessary)

Act 167 Plan Name _____ Date Adopted _____ Consistency Letter Included

See Table in Attachment 5 _____ Verification Report Included

NOTE: A consistency letter is not required if a verification report is provided. Please see NOI Instructions.

The PCSM Plan must satisfy either subparagraph A, B, or C below. Check those that apply. If a current, DEP approved Act 167 Plan exists, letter A must be checked.

- A. Act 167 Plan approvals on or after January 2005 - The attached PCSM Plan, in its entirety, is consistent with all requirements pertaining to rate, volume, and water quality from an Act 167 Stormwater Management Plan approved by DEP on or after January 2005.
- B. The PCSM meets the standard design criteria from 102.8(g)(2) and (3) the PA Stormwater BMP Manual. [Note: PCSM plans have to meet both the volume and rate requirements in the regulations, which are provided in these 2 sections].
- C. Alternative Design Standard – The attached PCSM Plan was developed using alternative approaches as provided in 102.8(g)(2)(iv) and 102.(g)(3)(iii). Demonstrate/explain in the space provided below how this standard will be either more protective than what is required in 102.8(g)(2) and 102.8(g)(3) or will maintain and protect existing water quality and existing and designated uses.

2. Riparian Buffer Information

A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as part of this activity?
 Protect Yes No Convert Yes No Establish Yes No

B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this activity?
 Yes No

C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is required under a well permit issued under the authority of the 2012 Oil and Gas Act and Chapter 78 and in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?

Yes No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.

D. If the regulations require a riparian buffer or riparian forest buffer and you are not providing one, list below the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing riparian buffer will remain undisturbed to the extent practicable.

(See Attachment 6 for Riparian Buffer Waiver Information)

This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The LOD has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the LOD near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the LOD to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name:

Design storm frequency <u>2-yr</u> Rainfall amount _____ inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)			
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs			
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs			
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour			
2) 10-Year/24-Hour			
3) 50-year/24-Hour			
4) 100-year/24-Hour			

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Valley Forge Road - Blair County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.69</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.14	0.14
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.009	0.023	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.006	-0.003
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.276 cfs	0.185 cfs	-0.091 cfs
2) 10-Year/24-Hour	2.141 cfs	1.546 cfs	-0.595 cfs
3) 50-year/24-Hour	5.441 cfs	3.956 cfs	-1.485 cfs
4) 100-year/24-Hour	7.280 cfs	7.224 cfs	-0.056 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>734 cubic feet</u>	_____ _____ _____ <u>1.320</u>
5. Off-site Discharge Analysis. Does the activity propose any off-site discharges to areas other than surface waters? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge. The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.			
6. Thermal Impact Analysis. Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.			
7. Critical PCSM Plan stages. Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.			

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Charger Drainage Area 1 - Blair County

Design storm frequency <u>2-yr</u> Rainfall amount <u>2.66</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.14	0.14
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.037	0.051	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.032	-0.005
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.348 cfs	1.021 cfs	-0.327 cfs
2) 10-Year/24-Hour	3.025 cfs	2.291 cfs	-0.734 cfs
3) 50-year/24-Hour	5.326 cfs	5.263 cfs	-0.063 cfs
4) 100-year/24-Hour	6.505 cfs	6.368 cfs	-0.137 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ <u>840 cubic feet</u>	_____ _____ _____ <u>0.330</u>

5. Off-site Discharge Analysis.
Does the activity propose any off-site discharges to areas other than surface waters? Yes No
If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.
The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.
Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.
Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Charger Drainage Area 2 - Blair County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.66</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.02	0.02
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.005	0.006	0.001
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.003	-0.002
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.126 cfs	0.099 cfs	-0.027 cfs
2) 10-Year/24-Hour	0.302 cfs	0.222 cfs	-0.080 cfs
3) 50-year/24-Hour	0.547 cfs	0.392 cfs	-0.155 cfs
4) 100-year/24-Hour	0.672 cfs	0.668 cfs	-0.004 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ <u>130 cubic feet</u>	_____ _____ _____ <u>0.050</u>
5. Off-site Discharge Analysis. Does the activity propose any off-site discharges to areas other than surface waters? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge. The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.			
6. Thermal Impact Analysis. Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.			
7. Critical PCSM Plan stages. Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.			

