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STORMWATER SUMMARY

Project: Effingham Gas Station

Date: August 26, 2022

Applicant : Meena LLC

Revised: November 18, 2022

Project No : 220473

Location : 41 Route 25, Effingham, NH

PID : Map 401, Lot 5

Methodology : TR-20 using HydroCAD® 10.20-2f

Assumption(s):

- The “Existing Site Conditions” are the conditions that the site was in prior to the construction of the gas pumps, tank and canopy.
- Storm events have been used in these calculations under fully thawed ground conditions, antecedent moisture content two.

Approach:

- Review and verify, stormwater runoff flows from the concrete pads and parking lots.
- Identify potential oil and spill sources and install devices to keep fugitive oil from reaching the adjacent wetlands.
- Note that the site is all within Champlain Soils that are considered excessively well drained, and a droughty soil per NRCS Soils Mapping and Classification. The Hydrologic Soils Group for Colton soils is group A.
- Stormwater analysis completed was to determine the amount of flow to the NHDOT right of way and design an infiltration trench to treat the runoff from the canopy.
- The analysis is limited to the watershed on the project site.

Summary of Analysis:

Analysis

Point		2yr	10yr	25yr	50yr
POA1	EX	2.26cfs	3.30cfs	4.10cfs	5.09cfs
	POST	2.07cfs	2.73cfs	3.20cfs	4.06cfs

Conclusions:

- Stormwater runoff from the parking lot and buildings is directed to deep sump catch basins and an oil water separator. These are intended to capture the runoff and prevent any fugitive oil from reaching the adjacent wetlands. The runoff from the proposed canopy is directed to an infiltration trench, where the runoff will be captured, infiltrated and treated. There will be a post development decrease in peak rate at the analysis point due to the construction of the infiltration trench and bioretention basin and no change in impervious surfaces. Additionally, infiltration trench, catch basins, and bio-retention basin will add a level of protection not previously available.

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Certification

This document contains engineering data including calculations of the post development surface drainage characteristics of this property. The engineering aspects of this document have been prepared by me and by those under my direct supervision; every such engineering aspect shown herein is based upon my best knowledge and opinion thereof.

2-year, 10-year, and 25- year storm events has been used in these calculations under fully thawed ground conditions, antecedent moisture content two. HydroCAD© 10.20-2f software has been used to perform the calculations.

This document does not constitute any guarantees but has been prepared with usual and customary standards of care. All references are submitted for general information and regulatory review purposes only.

Date 08/12/2022

Mark Lucy, P.E., C.P.E.S.C.



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FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name:

p-5 Bioretention basin

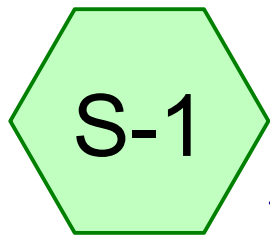
Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.29	ac	A = Area draining to the practice	
0.24	ac	A _I = Impervious area draining to the practice	
0.83	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.79	unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
0.23	ac-in	WQV = 1" x R _v x A	
837	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
209	cf	25% x WQV (check calc for sediment forebay volume)	
628	cf	75% x WQV (check calc for surface sand filter volume)	
Deep sump CBs		Method of Pretreatment? (not required for clean or roof runoff)	
N/A	cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A _{SA} = Surface area of the practice	
	iph	K _{sat} _{DESIGN} = Design infiltration rate ¹	
		If K _{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
421.49	ft	E _{WQV} = Elevation of WQV (attach stage-storage table)	
1.37	cfs	Q _{WQV} = Discharge at the E _{WQV} (attach stage-discharge table)	
0.34	hours	T _{DRAIN} = Drain time = 2WQV/Q _{WQV}	≤ 72-hrs
416.50	feet	E _{FC} = Elevation of the bottom of the filter course material ²	
415.50	feet	E _{UD} = Invert elevation of the underdrain (UD), if applicable	
415.50	feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
412.25	feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	D _{FC to UD} = Depth to UD from the bottom of the filter course	≥ 1'
4.25	feet	D _{FC to ROCK} = Depth to bedrock from the bottom of the filter course	≥ 1'
1.00	feet	D _{FC to SHWT} = Depth to SHWT from the bottom of the filter course	≥ 1'
420.85	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
422.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ 75%WQV
	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	← yes

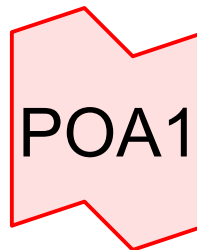
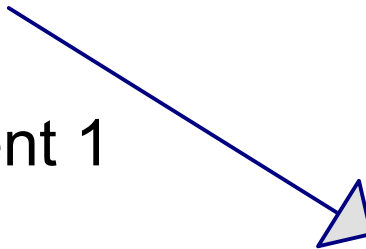
YES	ac	Drainage Area no larger than 5 ac?	← yes
884	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ WQV
24.0	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	SMP1.02	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	SMP1.02	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
	acres	Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.) A _{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D _{FC} = Filter course thickness	12", or 18" if within GPA
Sheet		Note what sheet in the plan set contains the filter course spec.	mod. 304.1 (see spec)

1. Rate of the limiting layer (either the filter course or the underlying soil). K_{sat_design} includes factor of safety. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet structure, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

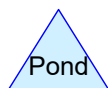
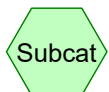
Designer's Notes:



