

General Information

Instructions
General
Volume
Rate
Quality

Project Name: Proposed Industrial Development

Application Type: Individual NPDES Application

County: Northampton

Municipality: Hanover Township

Project Type: Commercial Building

New Project
 Minor / Major Amendment

Area: 28.00 acres
(In Watershed)

Total Earth Disturbance: 25.00 acres
(In Watershed)

No. of Post-Construction Discharge Points: 2

Start DP Numbering at: 001

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	10.89	10.89	2.91	8.67	Discharge to MS4	HQ-CWF, MF	Yes
002	6.91	6.91	5.51	5.20	Discharge to MS4	HQ-CWF, MF	Yes
Undetained Areas	7.20	7.20	1.06	1.14	Discharge to MS4	HQ-CWF, MF	
Totals:	25.00	25.00	9.48	15.01			

Volume Management

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2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches Alternative 2-Year / 24-Hour Storm Event inches

Alternative Source:

Pre-Construction Conditions: No. Rows: Exempt from Meadow in Good Condition Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	8.63	B	58	1.448	0.33	10,252
Pervious as Meadow	4.12	D	78	0.564	1.24	18,607
Impervious as Meadow	0.03	B	58	1.448	0.33	36
Impervious as Meadow	1.85	D	78	0.564	1.24	8,355
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	7.54	N/A	98	0.041	2.93	80,130
Forested (Good Condition)	0.20	B	55	1.636	0.24	174
Forested (Good Condition)	0.63	D	77	0.597	1.18	2,706
Pervious as Meadow	1.06	B	58	1.448	0.33	1,259
Pervious as Meadow	0.94	D	78	0.564	1.24	4,245
TOTAL (ACRES):	25.00				TOTAL (CF):	125,763

Post-Construction Conditions:

No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.68	B	61	1.279	0.43	2,608
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	5.41	D	80	0.500	1.37	26,929
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	14.35	N/A	98	0.041	2.93	152,502
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.60	D	80	0.500	1.37	2,987
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.96	B	58	1.448	0.33	1,140
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	1.06	B	58	1.448	0.33	1,259
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.94	D	78	0.564	1.24	4,245

TOTAL (ACRES): 25.00

TOTAL (CF): 191,671

NET CHANGE IN VOLUME TO MANAGE (CF):

Non-Structural BMP Volume Credits:

Tree Planting Credit

Number of new deciduous trees that will be planted within disturbed area:

CREDIT (CF):

Number of new evergreen trees that will be planted within disturbed area:

CREDIT (CF):

Other (attach calculations):

Structural BMP Volume Credits:

No. Structural BMPs:

Start BMP Numbering at:

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Capture and Reuse	-	Off-Site	10.89	66,540	113,365					66,540		

002	2	Water Quality Filters & Hydrodynamic Devices	-	Off-Site	6.91	54,287								
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Totals:

INFILTRATION & ET CREDITS (CF):	
CAPTURE AND REUSE CREDIT (CF):	66,540
NET CHANGE IN VOLUME TO MANAGE (CF):	65,907
TOTAL CREDITS (CF):	66,540

VOLUME REQUIREMENT SATISFIED

Rate Control

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Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	3.16	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	

Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

<i>Peak Discharge Rates (cfs)</i>				
	Pre-Construction	Post-Construction	Net Change	
2-Year Storm:	5.80	1.50	-4.30	<i>Rate Control Satisfied</i>
10-Year Storm:	9.70	8.40	-1.30	<i>Rate Control Satisfied</i>
50-Year Storm:	16.70	16.40	-0.30	<i>Rate Control Satisfied</i>
100-Year Storm:	23.70	20.40	-3.30	<i>Rate Control Satisfied</i>

Water Quality

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Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	8.63	B	10,252	48.8	0.22	2.30	31.24	0.14	1.47
Pervious as Meadow	Grassland/Herbaceous	4.12	D	18,607	48.8	0.22	2.30	56.70	0.26	2.67
Impervious as Meadow	Grassland/Herbaceous	0.03	B	36	48.8	0.22	2.30	0.11	0.00	0.01
Impervious as Meadow	Grassland/Herbaceous	1.85	D	8,355	48.8	0.22	2.30	25.46	0.11	1.20
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	7.54	N/A	80,130	65.0	0.29	2.05	325.23	1.45	10.26
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.20	B	174	45.0	0.13	1.05	0.49	0.00	0.01
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.63	D	2,706	45.0	0.13	1.05	7.60	0.02	0.18
Pervious as Meadow	Grassland/Herbaceous	1.06	B	1,259	48.8	0.22	2.30	3.84	0.02	0.18
Pervious as Meadow	Grassland/Herbaceous	0.94	D	4,245	48.8	0.22	2.30	12.94	0.06	0.61

TOTAL (ACRES): 25.00

TOTALS: 463.60 2.06 16.59

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.68	B	2,608	78.0	0.25	1.25	12.70	0.04	0.20
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	5.41	D	26,929	78.0	0.25	1.25	131.16	0.42	2.10
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	14.35	N/A	152,502	65.0	0.29	2.05	618.97	2.76	19.52
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.60	D	2,987	78.0	0.25	1.25	14.55	0.05	0.23
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	0.96	B	1,140	48.8	0.22	2.30	3.48	0.02	0.16
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	1.06	B	1,259	48.8	0.22	2.30	3.84	0.02	0.18
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	0.94	D	4,245	48.8	0.22	2.30	12.94	0.06	0.61

TOTAL (ACRES): 25.00

TOTALS: 797.63 3.36 23.01

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS): **334.03** **1.30** **6.43**

Characterize Undetained Areas (for Untreated Stormwater)

No. Rows: 4

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
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Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	2.2	B	61	1.279	0.43	3,416
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.96	D	80	0.500	1.37	4,778
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.08	N/A	98	0.041	2.93	11,477
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.96	B	58	1.448	0.33	1,140

Non-Structural BMP Water Quality Credits:

- Pervious Undetained Area Credit
- Other (attach calculations)

Structural BMP Water Quality Credits:

Use default BMP Outflows and Median BMP Outflow Concentrations

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Capture and Reuse	-	10.89	66,540		66,540	0	0.00	0.00	0.00	0.00	0.00	0.00
002	2	Water Quality Filters & Hydrodynamic Devices	-	6.91	54,287			54,287	39.00	0.18	2.21	132.20	0.61	7.49

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	132.20	0.61	7.49
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	89.97	0.35	2.27
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):			
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	222.17	0.96	9.76
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	463.60	2.06	16.59

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

TPC

Spreadsheet User Name

05/2023

Date