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Locke Mountain Road - Blair County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.67</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.15	0.15
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.048	0.060	0.012
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.043	-0.005
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.688 cfs	1.409 cfs	-0.279 cfs
2) 10-Year/24-Hour	3.430 cfs	2.863 cfs	-0.567 cfs
3) 50-year/24-Hour	5.756 cfs	5.515 cfs	-0.241 cfs
4) 100-year/24-Hour	6.933 cfs	6.595 cfs	-0.338 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ 719 cubic feet	_____ _____ _____ 0.210

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Juniata Valley Road - Blair County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.68</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.15	0.15
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.024	0.037	0.013
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.023	-0.001
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.463 cfs	0.245 cfs	-0.218 cfs
2) 10-Year/24-Hour	1.196 cfs	0.664 cfs	-0.532 cfs
3) 50-year/24-Hour	2.233 cfs	2.120 cfs	-0.113 cfs
4) 100-year/24-Hour	2.770 cfs	2.695 cfs	-0.075 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ <u>630 cubic feet</u>	_____ _____ _____ <u>0.190</u>
5. Off-site Discharge Analysis. Does the activity propose any off-site discharges to areas other than surface waters? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge. The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.			
6. Thermal Impact Analysis. Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.			
7. Critical PCSM Plan stages. Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.			

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: High Street - Blair County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.67</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.15	0.15
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.017	0.031	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.004	-0.013
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.223 cfs	0.129 cfs	-0.094 cfs
2) 10-Year/24-Hour	1.984 cfs	1.142 cfs	-0.842 cfs
3) 50-year/24-Hour	5.319 cfs	3.063 cfs	-2.256 cfs
4) 100-year/24-Hour	7.172 cfs	4.129 cfs	-3.043 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,172 cubic feet</u>	_____ _____ _____ <u>1.260</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Raystown Road - Huntingdon County

Design storm frequency <u>2-yr</u> Rainfall amount <u>2.67</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.16	0.16
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.040	0.055	0.015
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.016	-0.024
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.963 cfs	1.062 cfs	-0.901 cfs
2) 10-Year/24-Hour	4.662 cfs	3.707 cfs	-0.955 cfs
3) 50-year/24-Hour	8.458 cfs	6.982 cfs	-1.476 cfs
4) 100-year/24-Hour	10.42 cfs	10.05 cfs	-0.37 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input checked="" type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	<u>53 cubic feet</u> _____ _____	<u>0.400</u> _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	 	
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	 <u>1627 cubic feet</u>	 <u>0.620</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Happy Hills Road - Huntingdon County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.70</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.18	0.18
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.051	0.066	0.015
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.030	-0.021
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	3.106 cfs	2.122 cfs	-0.984 cfs
2) 10-Year/24-Hour	6.560 cfs	4.482 cfs	-2.078 cfs
3) 50-year/24-Hour	11.22 cfs	9.979 cfs	-1.241 cfs
4) 100-year/24-Hour	13.61 cfs	12.37 cfs	-1.24 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,575 cubic feet</u>	_____ _____ _____ <u>0.700</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Hares Valley Road - Huntingdon County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.70</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.12	0.12
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.018	0.034	0.016
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.011	-0.007
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.243 cfs	0.203 cfs	-0.040 cfs
2) 10-Year/24-Hour	1.283 cfs	0.474 cfs	-0.809 cfs
3) 50-year/24-Hour	3.041 cfs	1.183 cfs	-1.858 cfs
4) 100-year/24-Hour	4.029 cfs	2.464 cfs	-1.565 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,009 cubic feet</u>	_____ _____ _____ <u>1.010</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: UNT to Aughwick Creek			
Design storm frequency <u>2-year</u> Rainfall amount <u>2.8</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.0	0.632	+ 0.632
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.015	0.135	+ 0.120
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.000	- 0.015
Stormwater discharge rate for the design frequency storm	0.18 cfs	0.00 cfs	- 0.18 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	0.70 cfs	0.12 cfs	- 0.58 cfs
3) 50-year/24-Hour	1.60 cfs	0.57 cfs	- 1.03 cfs
4) 100-year/24-Hour	2.13 cfs	0.85 cfs	- 1.28 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input checked="" type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge Underground Storage Pipes	_____ 0.142 ac-ft _____	_____ 0.632 _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.
 Does the activity propose any off-site discharges to areas other than surface waters? Yes No
 If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.
 The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