Subcatchment 1



Point of Analysis



Routing Diagram for 220473 Meena LLC EX

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Year	TYPE II 24-hr		Default	24.00	1	2.93	2
2	10 Year	TYPE II 24-hr		Default	24.00	1	4.25	2
3	25 Year	TYPE II 24-hr		Default	24.00	1	5.26	2
4	50 Year	TYPE II 24-hr		Default	24.00	1	6.19	2

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.898	39	>75% Grass cover, Good, HSG A (S-1)
0.464	98	Paved parking, HSG A (S-1)
0.080	98	Roofs, HSG A (S-1)
1.442	61	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.442	HSG A	S-1
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.442		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.898	0.000	0.000	0.000	0.000	0.898	>75% Grass cover, Good	S-1
0.464	0.000	0.000	0.000	0.000	0.464	Paved parking	S-1
0.080	0.000	0.000	0.000	0.000	0.080	Roofs	S-1
1.442	0.000	0.000	0.000	0.000	1.442	TOTAL AREA	

220473 Meena LLC EX*TYPE II 24-hr 2 Year Rainfall=2.93"*

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1

Runoff Area=62,829 sf 37.74% Impervious Runoff Depth=1.02"

Flow Length=224' Slope=0.1200 '/' Tc=5.9 min CN=WQ Runoff=2.26 cfs 0.122 af

Link POA1: Point of Analysis

Inflow=2.26 cfs 0.122 af

Primary=2.26 cfs 0.122 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.122 af Average Runoff Depth = 1.02"
62.26% Pervious = 0.898 ac 37.74% Impervious = 0.544 ac

220473 Meena LLC EX*TYPE II 24-hr 10 Year Rainfall=4.25"*

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1

Runoff Area=62,829 sf 37.74% Impervious Runoff Depth=1.56"

Flow Length=224' Slope=0.1200 '/' Tc=5.9 min CN=WQ Runoff=3.30 cfs 0.188 af

Link POA1: Point of Analysis

Inflow=3.30 cfs 0.188 af

Primary=3.30 cfs 0.188 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.188 af Average Runoff Depth = 1.56"
62.26% Pervious = 0.898 ac 37.74% Impervious = 0.544 ac

220473 Meena LLC EX*TYPE II 24-hr 25 Year Rainfall=5.26"*

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1

Runoff Area=62,829 sf 37.74% Impervious Runoff Depth=2.05"

Flow Length=224' Slope=0.1200 '/' Tc=5.9 min CN=WQ Runoff=4.10 cfs 0.247 af

Link POA1: Point of Analysis

Inflow=4.10 cfs 0.247 af

Primary=4.10 cfs 0.247 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.247 af Average Runoff Depth = 2.05"
62.26% Pervious = 0.898 ac 37.74% Impervious = 0.544 ac

220473 Meena LLC EX*TYPE II 24-hr 50 Year Rainfall=6.19"*

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1

Runoff Area=62,829 sf 37.74% Impervious Runoff Depth=2.56"

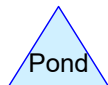
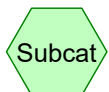
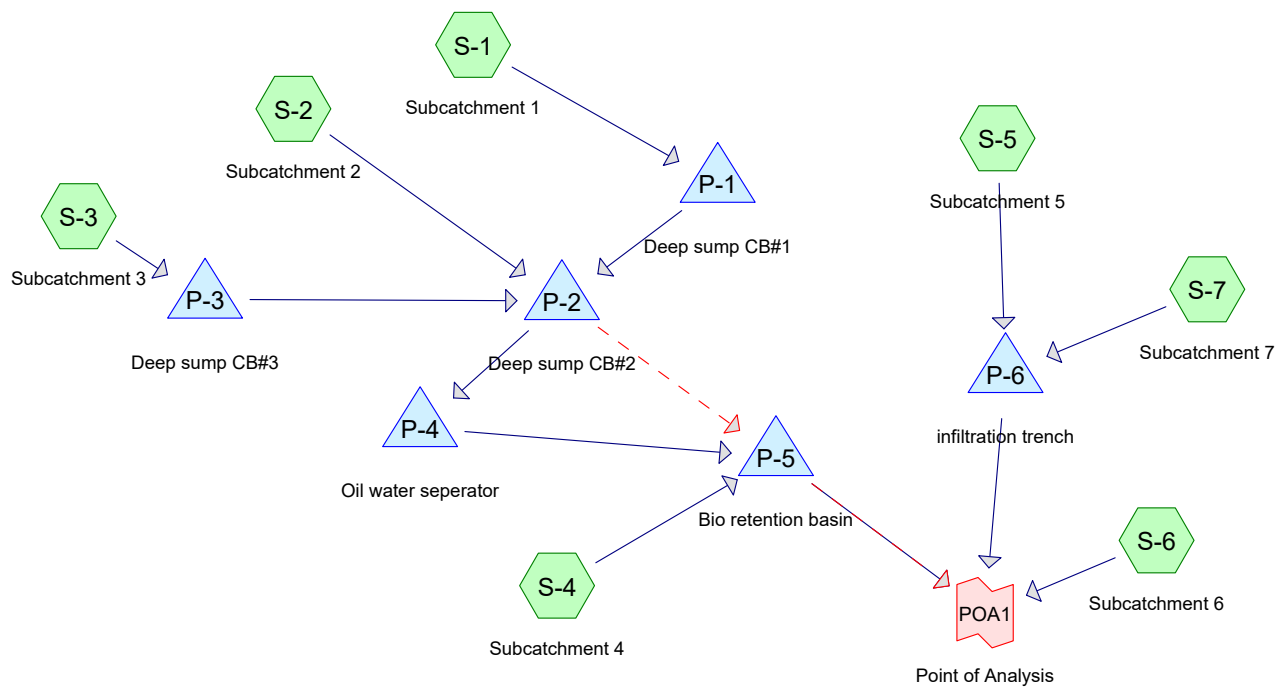
Flow Length=224' Slope=0.1200 '/' Tc=5.9 min CN=WQ Runoff=5.09 cfs 0.307 af