 Pipe outlets are dissipated and spread out to shallow flow with riprap outlet protection.

6. Thermal Impact Analysis.
 Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

 Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.
 Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

 A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Shade Valley Road Drainage Area 1 - Huntingdon County

Design storm frequency <u>2-yr</u> Rainfall amount <u>2.74</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.07	0.07	0.00
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.036	0.051	0.015
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.033	-0.003
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.210 cfs	0.970 cfs	-0.240 cfs
2) 10-Year/24-Hour	3.035 cfs	2.432 cfs	-0.603 cfs
3) 50-year/24-Hour	5.782 cfs	4.632 cfs	-1.150 cfs
4) 100-year/24-Hour	7.344 cfs	5.884 cfs	-1.460 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>778 cubic feet</u>	_____ _____ _____ <u>0.370</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Shade Valley Road Drainage Area 2 - Huntingdon County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.74</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.21	0.38	0.17
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.076	0.097	0.021
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.060	-0.016
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	2.266 cfs	2.053 cfs	-0.213 cfs
2) 10-Year/24-Hour	5.933 cfs	4.955 cfs	-0.978 cfs
3) 50-year/24-Hour	11.50 cfs	9.295 cfs	-2.205 cfs
4) 100-year/24-Hour	14.68 cfs	11.74 cfs	-2.94 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,642 cubic feet</u>	_____ _____ _____ <u>0.830</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Sherman Creek (POI-1)			
Design storm frequency <u>2-year</u> Rainfall amount <u>2.7</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.160	0.392	+ 0.232
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.400	0.457	+ 0.057
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.343	0.057
Stormwater discharge rate for the design frequency storm	4.50 cfs	4.21 cfs	- 0.29 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	11.76 cfs	10.79 cfs	- 0.97 cfs
3) 50-year/24-Hour	23.52 cfs	21.49 cfs	- 2.03 cfs
4) 100-year/24-Hour	30.47 cfs	28.11 cfs	- 2.36 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input checked="" type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge Underground Storage Pipes	_____ 0.114 ac-ft _____	_____ 0.813 _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.
 Does the activity propose any off-site discharges to areas other than surface waters? Yes No
 If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.
 The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.
 Pipe outlets are dissipated and spread out to shallow flow with TRM protection.
 Pipe outlets are directed to an existing ditch that discharges to a level spreader.

6. Thermal Impact Analysis.
 Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.
 Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.
 Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.
 A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Creek Road - Cumberland County

Design storm frequency <u>2-yr</u> Rainfall amount <u>2.82</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.14	0.14
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.064	0.078	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.050	-0.014
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	2.510 cfs	2.048 cfs	-0.462 cfs
2) 10-Year/24-Hour	5.196 cfs	4.238 cfs	-0.958 cfs
3) 50-year/24-Hour	9.506 cfs	9.308 cfs	-0.198 cfs
4) 100-year/24-Hour	12.05 cfs	11.69 cfs	- 0.36 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	 	
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	 <u>1,215 cubic feet</u>	 <u>0.330</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Wolf Bridge - Cumberland County