Link POA1: Point of Analysis

Inflow=5.09 cfs 0.307 af

Primary=5.09 cfs 0.307 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.307 af Average Runoff Depth = 2.56"
62.26% Pervious = 0.898 ac 37.74% Impervious = 0.544 ac



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Year	TYPE II 24-hr		Default	24.00	1	2.93	2
2	10 Year	TYPE II 24-hr		Default	24.00	1	4.25	2
3	25 Year	TYPE II 24-hr		Default	24.00	1	5.26	2
4	50 Year	TYPE II 24-hr		Default	24.00	1	6.19	2

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.901	39	>75% Grass cover, Good, HSG A (S-3, S-4, S-6)
0.454	98	Paved parking, HSG A (S-1, S-2, S-3, S-6)
0.087	98	Roofs, HSG A (S-2, S-3, S-5, S-6, S-7)
1.442	61	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.442	HSG A	S-1, S-2, S-3, S-4, S-5, S-6, S-7
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.442		TOTAL AREA

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1	Runoff Area=483 sf 100.00% Impervious Runoff Depth=2.70" Tc=6.0 min CN=98 Runoff=0.05 cfs 0.002 af
Subcatchment S-2: Subcatchment 2	Runoff Area=3,855 sf 100.00% Impervious Runoff Depth=2.70" Tc=6.0 min CN=WQ Runoff=0.37 cfs 0.020 af
Subcatchment S-3: Subcatchment 3	Runoff Area=6,781 sf 93.23% Impervious Runoff Depth=2.52" Tc=6.0 min CN=WQ Runoff=0.60 cfs 0.033 af
Subcatchment S-4: Subcatchment 4	Runoff Area=1,330 sf 0.00% Impervious Runoff Depth=0.00" Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment S-5: Subcatchment 5	Runoff Area=1,056 sf 100.00% Impervious Runoff Depth=2.70" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.12 cfs 0.005 af
Subcatchment S-6: Subcatchment 6	Runoff Area=48,924 sf 23.39% Impervious Runoff Depth=0.63" Tc=6.0 min CN=WQ Runoff=1.09 cfs 0.059 af
Subcatchment S-7: Subcatchment 7	Runoff Area=384 sf 100.00% Impervious Runoff Depth=2.70" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.04 cfs 0.002 af
Pond P-1: Deep sump CB#1	Peak Elev=420.61' Storage=1 cf Inflow=0.05 cfs 0.002 af 12.0" Round Culvert n=0.012 L=39.0' S=0.0128 ' Outflow=0.05 cfs 0.002 af
Pond P-2: Deep sump CB#2	Peak Elev=420.04' Storage=18 cf Inflow=1.01 cfs 0.055 af Primary=0.94 cfs 0.055 af Secondary=0.07 cfs 0.000 af Outflow=1.01 cfs 0.055 af
Pond P-3: Deep sump CB#3	Peak Elev=420.94' Storage=6 cf Inflow=0.60 cfs 0.033 af 12.0" Round Culvert n=0.012 L=46.0' S=0.0109 ' Outflow=0.60 cfs 0.033 af
Pond P-4: Oil water seperator	Peak Elev=419.24' Storage=153 cf Inflow=0.94 cfs 0.055 af 12.0" Round Culvert x 2.00 n=0.012 L=36.0' S=0.0097 ' Outflow=0.94 cfs 0.051 af
Pond P-5: Bio retention basin	Peak Elev=418.41' Storage=35 cf Inflow=1.01 cfs 0.052 af Outflow=1.00 cfs 0.052 af
Pond P-6: infiltration trench	Peak Elev=420.77' Storage=166 cf Inflow=0.16 cfs 0.007 af Discarded=0.00 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.007 af
Link POA1: Point of Analysis	Inflow=2.07 cfs 0.111 af Primary=2.07 cfs 0.111 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.122 af Average Runoff Depth = 1.01"
62.52% Pervious = 0.901 ac 37.48% Impervious = 0.541 ac

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1	Runoff Area=483 sf 100.00% Impervious Runoff Depth=4.01" Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af
Subcatchment S-2: Subcatchment 2	Runoff Area=3,855 sf 100.00% Impervious Runoff Depth=4.01" Tc=6.0 min CN=WQ Runoff=0.53 cfs 0.030 af
Subcatchment S-3: Subcatchment 3	Runoff Area=6,781 sf 93.23% Impervious Runoff Depth=3.75" Tc=6.0 min CN=WQ Runoff=0.88 cfs 0.049 af
Subcatchment S-4: Subcatchment 4	Runoff Area=1,330 sf 0.00% Impervious Runoff Depth=0.08" Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment S-5: Subcatchment 5	Runoff Area=1,056 sf 100.00% Impervious Runoff Depth=4.01" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.17 cfs 0.008 af
Subcatchment S-6: Subcatchment 6	Runoff Area=48,924 sf 23.39% Impervious Runoff Depth=1.00" Tc=6.0 min CN=WQ Runoff=1.59 cfs 0.093 af
Subcatchment S-7: Subcatchment 7	Runoff Area=384 sf 100.00% Impervious Runoff Depth=4.01" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.06 cfs 0.003 af
Pond P-1: Deep sump CB#1	Peak Elev=420.64' Storage=2 cf Inflow=0.07 cfs 0.004 af 12.0" Round Culvert n=0.012 L=39.0' S=0.0128 ' Outflow=0.07 cfs 0.004 af
Pond P-2: Deep sump CB#2	Peak Elev=420.24' Storage=21 cf Inflow=1.48 cfs 0.082 af Primary=1.11 cfs 0.079 af Secondary=0.36 cfs 0.003 af Outflow=1.48 cfs 0.082 af
Pond P-3: Deep sump CB#3	Peak Elev=421.05' Storage=7 cf Inflow=0.88 cfs 0.049 af 12.0" Round Culvert n=0.012 L=46.0' S=0.0109 ' Outflow=0.88 cfs 0.049 af
Pond P-4: Oil water seperator	Peak Elev=419.27' Storage=155 cf Inflow=1.11 cfs 0.079 af 12.0" Round Culvert x 2.00 n=0.012 L=36.0' S=0.0097 ' Outflow=1.11 cfs 0.075 af
Pond P-5: Bio retention basin	Peak Elev=419.60' Storage=140 cf Inflow=1.48 cfs 0.079 af Outflow=1.18 cfs 0.079 af
Pond P-6: infiltration trench	Peak Elev=422.50' Storage=270 cf Inflow=0.23 cfs 0.011 af Discarded=0.00 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.009 af
Link POA1: Point of Analysis	Inflow=2.73 cfs 0.172 af Primary=2.73 cfs 0.172 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.186 af Average Runoff Depth = 1.55"
62.52% Pervious = 0.901 ac 37.48% Impervious = 0.541 ac

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

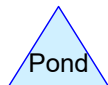
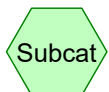
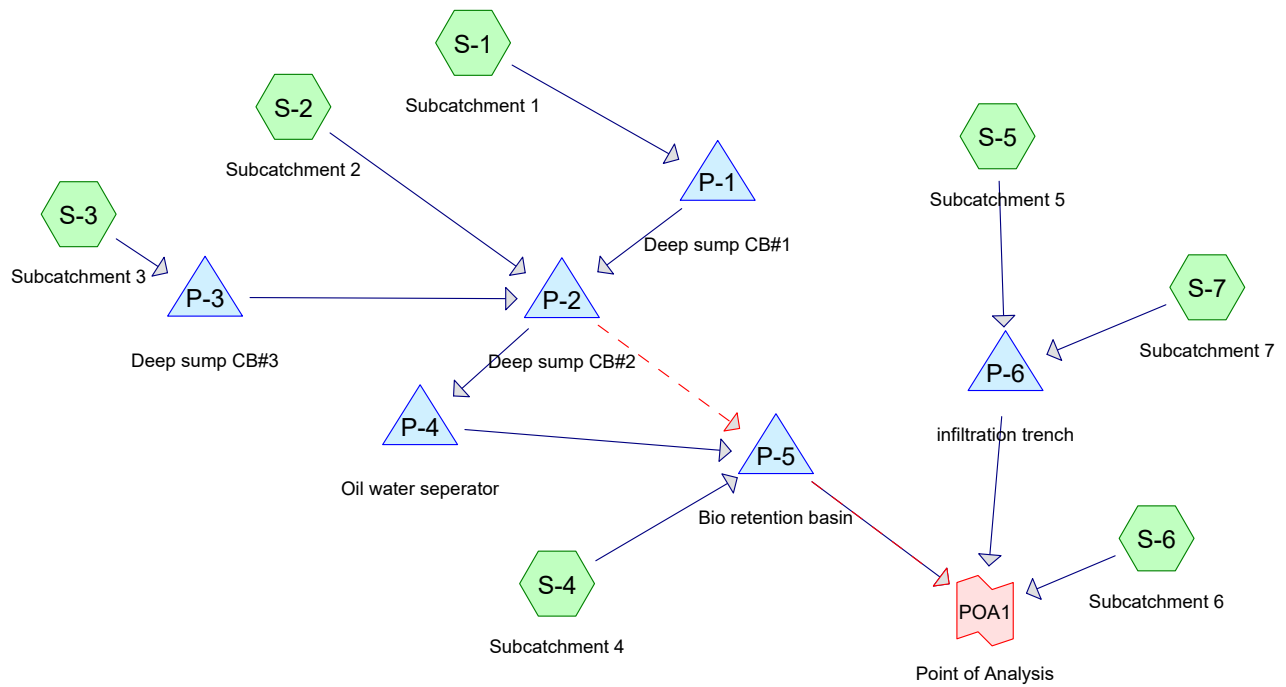
Subcatchment S-1: Subcatchment 1	Runoff Area=483 sf 100.00% Impervious Runoff Depth=5.02" Tc=6.0 min CN=98 Runoff=0.08 cfs 0.005 af
Subcatchment S-2: Subcatchment 2	Runoff Area=3,855 sf 100.00% Impervious Runoff Depth=5.02" Tc=6.0 min CN=WQ Runoff=0.66 cfs 0.037 af
Subcatchment S-3: Subcatchment 3	Runoff Area=6,781 sf 93.23% Impervious Runoff Depth=4.70" Tc=6.0 min CN=WQ Runoff=1.09 cfs 0.061 af
Subcatchment S-4: Subcatchment 4	Runoff Area=1,330 sf 0.00% Impervious Runoff Depth=0.26" Tc=6.0 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment S-5: Subcatchment 5	Runoff Area=1,056 sf 100.00% Impervious Runoff Depth=5.02" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.21 cfs 0.010 af
Subcatchment S-6: Subcatchment 6	Runoff Area=48,924 sf 23.39% Impervious Runoff Depth=1.37" Tc=6.0 min CN=WQ Runoff=1.98 cfs 0.128 af
Subcatchment S-7: Subcatchment 7	Runoff Area=384 sf 100.00% Impervious Runoff Depth=5.02" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.08 cfs 0.004 af
Pond P-1: Deep sump CB#1	Peak Elev=420.66' Storage=2 cf Inflow=0.08 cfs 0.005 af 12.0" Round Culvert n=0.012 L=39.0' S=0.0128 ' Outflow=0.08 cfs 0.005 af
Pond P-2: Deep sump CB#2	Peak Elev=420.35' Storage=22 cf Inflow=1.83 cfs 0.103 af Primary=1.20 cfs 0.096 af Secondary=0.63 cfs 0.007 af Outflow=1.83 cfs 0.102 af
Pond P-3: Deep sump CB#3	Peak Elev=421.12' Storage=8 cf Inflow=1.09 cfs 0.061 af 12.0" Round Culvert n=0.012 L=46.0' S=0.0109 ' Outflow=1.09 cfs 0.061 af
Pond P-4: Oil water seperator	Peak Elev=419.29' Storage=156 cf Inflow=1.20 cfs 0.096 af 12.0" Round Culvert x 2.00 n=0.012 L=36.0' S=0.0097 ' Outflow=1.20 cfs 0.093 af
Pond P-5: Bio retention basin	Peak Elev=420.27' Storage=279 cf Inflow=1.83 cfs 0.100 af Outflow=1.27 cfs 0.100 af
Pond P-6: infiltration trench	Peak Elev=423.00' Storage=300 cf Inflow=0.29 cfs 0.014 af Discarded=0.00 cfs 0.009 af Primary=0.02 cfs 0.001 af Outflow=0.03 cfs 0.010 af
Link POA1: Point of Analysis	Inflow=3.20 cfs 0.230 af Primary=3.20 cfs 0.230 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.245 af Average Runoff Depth = 2.04"
62.52% Pervious = 0.901 ac 37.48% Impervious = 0.541 ac