Design storm frequency <u>2-yr</u> Rainfall amount <u>2.84</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.14	0.14
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.011	0.025	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.009	-0.002
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.120 cfs	0.110 cfs	-0.010 cfs
2) 10-Year/24-Hour	0.805 cfs	0.630 cfs	-0.175 cfs
3) 50-year/24-Hour	2.272 cfs	1.699 cfs	-0.573 cfs
4) 100-year/24-Hour	3.235 cfs	2.396 cfs	-0.839 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ <u>687 cubic feet</u>	_____ _____ _____ <u>0.280</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: W. Trindle Road - Cumberland County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.89</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.22	0.22
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.028	0.051	0.023
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.023	-0.005
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.473 cfs	0.277 cfs	-0.196 cfs
2) 10-Year/24-Hour	3.097 cfs	2.558 cfs	-0.539 cfs
3) 50-year/24-Hour	8.505 cfs	7.051 cfs	-1.454 cfs
4) 100-year/24-Hour	11.99 cfs	9.992 cfs	-1.998 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input checked="" type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	<u>1,225 cubic feet</u> _____ _____	<u>0.730</u> _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Arcona - Cumberland County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.89</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.19	0.19
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.017	0.037	0.020
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.000	-0.017
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.461 cfs	0.342 cfs	-0.119 cfs
2) 10-Year/24-Hour	3.029 cfs	2.241 cfs	-0.788 cfs
3) 50-year/24-Hour	8.406 cfs	6.155 cfs	-2.251 cfs
4) 100-year/24-Hour	11.87 cfs	9.553 cfs	-2.317 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,710 cubic feet</u>	_____ _____ _____ <u>1.360</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: N. Union Street Drainage Area 2 - Dauphin County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.90</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.07	0.07
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.004	0.009	0.005
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.001	-0.003
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.000 cfs	0.000 cfs	0.000 cfs
2) 10-Year/24-Hour	0.000 cfs	0.000 cfs	0.000 cfs
3) 50-year/24-Hour	0.012 cfs	0.008 cfs	-0.004 cfs
4) 100-year/24-Hour	0.081 cfs	0.050 cfs	-0.031 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>357 cubic feet</u>	_____ _____ _____ <u>0.290</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Swatara Creek

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.90</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	1.889	+1.889
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	7,923	26,766	+18,844
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		4,364	-3,559
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.11	0.52	-0.59
2) 10-Year/24-Hour	6.12	1.98	-4.14
3) 50-year/24-Hour	16.19	8.07	-8.12
4) 100-year/24-Hour	22.58	10.33	-12.25

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input checked="" type="checkbox"/> Infiltration Trench <input checked="" type="checkbox"/> Infiltration Bed <input checked="" type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	<u>7,841 cf</u> <u>2,004 cf</u> <u>31,363 cf</u>	<u>1.495</u> <u>0.450</u> <u>2.715</u>
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input checked="" type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ <u>31,363 cf</u>	_____ _____ <u>2.715</u>

Access Road Design <input checked="" type="checkbox"/> Road Crowning <input checked="" type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	<u>6,521 cf</u> <u>6,521 cf</u> _____ _____ _____	<u>0.673</u> <u>0.673</u> _____ _____ _____
Stormwater Energy Dissipaters <input checked="" type="checkbox"/> Level Spreaders <input checked="" type="checkbox"/> Riprap Aprons <input checked="" type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	<u>2,691 cf</u> <u>33,367 cf</u> <u>6,835 cf</u> _____	<u>2.260</u> <u>3.165</u> <u>5.741</u> _____

5. Off-site Discharge Analysis.
 Does the activity propose any off-site discharges to areas other than surface waters? Yes No
 If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.
 The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.
 Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.
 There is no anticipated thermal impacts associated with the project. All upstream waters will be diverted from the site through vegetated channels to avoid increase in thermal impact. A majority of the site will drain to one of several proposed infiltration facilities. The infiltration facilities will slow release of runoff and promote infiltration/evaporation to minimize and mitigate any potential thermal impacts.