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1	Runoff Area=483 sf 100.00% Impervious Runoff Depth=5.95" Tc=6.0 min CN=98 Runoff=0.10 cfs 0.005 af
Subcatchment S-2: Subcatchment 2	Runoff Area=3,855 sf 100.00% Impervious Runoff Depth=5.95" Tc=6.0 min CN=WQ Runoff=0.78 cfs 0.044 af
Subcatchment S-3: Subcatchment 3	Runoff Area=6,781 sf 93.23% Impervious Runoff Depth=5.58" Tc=6.0 min CN=WQ Runoff=1.28 cfs 0.072 af
Subcatchment S-4: Subcatchment 4	Runoff Area=1,330 sf 0.00% Impervious Runoff Depth=0.50" Tc=6.0 min CN=39 Runoff=0.01 cfs 0.001 af
Subcatchment S-5: Subcatchment 5	Runoff Area=1,056 sf 100.00% Impervious Runoff Depth=5.95" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.25 cfs 0.012 af
Subcatchment S-6: Subcatchment 6	Runoff Area=48,924 sf 23.39% Impervious Runoff Depth=1.78" Tc=6.0 min CN=WQ Runoff=2.59 cfs 0.166 af
Subcatchment S-7: Subcatchment 7	Runoff Area=384 sf 100.00% Impervious Runoff Depth=5.95" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.09 cfs 0.004 af
Pond P-1: Deep sump CB#1	Peak Elev=420.67' Storage=2 cf Inflow=0.10 cfs 0.005 af 12.0" Round Culvert n=0.012 L=39.0' S=0.0128 ' Outflow=0.10 cfs 0.005 af
Pond P-2: Deep sump CB#2	Peak Elev=420.45' Storage=23 cf Inflow=2.16 cfs 0.122 af Primary=1.27 cfs 0.111 af Secondary=0.89 cfs 0.010 af Outflow=2.16 cfs 0.122 af
Pond P-3: Deep sump CB#3	Peak Elev=421.19' Storage=9 cf Inflow=1.28 cfs 0.072 af 12.0" Round Culvert n=0.012 L=46.0' S=0.0109 ' Outflow=1.28 cfs 0.072 af
Pond P-4: Oil water seperator	Peak Elev=419.31' Storage=156 cf Inflow=1.27 cfs 0.111 af 12.0" Round Culvert x 2.00 n=0.012 L=36.0' S=0.0097 ' Outflow=1.27 cfs 0.108 af
Pond P-5: Bio retention basin	Peak Elev=420.74' Storage=441 cf Inflow=2.17 cfs 0.120 af Outflow=1.34 cfs 0.120 af
Pond P-6: infiltration trench	Peak Elev=423.02' Storage=301 cf Inflow=0.34 cfs 0.016 af Discarded=0.00 cfs 0.009 af Primary=0.39 cfs 0.003 af Outflow=0.39 cfs 0.013 af
Link POA1: Point of Analysis	Inflow=4.06 cfs 0.289 af Primary=4.06 cfs 0.289 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.306 af Average Runoff Depth = 2.54"
62.52% Pervious = 0.901 ac 37.48% Impervious = 0.541 ac



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10 Year	TYPE II 24-hr		Default	24.00	1	4.25	2