7. Critical PCSM Plan stages.
 Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.
 Professional oversight during construction of infiltration bed and infiltration berms.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Gates Road - Dauphin County

Design storm frequency <u>2</u> -yr Rainfall amount <u>2.97</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.13	0.13
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.020	0.034	0.014
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.015	-0.005
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.471 cfs	0.344 cfs	-0.127 cfs
2) 10-Year/24-Hour	2.571 cfs	1.875 cfs	-0.696 cfs
3) 50-year/24-Hour	6.376 cfs	4.650 cfs	-1.726 cfs
4) 100-year/24-Hour	8.660 cfs	6.316 cfs	-2.344 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>811 cubic feet</u>	_____ _____ _____ <u>0.490</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Schaeffer Road - Lebanon County

Design storm frequency <u>2-yr</u> Rainfall amount <u>3.05</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.15	0.15
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.017	0.033	0.016
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.000	-0.017
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.448 cfs	0.352 cfs	-0.096 cfs
2) 10-Year/24-Hour	2.499 cfs	1.966 cfs	-0.533 cfs
3) 50-year/24-Hour	6.205 cfs	4.882 cfs	-1.323 cfs
4) 100-year/24-Hour	8.378 cfs	6.592 cfs	-1.786 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1.713 cubic feet</u>	_____ _____ _____ <u>0.450</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Sinclair Road - Lebanon County

Design storm frequency <u>2-yr</u> Rainfall amount <u>3.08</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.18	0.18
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.021	0.041	0.020
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.010	-0.011
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.705 cfs	0.270 cfs	-0.435 cfs
2) 10-Year/24-Hour	2.918 cfs	1.614 cfs	-1.304 cfs
3) 50-year/24-Hour	6.523 cfs	5.353 cfs	-1.170 cfs
4) 100-year/24-Hour	8.577 cfs	7.739 cfs	-0.838 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1.316 cubic feet</u>	_____ _____ _____ <u>1.320</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Hopeland Road - Lebanon County

Design storm frequency <u>2</u> -yr Rainfall amount <u>3.10</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.20	0.20
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.073	0.089	0.016
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.066	-0.007
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.563 cfs	1.222 cfs	-0.341 cfs
2) 10-Year/24-Hour	4.707 cfs	3.679 cfs	-1.028 cfs
3) 50-year/24-Hour	9.509 cfs	7.433 cfs	-2.076 cfs
4) 100-year/24-Hour	12.15 cfs	11.97 cfs	-0.18 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>1,006 cubic feet</u>	_____ _____ _____ <u>0.500</u>
5. Off-site Discharge Analysis. Does the activity propose any off-site discharges to areas other than surface waters? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge. The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.			
6. Thermal Impact Analysis. Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.			
7. Critical PCSM Plan stages. Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.			

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Montello - Berks County

Design storm frequency <u>2-yr</u> Rainfall amount <u>3.19</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.00	0.00
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.043	0.088	0.045
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.024	-0.019
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.575 cfs	1.463 cfs	-0.112 cfs
2) 10-Year/24-Hour	8.136 cfs	6.754 cfs	-1.382 cfs
3) 50-year/24-Hour	19.26 cfs	16.55 cfs	-2.71 cfs
4) 100-year/24-Hour	25.57 cfs	24.69 cfs	-0.88 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input checked="" type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	<u>134 cubic feet</u> _____ _____	<u>0.040</u> _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Infiltration Berm _____	Infiltration/Recharge	_____ _____ _____ <u>2,618 cubic feet</u>	_____ _____ _____ <u>1.600</u>

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Muddy Creek

Design storm frequency <u>2</u> -yr Rainfall amount <u>3.26</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.643	1.095	+0.452
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	16,191	20,388	+4,197
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		16,049	-142
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	2.86	0.10	-2.76
2) 10-Year/24-Hour	6.78	0.45	-6.33
3) 50-year/24-Hour	12.21	1.47	-10.74
4) 100-year/24-Hour	15.09	3.16	-11.93

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input checked="" type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	<u>4,339 cf</u> _____ _____	<u>1.496</u> _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input checked="" type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ <u>16,640 cf</u>	_____ _____ <u>2.523</u>

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input checked="" type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input type="checkbox"/> _____	Infiltration/Recharge	_____ <u>16,640 cf</u> _____ _____	_____ <u>2.523</u> _____ _____

5. Off-site Discharge Analysis.
 Does the activity propose any off-site discharges to areas other than surface waters? Yes No
 If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.
 The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.
 Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.
 There is no anticipated thermal impacts associated with the project. All runoff is routed to either a detention basin or infiltration berm. The infiltration and detention facilities will slow release of runoff and promote infiltration/evaporation to minimize and mitigate any potential thermal impacts.