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.901	39	>75% Grass cover, Good, HSG A (S-3, S-4, S-6)
0.454	98	Paved parking, HSG A (S-1, S-2, S-3, S-6)
0.087	98	Roofs, HSG A (S-2, S-3, S-5, S-6, S-7)
1.442	61	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.442	HSG A	S-1, S-2, S-3, S-4, S-5, S-6, S-7
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.442		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.901	0.000	0.000	0.000	0.000	0.901	>75% Grass cover, Good	S-3, S-4, S-6
0.454	0.000	0.000	0.000	0.000	0.454	Paved parking	S-1, S-2, S-3, S-6
0.087	0.000	0.000	0.000	0.000	0.087	Roofs	S-2, S-3, S-5, S-6, S-7
1.442	0.000	0.000	0.000	0.000	1.442	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	S-5	0.00	0.00	80.0	0.0100	0.012	0.0	6.0	0.0
2	S-7	0.00	0.00	80.0	0.0100	0.012	0.0	6.0	0.0
3	P-1	420.50	420.00	39.0	0.0128	0.012	0.0	12.0	0.0
4	P-2	419.20	419.10	7.0	0.0143	0.012	0.0	8.0	0.0
5	P-2	419.90	418.50	40.0	0.0350	0.012	0.0	12.0	0.0
6	P-3	420.50	420.00	46.0	0.0109	0.012	0.0	12.0	0.0
7	P-4	418.85	418.50	36.0	0.0097	0.012	0.0	12.0	0.0
8	P-5	415.50	415.00	80.0	0.0063	0.012	0.0	6.0	0.0

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment S-1: Subcatchment 1	Runoff Area=483 sf 100.00% Impervious Runoff Depth=4.01" Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af
Subcatchment S-2: Subcatchment 2	Runoff Area=3,855 sf 100.00% Impervious Runoff Depth=4.01" Tc=6.0 min CN=WQ Runoff=0.53 cfs 0.030 af
Subcatchment S-3: Subcatchment 3	Runoff Area=6,781 sf 93.23% Impervious Runoff Depth=3.75" Tc=6.0 min CN=WQ Runoff=0.88 cfs 0.049 af
Subcatchment S-4: Subcatchment 4	Runoff Area=1,330 sf 0.00% Impervious Runoff Depth=0.08" Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment S-5: Subcatchment 5	Runoff Area=1,056 sf 100.00% Impervious Runoff Depth=4.01" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.17 cfs 0.008 af
Subcatchment S-6: Subcatchment 6	Runoff Area=48,924 sf 23.39% Impervious Runoff Depth=1.00" Tc=6.0 min CN=WQ Runoff=1.59 cfs 0.093 af
Subcatchment S-7: Subcatchment 7	Runoff Area=384 sf 100.00% Impervious Runoff Depth=4.01" Flow Length=100' Tc=0.7 min CN=98 Runoff=0.06 cfs 0.003 af
Pond P-1: Deep sump CB#1	Peak Elev=420.64' Storage=2 cf Inflow=0.07 cfs 0.004 af 12.0" Round Culvert n=0.012 L=39.0' S=0.0128 ' Outflow=0.07 cfs 0.004 af
Pond P-2: Deep sump CB#2	Peak Elev=420.24' Storage=21 cf Inflow=1.48 cfs 0.082 af Primary=1.11 cfs 0.079 af Secondary=0.36 cfs 0.003 af Outflow=1.48 cfs 0.082 af
Pond P-3: Deep sump CB#3	Peak Elev=421.05' Storage=7 cf Inflow=0.88 cfs 0.049 af 12.0" Round Culvert n=0.012 L=46.0' S=0.0109 ' Outflow=0.88 cfs 0.049 af
Pond P-4: Oil water seperator	Peak Elev=419.27' Storage=155 cf Inflow=1.11 cfs 0.079 af 12.0" Round Culvert x 2.00 n=0.012 L=36.0' S=0.0097 ' Outflow=1.11 cfs 0.075 af
Pond P-5: Bio retention basin	Peak Elev=419.60' Storage=140 cf Inflow=1.48 cfs 0.079 af Outflow=1.18 cfs 0.079 af
Pond P-6: infiltration trench	Peak Elev=422.50' Storage=270 cf Inflow=0.23 cfs 0.011 af Discarded=0.00 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.009 af
Link POA1: Point of Analysis	Inflow=2.73 cfs 0.172 af Primary=2.73 cfs 0.172 af

Total Runoff Area = 1.442 ac Runoff Volume = 0.186 af Average Runoff Depth = 1.55"
62.52% Pervious = 0.901 ac 37.48% Impervious = 0.541 ac

Summary for Subcatchment S-1: Subcatchment 1

Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 4.01"
 Routed to Pond P-1 : Deep sump CB#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
483	98	Paved parking, HSG A
483		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment 1

Summary for Subcatchment S-2: Subcatchment 2

Runoff = 0.53 cfs @ 11.97 hrs, Volume= 0.030 af, Depth= 4.01"
 Routed to Pond P-2 : Deep sump CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
468	98	Roofs, HSG A
3,387	98	Paved parking, HSG A
3,855		Weighted Average
3,855		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment 1

Summary for Subcatchment S-3: Subcatchment 3

Runoff = 0.88 cfs @ 11.97 hrs, Volume= 0.049 af, Depth= 3.75"
 Routed to Pond P-3 : Deep sump CB#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
1,258	98	Roofs, HSG A
5,064	98	Paved parking, HSG A
459	39	>75% Grass cover, Good, HSG A
6,781		Weighted Average
459		6.77% Pervious Area
6,322		93.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment 1

Summary for Subcatchment S-4: Subcatchment 4

Runoff = 0.00 cfs @ 15.14 hrs, Volume= 0.000 af, Depth= 0.08"
 Routed to Pond P-5 : Bio retention basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
1,330	39	>75% Grass cover, Good, HSG A
1,330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment 1

Summary for Subcatchment S-5: Subcatchment 5

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.17 cfs @ 11.91 hrs, Volume= 0.008 af, Depth= 4.01"
 Routed to Pond P-6 : infiltration trench

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
1,056	98	Roofs, HSG A
1,056		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	0.95		Sheet Flow, Segment 1 Smooth surfaces n= 0.011 P2= 2.93"
0.4	80	0.0100	3.10	0.61	Pipe Channel, Segment 2 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.012 Corrugated PP, smooth interior
0.7	100	Total			

Summary for Subcatchment S-6: Subcatchment 6

Runoff = 1.59 cfs @ 11.97 hrs, Volume= 0.093 af, Depth= 1.00"
 Routed to Link POA1 : Point of Analysis

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
10,822	98	Paved parking, HSG A
623	98	Roofs, HSG A
37,479	39	>75% Grass cover, Good, HSG A
48,924		Weighted Average
37,479		76.61% Pervious Area
11,445		23.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Segment 1

Summary for Subcatchment S-7: Subcatchment 7

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.06 cfs @ 11.91 hrs, Volume= 0.003 af, Depth= 4.01"
 Routed to Pond P-6 : infiltration trench

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 TYPE II 24-hr 10 Year Rainfall=4.25"

Area (sf)	CN	Description
384	98	Roofs, HSG A
384		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	0.95		Sheet Flow, Segment 1 Smooth surfaces n= 0.011 P2= 2.93"
0.4	80	0.0100	3.10	0.61	Pipe Channel, Segment 2 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.012 Corrugated PP, smooth interior
0.7	100	Total			

Summary for Pond P-1: Deep sump CB#1

Inflow Area = 0.011 ac, 100.00% Impervious, Inflow Depth = 4.01" for 10 Year event
 Inflow = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af
 Outflow = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.2 min
 Primary = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af
 Routed to Pond P-2 : Deep sump CB#2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 420.64' @ 11.97 hrs Surf.Area= 13 sf Storage= 2 cf
 Flood Elev= 423.50' Surf.Area= 13 sf Storage= 38 cf

Plug-Flow detention time= 1.3 min calculated for 0.004 af (100% of inflow)
 Center-of-Mass det. time= 1.3 min (748.1 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	420.50'	38 cf	4.00'D x 3.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	420.50'	12.0" Round 12" hdpe L= 39.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 420.50' / 420.00' S= 0.0128 '/ Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 11.97 hrs HW=420.64' (Free Discharge)

↑**1=12" hdpe** (Inlet Controls 0.07 cfs @ 1.00 fps)

Summary for Pond P-2: Deep sump CB#2

[79] Warning: Submerged Pond P-1 Primary device # 1 OUTLET by 0.24'

[79] Warning: Submerged Pond P-3 Primary device # 1 OUTLET by 0.24'

Inflow Area = 0.255 ac, 95.87% Impervious, Inflow Depth = 3.85" for 10 Year event
 Inflow = 1.48 cfs @ 11.97 hrs, Volume= 0.082 af
 Outflow = 1.48 cfs @ 11.97 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.1 min
 Primary = 1.11 cfs @ 11.97 hrs, Volume= 0.079 af
 Routed to Pond P-4 : Oil water separator
 Secondary = 0.36 cfs @ 11.97 hrs, Volume= 0.003 af
 Routed to Pond P-5 : Bio retention basin

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 420.24' @ 11.97 hrs Surf.Area= 13 sf Storage= 21 cf
 Flood Elev= 423.50' Surf.Area= 13 sf Storage= 62 cf

Plug-Flow detention time= 3.3 min calculated for 0.082 af (100% of inflow)

Center-of-Mass det. time= 1.9 min (749.3 - 747.5)

Volume	Invert	Avail.Storage	Storage Description
#1	418.60'	62 cf	4.00'D x 4.90'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	419.20'	8.0" Round 8" hdpe L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 419.20' / 419.10' S= 0.0143 '/ Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Secondary	419.90'	12.0" Round 12" hdpe L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 419.90' / 418.50' S= 0.0350 '/ Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 11.97 hrs HW=420.24' (Free Discharge)

↑**1=8" hdpe** (Inlet Controls 1.11 cfs @ 3.19 fps)

Secondary OutFlow Max=0.36 cfs @ 11.97 hrs HW=420.24' (Free Discharge)

↑**2=12" hdpe** (Inlet Controls 0.36 cfs @ 1.56 fps)

Summary for Pond P-3: Deep sump CB#3

Inflow Area = 0.156 ac, 93.23% Impervious, Inflow Depth = 3.75" for 10 Year event
 Inflow = 0.88 cfs @ 11.97 hrs, Volume= 0.049 af
 Outflow = 0.88 cfs @ 11.97 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.88 cfs @ 11.97 hrs, Volume= 0.049 af
 Routed to Pond P-2 : Deep sump CB#2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 421.05' @ 11.97 hrs Surf.Area= 13 sf Storage= 7 cf
 Flood Elev= 423.50' Surf.Area= 13 sf Storage= 38 cf

Plug-Flow detention time= 0.6 min calculated for 0.049 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (747.8 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1	420.50'	38 cf	4.00'D x 3.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	420.50'	12.0" Round 12" hdpe L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 420.50' / 420.00' S= 0.0109 1' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 11.97 hrs HW=421.05' (Free Discharge)
 1=12" hdpe (Inlet Controls 0.87 cfs @ 1.99 fps)