7. Critical PCSM Plan stages.
 Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.
 Professional oversight during construction of infiltration berm.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Morgantown Road - Berks County

Design storm frequency <u>2-yr</u> Rainfall amount <u>3.22</u> inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.00	0.20	0.20
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.031	0.065	0.034
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.010	-0.021
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.490 cfs	0.454 cfs	-1.036 cfs
2) 10-Year/24-Hour	9.557 cfs	7.173 cfs	-2.384 cfs
3) 50-year/24-Hour	23.26 cfs	21.57 cfs	-1.69 cfs
4) 100-year/24-Hour	30.82 cfs	29.83 cfs	-0.99 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas <input type="checkbox"/> Infiltration Trench <input type="checkbox"/> Infiltration Bed <input type="checkbox"/> Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation <input type="checkbox"/> Streamside Buffer Zone <input type="checkbox"/> Wetland Buffer Zone <input type="checkbox"/> Sensitive Area Buffer Zone <input type="checkbox"/> Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention <input type="checkbox"/> Constructed Wetlands <input type="checkbox"/> Wet Ponds <input type="checkbox"/> Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal <input type="checkbox"/> Vegetated Filter Strips <input type="checkbox"/> Compost Filter Sock <input type="checkbox"/> Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design <input type="checkbox"/> Road Crowning <input type="checkbox"/> Ditches <input type="checkbox"/> Turnouts <input type="checkbox"/> Culverts <input type="checkbox"/> Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters <input type="checkbox"/> Level Spreaders <input type="checkbox"/> Riprap Aprons <input type="checkbox"/> Upslope Diversions <input checked="" type="checkbox"/> Slow Release Concept	Infiltration/Recharge	_____ _____ _____ 2,421 cubic feet	_____ _____ _____ 6.440

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? Yes No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

SECTION G. ANTIDEGRADATION ANALYSIS

This section must be completed where earth disturbance activities will be conducted in special protection or siltation-impaired watersheds.

Part 1 NONDISCHARGE ALTERNATIVES EVALUATION

The applicant must consider and describe any and all nondischarge alternatives for the entire project area which are environmentally sound and will:

- Minimize accelerated erosion and sedimentation during the earth disturbance activity
- Achieve no net change from pre-development to post-development volume, rate and concentration of pollutants in water quality

E & S Plan	<i>Official Use Only</i>	PCSM/Site Restoration Plan	<i>Official Use Only</i>
<p>Check off the environmentally sound nondischarge Best Management Practices (BMPs) listed below to be used prior to, during, and after earth disturbance activities that have been incorporated into your E & S Plan based on your site analysis. For non-discharge BMPs not checked, provide an explanation of why they were not utilized. Also for BMPs checked, provide an explanation of why they were utilized. (Provide your analysis and attach additional sheets if necessary) The best possible pipeline route was selected based on landowner agreements, and minimization of environmental impacts, and engineering/constructibility factors. The project's disturbed area will be limited to the area required for construction, and the duration of construction will be minimized to the extent practicable. Riparian forest buffers will be protected to the extent practicable during construction activities at stream crossings.</p>		<p>Check off the environmentally sound nondischarge Best Management Practices (BMPs) listed below to be used after construction that have been incorporated into your PCSM/SR Plan based on your site analysis. For non-discharge BMPs not checked, provide an explanation of why they were not utilized. Also for BMPs checked, provide an explanation of why they were utilized. (Provide your analysis and attach additional sheets if necessary) The best possible pipeline route was selected based on landowner agreements, and minimization of environmental impacts, and engineering/constructibility factors. The pipeline right of way will be restored to a meadow condition at original contours to maintain the pre-construction drainage patterns. Riparian forest buffers will be protected to the extent practicable.</p>	
<p>Nondischarge BMPs</p> <p><input type="checkbox"/> Alternative Siting</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative location</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative configuration</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative location of discharge</p> <p><input checked="" type="checkbox"/> Limited Disturbed Area</p> <p><input checked="" type="checkbox"/> Limiting Extent & Duration of Disturbance (Phasing, Sequencing)</p> <p><input type="checkbox"/> Riparian Buffers (150 ft. min.)</p> <p><input type="checkbox"/> Riparian Forest Buffer (150 ft. min.)</p> <p><input type="checkbox"/> Other _____</p>		<p>Nondischarge BMPs</p> <p><input type="checkbox"/> Alternative Siting</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative location</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative configuration</p> <p style="padding-left: 20px;"><input type="checkbox"/> Alternative location of discharge</p> <p><input type="checkbox"/> Low Impact Development (LID / BSD)</p> <p><input type="checkbox"/> Riparian Buffers (150 ft. min.)</p> <p><input type="checkbox"/> Riparian Forest Buffer (150 ft. min.)</p> <p><input checked="" type="checkbox"/> Infiltration</p> <p><input type="checkbox"/> Water Reuse</p> <p><input checked="" type="checkbox"/> Other <u>re-construction drainage pattern intact within the right of way</u></p>	

Will the non-discharge alternative BMPs eliminate the net change in rate, volume and quality during and after construction?

- Yes No

If yes, antidegradation analysis is complete.
If no, proceed to Part 2.

PART 2 ANTIDegradation BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT)

If the net change in stormwater discharge from or after construction is not fully managed by nondischarge BMPs, the applicant must utilize ABACT BMPs to manage the difference. The Applicant must specify whether the discharge will occur during construction, post-construction or both, and identify the technologies that will be used to ensure that the discharge will be a non-degrading discharge. ABACT BMPs include but are not limited to:

E & S Plan	Official Use Only	PCSM/Site Restoration Plan	Official Use Only
<p><input checked="" type="checkbox"/> Treatment BMPs:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sediment basin with skimmer <input type="checkbox"/> Sediment basin ratio of 4:1 or greater (flow length to basin width) <input type="checkbox"/> Sediment basin with 4-7 day detention <input type="checkbox"/> Flocculants <input checked="" type="checkbox"/> Compost Filter Socks <input type="checkbox"/> Compost Filter Sock Sediment Basin <input checked="" type="checkbox"/> RCE w/ Wash Rack <p><input checked="" type="checkbox"/> Land disposal:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vegetated filters <input type="checkbox"/> Riparian buffers <150ft. <input type="checkbox"/> Riparian Forest Buffer <150ft. <input checked="" type="checkbox"/> Immediate stabilization <p><input checked="" type="checkbox"/> Pollution prevention:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> PPC Plans <input type="checkbox"/> Street sweeping <input type="checkbox"/> Channels, collectors and diversions lined with permanent vegetation, rock, geotextile or other non-erosive materials <p><input type="checkbox"/> Stormwater reuse technologies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sediment basin water for dust control <input type="checkbox"/> Sediment basin water for irrigation <p><input checked="" type="checkbox"/> Other <u>Rock construction entrances with wash racks, compost filter socks, erosion control blanket placed within 100-feet of streams</u></p>		<p><input type="checkbox"/> Treatment BMPs:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Infiltration Practices <input type="checkbox"/> Wet ponds <input type="checkbox"/> Created wetland treatment systems <input type="checkbox"/> Vegetated swales <input type="checkbox"/> Manufactured devices <input type="checkbox"/> Bio-retention/infiltration <input type="checkbox"/> Green Roofs <p><input type="checkbox"/> Land disposal:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vegetated filters <input type="checkbox"/> Riparian Buffers <150ft. <input type="checkbox"/> Riparian Forest Buffer <150ft. <input type="checkbox"/> Disconnection of roof drainage <input type="checkbox"/> Bio-retention/bio-infiltration <p><input checked="" type="checkbox"/> Pollution prevention:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Street sweeping <input type="checkbox"/> Nutrient, pesticide, herbicide or other chemical application plan alternatives <input checked="" type="checkbox"/> PPC Plans <input type="checkbox"/> Non-structural Practices <input checked="" type="checkbox"/> Restoration BMPs <p><input type="checkbox"/> Stormwater reuse technologies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Divert rainwater into impoundment <input type="checkbox"/> Underground storage <input type="checkbox"/> Spray/Drip Irrigation <p><input type="checkbox"/> Other _____</p>	

SECTION H. COMPLIANCE REVIEW

Is the applicant in violation of any existing permit, regulation, order, or schedule of compliance issued by the Department within the last 5 years?

Yes No

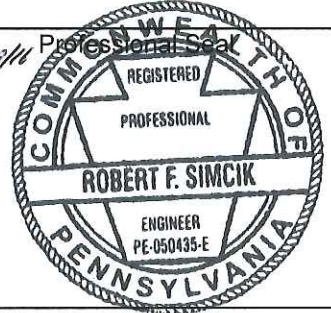
If yes, provide the permit number or facility name, a brief description of the violation, the compliance schedule (including dates and steps to achieve compliance) and the current compliance status. (Attach additional information on a separate sheets, when necessary)

Notices of Violations can be found in Tab 9 of the ESCGP-2 Permit Application

SECTION I. CERTIFICATION BY PERSON PREPARING APPLICATION

I do hereby certify to the best of my knowledge, information, and belief, that the Erosion and Sediment Control and PCSM/Site Restoration Plans are true and correct, represent actual field conditions, and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Print Name Robert F. Simcik, P.E.	Signature 
Company Tetra Tech	
Address 661 Andersen Drive, Foster Plaza 7, Pittsburgh, PA 15220	
Phone (412) 921-8163	
Most Recent DEP Training Attended	Location Greensburg, PA Date 04/03/2014
e-Mail Address <u>robert.simcik@tetrattech.com</u>	



EXPEDITED REVIEW PROCESS

In addition to the certification required above applicants using the expedited permit review process must attach an E&S and PCSM/Site Restoration Plans developed and sealed by a licensed professional engineer, surveyor or professional geologist. The plans shall contain the following certification:

I do hereby certify to the best of my knowledge, information, and belief, that the E & S Control and SR/PCSM BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SECTION J. APPLICANT CERTIFICATION

Applicant Certification. I certify under penalty of law that this document and all attachments were prepared by me or 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. The responsible official's signature also verifies that the activity is eligible to participate in the permit, and that the applicant agrees to abide by the terms and conditions of the permit. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Matthew L. Gordon - Principal Engineer - Sunoco
 Print Name and Title of Applicant


 Signature of Applicant


11/28/2016
 Date Application Signed

 Print Name and Title of Co-Applicant (if applicable)

 Signature of Co-Applicant

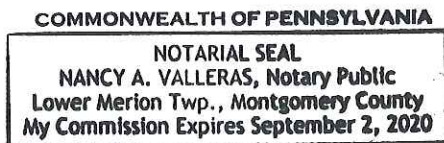
 Date Application Signed

Notarization
 Sworn to and subscribed to before me this
28th day of November, 2016


 Notary Public

Commonwealth of Pennsylvania
 County of Montgomery
 My Commission expires 9/2/20

AFFIX SEAL



SECTION K. CONTACT FOR ADDITIONAL INFORMATION

Contact's Last Name Simcik	First Name Robert	MI F	Phone (412) 921-8163	FAX
Mailing Address 661 Andersen Drive, Foster Plaza 7	City Pittsburgh	State PA	ZIP + 4 15220	
e-Mail Address robert.simcik@tetrattech.com				