Summary for Pond P-4: Oil water seperator

[79] Warning: Submerged Pond P-2 Primary device # 1 INLET by 0.07'

Inflow Area = 0.255 ac, 95.87% Impervious, Inflow Depth = 3.69" for 10 Year event
 Inflow = 1.11 cfs @ 11.97 hrs, Volume= 0.079 af
 Outflow = 1.11 cfs @ 11.97 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.2 min
 Primary = 1.11 cfs @ 11.97 hrs, Volume= 0.075 af
 Routed to Pond P-5 : Bio retention basin

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 419.27' @ 11.97 hrs Surf.Area= 47 sf Storage= 155 cf
 Flood Elev= 424.00' Surf.Area= 47 sf Storage= 197 cf

Plug-Flow detention time= 45.9 min calculated for 0.075 af (96% of inflow)
 Center-of-Mass det. time= 21.2 min (771.9 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1	416.00'	90 cf	5.30'D x 4.10'H Chamber 1
#2	416.00'	90 cf	5.30'D x 4.10'H Chamber 2
#3	416.00'	16 cf	2.00'D x 5.10'H Chamber 3
		197 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	418.85'	12.0" Round 8" hdpe X 2.00 L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 418.85' / 418.50' S= 0.0097 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 11.97 hrs HW=419.27' (Free Discharge)

↑ **1=8" hdpe** (Inlet Controls 1.11 cfs @ 1.75 fps)

Summary for Pond P-5: Bio retention basin

[79] Warning: Submerged Pond P-2 Secondary device # 2 OUTLET by 1.10'

[81] Warning: Exceeded Pond P-4 by 0.34' @ 12.02 hrs

Inflow Area = 0.286 ac, 85.63% Impervious, Inflow Depth = 3.31" for 10 Year event
 Inflow = 1.48 cfs @ 11.97 hrs, Volume= 0.079 af
 Outflow = 1.18 cfs @ 12.02 hrs, Volume= 0.079 af, Atten= 20%, Lag= 3.1 min
 Primary = 1.18 cfs @ 12.02 hrs, Volume= 0.079 af
 Routed to Link POA1 : Point of Analysis

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 419.60' @ 12.02 hrs Surf.Area= 246 sf Storage= 140 cf
 Flood Elev= 422.00' Surf.Area= 982 sf Storage= 1,241 cf

Plug-Flow detention time= 1.0 min calculated for 0.079 af (100% of inflow)
 Center-of-Mass det. time= 1.0 min (771.5 - 770.5)

Volume	Invert	Avail.Storage	Storage Description
#1	415.50'	18 cf	stone (Irregular) Listed below (Recalc) 45 cf Overall x 40.0% Voids
#2	416.50'	18 cf	Bio-media (Irregular) Listed below (Recalc) 90 cf Overall x 20.0% Voids
#3	418.50'	1,205 cf	Open water storage (Irregular) Listed below (Recalc)
		1,241 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
415.50	45	44.0	0	0	45
416.50	45	44.0	45	45	89

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
416.50	45	44.0	0	0	45
418.50	45	44.0	90	90	133

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
418.50	45	44.0	0	0	45
420.00	213	81.0	178	178	425
422.00	892	201.0	1,027	1,205	3,132

220473 Meena LLC 05

TYPE II 24-hr 10 Year Rainfall=4.25"

Prepared by {enter your company name here}

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Device	Routing	Invert	Outlet Devices
#1	Primary	421.50'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	415.50'	6.0" Round 6" U.D. L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 415.50' / 415.00' S= 0.0063 ' S Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.18 cfs @ 12.02 hrs HW=419.60' (Free Discharge)

1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

2=6" U.D. (Barrel Controls 1.18 cfs @ 6.01 fps)

Summary for Pond P-6: infiltration trench

Inflow Area = 0.033 ac, 100.00% Impervious, Inflow Depth = 4.01" for 10 Year event
Inflow = 0.23 cfs @ 11.91 hrs, Volume= 0.011 af
Outflow = 0.00 cfs @ 10.28 hrs, Volume= 0.009 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.00 cfs @ 10.28 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA1 : Point of Analysis

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 422.50' @ 14.73 hrs Surf.Area= 150 sf Storage= 270 cf
Flood Elev= 423.50' Surf.Area= 150 sf Storage= 330 cf

Plug-Flow detention time= 427.0 min calculated for 0.009 af (79% of inflow)

Center-of-Mass det. time= 344.5 min (1,086.4 - 741.9)

Volume	Invert	Avail.Storage	Storage Description
#1	418.00'	330 cf	Stone (Irregular) Listed below (Recalc) 825 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
418.00	150	79.0	0	0	150
419.00	150	79.0	150	150	229
420.00	150	79.0	150	300	308
421.00	150	79.0	150	450	387
422.00	150	79.0	150	600	466
423.50	150	79.0	225	825	585

Device	Routing	Invert	Outlet Devices
#1	Discarded	418.00'	1.300 in/hr Exfiltration over Surface area Phase-In= 0.20'
#2	Primary	423.00'	40.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 10.28 hrs HW=418.22' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=418.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link POA1: Point of Analysis

Inflow Area = 1.442 ac, 37.48% Impervious, Inflow Depth = 1.43" for 10 Year event

Inflow = 2.73 cfs @ 11.97 hrs, Volume= 0.172 af

Primary = 2.73 cfs @ 11.97 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs