

The seal affixed above applies to this report,
Appendices A through D, and Stormwater Plans D1, D2 & D3.

Stormwater Management Plan
“424 POST ROAD SITE MODIFICATIONS”
WELLS, MAINE

Prepared for
424 Post Road, LLC
225 W. Squantum Street, Suite 200
Quincy, MA 02171

May 2023



**CIVIL
CONSULTANTS**

Engineers

Planners

Surveyors

Stormwater Management Narrative

STORMWATER MANAGEMENT PLAN

**“424 Post Road, LLC,
Site Modifications”
421 Post Road
Wells, Maine**

Prepared for:

**424 Post Road, LLC
225 W. Squantum Street
Quincy, MA 02171**

MAY 2023

INTRODUCTION:

424 Post Road, LLC (Client) is proposing to modify and enhance the existing Anchor Inn & Cottages located at 424 Post Road, Wells, ME. The property is shown as Map 27, Lot 4 on the Wells Tax Maps.

The site was previously permitted as an existing development included in a Site Location of Development Permit (L-15991-28-B-C) for the Meadow Ledge R.V. Resort and Midway Motel. This project impacts only areas that are currently developed and will be submitted as a redevelopment project to the DEP.

No wetlands will be impacted by the project.

A proprietary treatment device is proposed to provide the appropriate treatment for a redevelopment project. The site changes have been modeled and it has been shown that the expected peak flows will be similar to those generated in the existing condition of the site.

DESIGN REQUIREMENTS:

This project is required to meet basic and redevelopment standards of DEP Chapter 500.

Initial conversations with the DEP indicated that the proposed modifications will only require treatment of the affected areas to redevelopment standards. After analyzing the proposed change in coverage and pollutant loading, it was determined that a treatment ratio of 60% would be required.

The analysis for this report also includes the 2-, 10-, and 25-year event to predict the downstream effects of the proposed site coverage changes.

EXISTING DRAINAGE CONDITIONS:

The project site is located in the Stevens Brook watershed, which empties to the Atlantic Ocean approximately 2.5 miles south of the project location.

The site is currently a functioning motel/hotel use with a fully developed footprint.

Soils in the watershed are predominantly hydrologic soil type A and D. The SCS mapping was used in the stormwater generation modelling. Test pits were performed to evaluate the site for BMP installation feasibility, and it was found that shallow bedrock and groundwater is prevalent on the site. The pits indicated that the soils in the area were type C/D, and the HydroCAD model assumed that all areas of C/D are type D in order to conservatively predict the flows generated.

The northern portion of the site appears to drain to the west side of Route 1 crosses the driveways for the subject lot



and the abutting lot to the south before entering the catch basin system along the road.

The project is not located in a flood zone. See Appendix E for a copy of the applicable FEMA map.

PROPOSED DRAINAGE:

The proposed stormwater management system has been designed to treat the developed and impervious area as well as limit flows off site to the greatest extent practicable. This will ensure that the proposed storm water management measures will maintain the runoff to the catch basin system receiving the runoff at Route 1 is not overwhelmed by stormwater flows.

To treat the runoff from the site, a JellyFish Filter vault is proposed to be installed. This BMP will filter the high-pollutant runoff from the parking lot in the smaller storms, while allowing the less pollutant-laden flow from larger storms to bypass the system.

An overflow will also be utilized in a manhole upstream of the filter to prevent overwhelming the structure in the larger events.

The proposed BMP's have been analyzed and designed to meet the treatment and flooding standards as required by DEP regulations (see attached manufacturer's approval letter for JellyFish Filter).

See the attached calculations for additional information.

ANALYSIS:

The overall perimeter of the watershed remained the same for both Pre- and Post Development. There were two subcatchments identified for the Pre-Development analysis. There are three subcatchments that were used to model the site for the Post Development analysis. The additional subcatchment represents area that generates flows to the proposed BMP.

The runoff has been evaluated in two circumstances. The first is an estimate of the flows that run over the abutting driveway prior to entering the downstream catch basin (modeled as 2R and 20R). The second is the overall flow to the receiving catch basin (OUT 1).

For further details regarding subcatchment determination, refer to the project drawings and D1 & D2 included in the appendix of this report.

METHODOLOGY:

All runoff calculations were performed using methods based on USDA-SCS Technical Release No. 20 (also known as TR-20). The 2-, 10-, and 25-year events (Type III rainfall distribution) were used for the site-specific analysis to determine pre- and post-development peak discharge rates and required stormwater treatment & conveyance systems.

Runoff curve numbers (CN) and times of concentration (Tc) were determined by the methods outlined in USDA-SCS Technical Release No. 55 (better known as TR-55). On site watershed areas were determined using two-foot LIDAR contour data from previously approved site plans, and from updated field survey in the area of the proposed field and parking lot improvements.



The detailed analysis for this project was performed by computer utilizing "HYDROCAD" stormwater modeling software. The computer printouts are attached.

The attached Pre- and Post Development plans (D1 & D2) show subcatchment boundaries, hydraulic flow lines, existing and proposed roads, and drainage features and facilities. Land cover type boundaries used in the model for on-site areas are also shown on the plan (i.e., tree lines, wetlands, etc.).

BMP SIZING:

The proposed site modifications have been analyzed and designed to meet the Flooding Standards per Chapter 500 to the extent practical, as well as the Town regulations.

FLOW RATES:

TWO-YEAR EVENT -

Discharge Point Design Pre/Post	Peak Runoff (in cfs) Pre	Post	Change (cfs)
2R/20R	6.71	3.04	-3.67
OUT 1	8.39	8.02	-0.37

TEN-YEAR EVENT -

Discharge Point Design Pre/Post	Peak Runoff (in cfs) Pre	Post	Change (cfs)
2R/20R	13.30	10.38	-2.92
OUT 1	15.44	14.62	-0.82

TWENTY-FIVE-YEAR EVENT -

Discharge Point Design Pre/Post	Peak Runoff (in cfs) Pre	Post	Change (cfs)
2R/20R	19.95	16.07	-3.88
OUT 1	21.10	20.02	-1.08

The storm intensities have been obtained from the Extreme Precipitation Data

provided by the Northeast Regional Climate Center - Cornell University.

The analysis reveals that the proposed modifications will maintain expected flows at or below current levels for all storms evaluated, and is predicted to result in less overland flow at the existing driveways.

Please see Appendix D for the stormwater maintenance and inspection plan.

CONCLUSIONS:

The proposed site modification will reduce, or maintain approximately the same, flow rates exiting the site for all evaluated storm events required by the DEP.

Runoff has been treated as required per the general and flooding standards of Chapter 500 through the installation of a proprietary JellyFish Filter BMP and improvement of existing stormwater conveyance systems.

It is our opinion that there will be no adverse downstream impacts as a result of this project and surrounding natural resources have been sufficiently protected by the proposed stormwater management plan.

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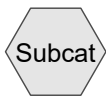
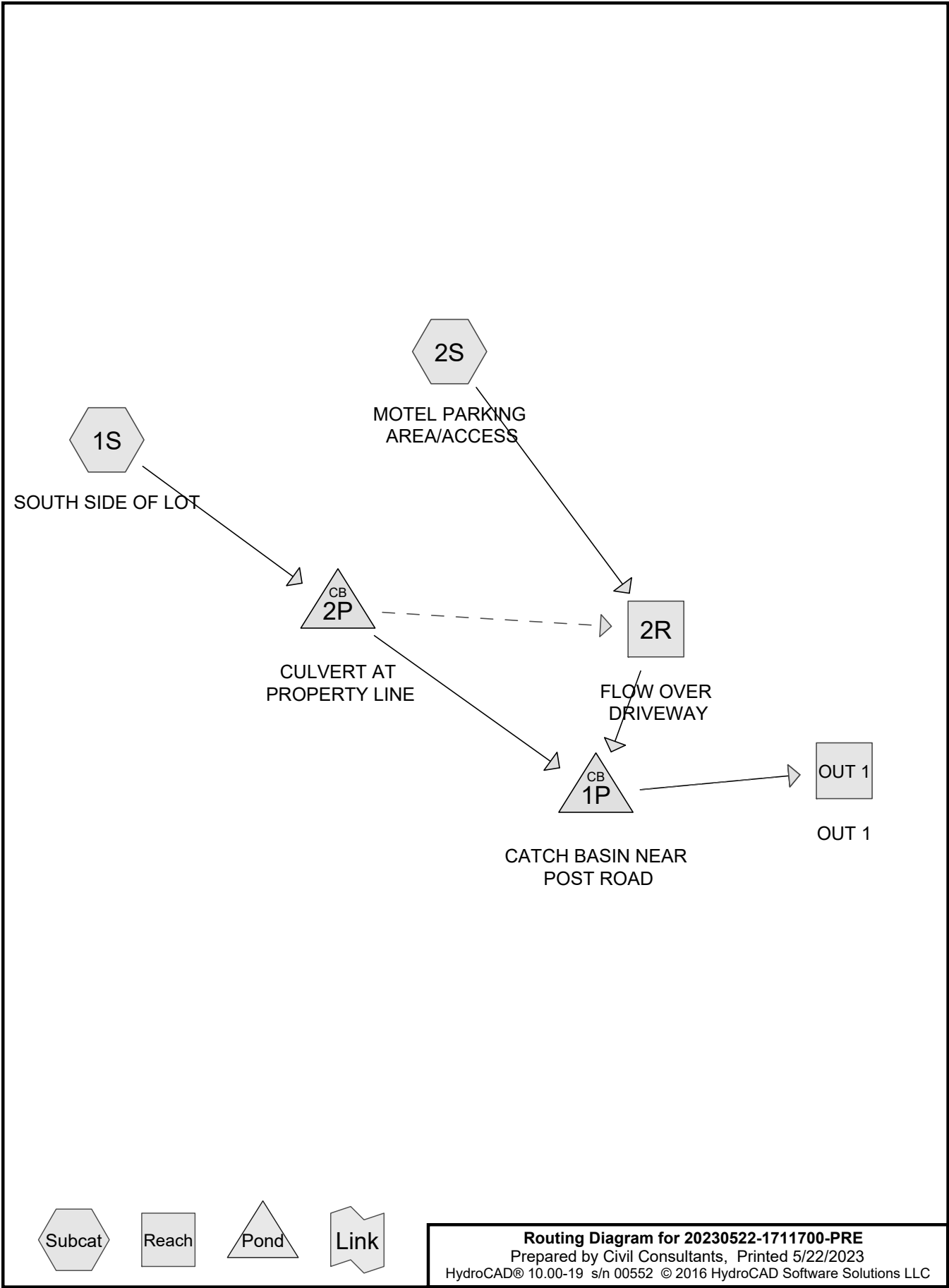
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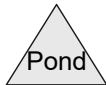
Pre-Development Calculations



Subcat



Reach



Pond



Link

Routing Diagram for 20230522-1711700-PRE
 Prepared by Civil Consultants, Printed 5/22/2023
 HydroCAD® 10.00-19 s/n 00552 © 2016 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.012	77	1/8 acre lots, 65% imp, HSG A (2S)
0.386	92	1/8 acre lots, 65% imp, HSG D (1S, 2S)
0.546	39	>75% Grass cover, Good, HSG A (2S)
0.818	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.141	96	Gravel surface, HSG A (2S)
0.004	96	Gravel surface, HSG D (1S)
1.569	98	Paved parking, HSG D (1S, 2S)
0.168	93	Paved roads w/open ditches, 50% imp, HSG D (1S, 2S)
0.514	98	Roofs, HSG D (1S, 2S)
0.018	98	Water Surface, HSG D (2S)
0.407	77	Woods, Good, HSG D (1S)
5.583	84	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.699	HSG A	2S
0.000	HSG B	
0.000	HSG C	
3.884	HSG D	1S, 2S
0.000	Other	
5.583		TOTAL AREA

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.012	0.000	0.000	0.386	0.000	1.398	1/8 acre lots, 65% imp	
0.546	0.000	0.000	0.818	0.000	1.364	>75% Grass cover, Good	
0.141	0.000	0.000	0.004	0.000	0.145	Gravel surface	
0.000	0.000	0.000	1.569	0.000	1.569	Paved parking	
0.000	0.000	0.000	0.168	0.000	0.168	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.514	0.000	0.514	Roofs	
0.000	0.000	0.000	0.018	0.000	0.018	Water Surface	
0.000	0.000	0.000	0.407	0.000	0.407	Woods, Good	
1.699	0.000	0.000	3.884	0.000	5.583	TOTAL AREA	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: SOUTH SIDE OF LOT Runoff Area=1.129 ac 21.93% Impervious Runoff Depth=1.58"
Flow Length=797' Tc=9.7 min CN=83 Runoff=1.84 cfs 0.149 af

Subcatchment 2S: MOTEL PARKING Runoff Area=4.454 ac 63.90% Impervious Runoff Depth=1.66"
Flow Length=1,192' Tc=14.0 min CN=84 Runoff=6.71 cfs 0.615 af

Reach 2R: FLOW OVER DRIVEWAY Inflow=6.71 cfs 0.615 af
Outflow=6.71 cfs 0.615 af

Reach OUT 1: OUT 1 Inflow=8.39 cfs 0.764 af
Outflow=8.39 cfs 0.764 af

Pond 1P: CATCH BASIN NEAR POST ROAD Peak Elev=45.81' Inflow=8.39 cfs 0.764 af
Primary=8.39 cfs 0.764 af Secondary=0.00 cfs 0.000 af Outflow=8.39 cfs 0.764 af

Pond 2P: CULVERT AT PROPERTY LINE Peak Elev=45.91' Inflow=1.84 cfs 0.149 af
Primary=1.84 cfs 0.149 af Secondary=0.00 cfs 0.000 af Outflow=1.84 cfs 0.149 af

Total Runoff Area = 5.583 ac Runoff Volume = 0.764 af Average Runoff Depth = 1.64"
44.59% Pervious = 2.489 ac 55.41% Impervious = 3.094 ac

Summary for Subcatchment 1S: SOUTH SIDE OF LOT

Runoff = 1.84 cfs @ 12.14 hrs, Volume= 0.149 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.17"

Area (ac)	CN	Description
0.157	92	1/8 acre lots, 65% imp, HSG D
0.407	77	Woods, Good, HSG D
0.411	80	>75% Grass cover, Good, HSG D
0.034	98	Paved parking, HSG D
0.107	98	Roofs, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	96	Gravel surface, HSG D
1.129	83	Weighted Average
0.881		78.07% Pervious Area
0.248		21.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		Sheet Flow, 1.1 Grass: Dense n= 0.240 P2= 3.17"
1.0	71	0.0282	1.18		Shallow Concentrated Flow, 1.2 Short Grass Pasture Kv= 7.0 fps
2.4	605	0.0187	4.20	16.80	Trap/Vee/Rect Channel Flow, 1.3 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.022 Earth, clean & straight
0.1	71	0.0183	8.04	14.21	Pipe Channel, 1.4 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
9.7	797	Total			

Summary for Subcatchment 2S: MOTEL PARKING AREA/ACCESS

Runoff = 6.71 cfs @ 12.19 hrs, Volume= 0.615 af, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.17"

Area (ac)	CN	Description
1.012	77	1/8 acre lots, 65% imp, HSG A
0.141	96	Gravel surface, HSG A
0.546	39	>75% Grass cover, Good, HSG A
1.535	98	Paved parking, HSG D
0.407	98	Roofs, HSG D
0.407	80	>75% Grass cover, Good, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.229	92	1/8 acre lots, 65% imp, HSG D
0.018	98	Water Surface, HSG D
4.454	84	Weighted Average
1.608		36.10% Pervious Area
2.846		63.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 2.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 2.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 2.3 Bot.W=3.00' D=0.50' Z= 20.0 ' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 2.4 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 2.5 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.013 Asphalt, smooth
0.7	157	0.0159	3.49	37.34	Trap/Vee/Rect Channel Flow, 2.6 Bot.W=3.00' D=0.75' Z= 15.0 ' Top.W=25.50' n= 0.030 Stream, clean & straight
0.1	34	0.0221	7.02	89.51	Trap/Vee/Rect Channel Flow, 2.7 Bot.W=3.00' D=0.50' Z= 45.0 ' Top.W=48.00' n= 0.013 Asphalt, smooth
0.3	62	0.0258	3.42	22.26	Trap/Vee/Rect Channel Flow, 2.8 Bot.W=3.00' D=0.50' Z= 20.0 ' Top.W=23.00' n= 0.030 Stream, clean & straight
14.0	1,192	Total			

Summary for Reach 2R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.454 ac, 63.90% Impervious, Inflow Depth = 1.66" for 2 yr event
 Inflow = 6.71 cfs @ 12.19 hrs, Volume= 0.615 af
 Outflow = 6.71 cfs @ 12.19 hrs, Volume= 0.615 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 1.64" for 2 yr event
 Inflow = 8.39 cfs @ 12.18 hrs, Volume= 0.764 af
 Outflow = 8.39 cfs @ 12.18 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 1.64" for 2 yr event
 Inflow = 8.39 cfs @ 12.18 hrs, Volume= 0.764 af
 Outflow = 8.39 cfs @ 12.18 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.39 cfs @ 12.18 hrs, Volume= 0.764 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 45.81' @ 12.18 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=8.39 cfs @ 12.18 hrs HW=45.81' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 8.39 cfs @ 4.75 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.50' TW=0.00' (Dynamic Tailwater)

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

Summary for Pond 2P: CULVERT AT PROPERTY LINE

Inflow Area = 1.129 ac, 21.93% Impervious, Inflow Depth = 1.58" for 2 yr event
 Inflow = 1.84 cfs @ 12.14 hrs, Volume= 0.149 af
 Outflow = 1.84 cfs @ 12.14 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.84 cfs @ 12.14 hrs, Volume= 0.149 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 45.91' @ 12.18 hrs

Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.85 cfs @ 12.14 hrs HW=45.79' TW=45.64' (Dynamic Tailwater)

↳ **1=Culvert** (Outlet Controls 1.85 cfs @ 1.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.70' TW=0.00' (Dynamic Tailwater)

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

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: SOUTH SIDE OF LOT Runoff Area=1.129 ac 21.93% Impervious Runoff Depth=2.95"
Flow Length=797' Tc=9.7 min CN=83 Runoff=3.43 cfs 0.277 af

Subcatchment 2S: MOTEL PARKING Runoff Area=4.454 ac 63.90% Impervious Runoff Depth=3.04"
Flow Length=1,192' Tc=14.0 min CN=84 Runoff=12.30 cfs 1.129 af

Reach 2R: FLOW OVER DRIVEWAY Inflow=13.30 cfs 1.140 af
Outflow=13.30 cfs 1.140 af

Reach OUT 1: OUT 1 Inflow=15.44 cfs 1.407 af
Outflow=15.44 cfs 1.407 af

Pond 1P: CATCH BASIN NEAR POST ROAD Peak Elev=47.15' Inflow=15.44 cfs 1.407 af
Primary=11.44 cfs 1.357 af Secondary=4.00 cfs 0.050 af Outflow=15.44 cfs 1.407 af

Pond 2P: CULVERT AT PROPERTY LINE Peak Elev=47.26' Inflow=3.43 cfs 0.277 af
Primary=2.95 cfs 0.267 af Secondary=1.10 cfs 0.010 af Outflow=3.43 cfs 0.277 af

Total Runoff Area = 5.583 ac Runoff Volume = 1.407 af Average Runoff Depth = 3.02"
44.59% Pervious = 2.489 ac 55.41% Impervious = 3.094 ac

Summary for Subcatchment 1S: SOUTH SIDE OF LOT

Runoff = 3.43 cfs @ 12.13 hrs, Volume= 0.277 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.75"

Area (ac)	CN	Description
0.157	92	1/8 acre lots, 65% imp, HSG D
0.407	77	Woods, Good, HSG D
0.411	80	>75% Grass cover, Good, HSG D
0.034	98	Paved parking, HSG D
0.107	98	Roofs, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	96	Gravel surface, HSG D
1.129	83	Weighted Average
0.881		78.07% Pervious Area
0.248		21.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		Sheet Flow, 1.1 Grass: Dense n= 0.240 P2= 3.17"
1.0	71	0.0282	1.18		Shallow Concentrated Flow, 1.2 Short Grass Pasture Kv= 7.0 fps
2.4	605	0.0187	4.20	16.80	Trap/Vee/Rect Channel Flow, 1.3 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.022 Earth, clean & straight
0.1	71	0.0183	8.04	14.21	Pipe Channel, 1.4 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
9.7	797	Total			

Summary for Subcatchment 2S: MOTEL PARKING AREA/ACCESS

Runoff = 12.30 cfs @ 12.19 hrs, Volume= 1.129 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.75"

Area (ac)	CN	Description
1.012	77	1/8 acre lots, 65% imp, HSG A
0.141	96	Gravel surface, HSG A
0.546	39	>75% Grass cover, Good, HSG A
1.535	98	Paved parking, HSG D
0.407	98	Roofs, HSG D
0.407	80	>75% Grass cover, Good, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.229	92	1/8 acre lots, 65% imp, HSG D
0.018	98	Water Surface, HSG D
4.454	84	Weighted Average
1.608		36.10% Pervious Area
2.846		63.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 2.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 2.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 2.3 Bot.W=3.00' D=0.50' Z= 20.0 ' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 2.4 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 2.5 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.013 Asphalt, smooth
0.7	157	0.0159	3.49	37.34	Trap/Vee/Rect Channel Flow, 2.6 Bot.W=3.00' D=0.75' Z= 15.0 ' Top.W=25.50' n= 0.030 Stream, clean & straight
0.1	34	0.0221	7.02	89.51	Trap/Vee/Rect Channel Flow, 2.7 Bot.W=3.00' D=0.50' Z= 45.0 ' Top.W=48.00' n= 0.013 Asphalt, smooth
0.3	62	0.0258	3.42	22.26	Trap/Vee/Rect Channel Flow, 2.8 Bot.W=3.00' D=0.50' Z= 20.0 ' Top.W=23.00' n= 0.030 Stream, clean & straight
14.0	1,192	Total			

Summary for Reach 2R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.454 ac, 63.90% Impervious, Inflow Depth = 3.07" for 10 yr event
 Inflow = 13.30 cfs @ 12.18 hrs, Volume= 1.140 af
 Outflow = 13.30 cfs @ 12.18 hrs, Volume= 1.140 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 3.02" for 10 yr event
 Inflow = 15.44 cfs @ 12.18 hrs, Volume= 1.407 af
 Outflow = 15.44 cfs @ 12.18 hrs, Volume= 1.407 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 3.02" for 10 yr event
 Inflow = 15.44 cfs @ 12.18 hrs, Volume= 1.407 af
 Outflow = 15.44 cfs @ 12.18 hrs, Volume= 1.407 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.44 cfs @ 12.18 hrs, Volume= 1.357 af
 Secondary = 4.00 cfs @ 12.18 hrs, Volume= 0.050 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.15' @ 12.18 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.44 cfs @ 12.18 hrs HW=47.15' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 11.44 cfs @ 6.47 fps)

Secondary OutFlow Max=3.99 cfs @ 12.18 hrs HW=47.15' TW=0.00' (Dynamic Tailwater)

↑2=Broad-Crested Rectangular Weir (Weir Controls 3.99 cfs @ 1.34 fps)

Summary for Pond 2P: CULVERT AT PROPERTY LINE

Inflow Area = 1.129 ac, 21.93% Impervious, Inflow Depth = 2.95" for 10 yr event
 Inflow = 3.43 cfs @ 12.13 hrs, Volume= 0.277 af
 Outflow = 3.43 cfs @ 12.13 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.95 cfs @ 12.08 hrs, Volume= 0.267 af
 Secondary = 1.10 cfs @ 12.16 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.26' @ 12.16 hrs

Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.93 cfs @ 12.08 hrs HW=47.16' TW=46.97' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.93 cfs @ 1.66 fps)

Secondary OutFlow Max=1.09 cfs @ 12.16 hrs HW=47.26' TW=0.00' (Dynamic Tailwater)

↳ **2=Broad-Crested Rectangular Weir** (Weir Controls 1.09 cfs @ 0.87 fps)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: SOUTH SIDE OF LOT Runoff Area=1.129 ac 21.93% Impervious Runoff Depth=4.08"
Flow Length=797' Tc=9.7 min CN=83 Runoff=4.72 cfs 0.384 af

Subcatchment 2S: MOTEL PARKING Runoff Area=4.454 ac 63.90% Impervious Runoff Depth=4.19"
Flow Length=1,192' Tc=14.0 min CN=84 Runoff=16.80 cfs 1.554 af

Reach 2R: FLOW OVER DRIVEWAY Inflow=19.95 cfs 1.604 af
Outflow=19.95 cfs 1.604 af

Reach OUT 1: OUT 1 Inflow=21.10 cfs 1.938 af
Outflow=21.10 cfs 1.938 af

Pond 1P: CATCH BASIN NEAR POST ROAD Peak Elev=47.34' Inflow=21.10 cfs 1.938 af
Primary=11.80 cfs 1.770 af Secondary=9.30 cfs 0.168 af Outflow=21.10 cfs 1.938 af

Pond 2P: CULVERT AT PROPERTY LINE Peak Elev=47.37' Inflow=4.72 cfs 0.384 af
Primary=2.88 cfs 0.334 af Secondary=3.28 cfs 0.050 af Outflow=4.72 cfs 0.384 af

Total Runoff Area = 5.583 ac Runoff Volume = 1.938 af Average Runoff Depth = 4.17"
44.59% Pervious = 2.489 ac 55.41% Impervious = 3.094 ac

Summary for Subcatchment 1S: SOUTH SIDE OF LOT

Runoff = 4.72 cfs @ 12.13 hrs, Volume= 0.384 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=5.99"

Area (ac)	CN	Description
0.157	92	1/8 acre lots, 65% imp, HSG D
0.407	77	Woods, Good, HSG D
0.411	80	>75% Grass cover, Good, HSG D
0.034	98	Paved parking, HSG D
0.107	98	Roofs, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.004	96	Gravel surface, HSG D
1.129	83	Weighted Average
0.881		78.07% Pervious Area
0.248		21.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		Sheet Flow, 1.1 Grass: Dense n= 0.240 P2= 3.17"
1.0	71	0.0282	1.18		Shallow Concentrated Flow, 1.2 Short Grass Pasture Kv= 7.0 fps
2.4	605	0.0187	4.20	16.80	Trap/Vee/Rect Channel Flow, 1.3 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.022 Earth, clean & straight
0.1	71	0.0183	8.04	14.21	Pipe Channel, 1.4 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
9.7	797	Total			

Summary for Subcatchment 2S: MOTEL PARKING AREA/ACCESS

Runoff = 16.80 cfs @ 12.18 hrs, Volume= 1.554 af, Depth= 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=5.99"

Area (ac)	CN	Description
1.012	77	1/8 acre lots, 65% imp, HSG A
0.141	96	Gravel surface, HSG A
0.546	39	>75% Grass cover, Good, HSG A
1.535	98	Paved parking, HSG D
0.407	98	Roofs, HSG D
0.407	80	>75% Grass cover, Good, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.229	92	1/8 acre lots, 65% imp, HSG D
0.018	98	Water Surface, HSG D
4.454	84	Weighted Average
1.608		36.10% Pervious Area
2.846		63.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 2.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 2.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 2.3 Bot.W=3.00' D=0.50' Z= 20.0 ' ' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 2.4 Bot.W=3.00' D=0.50' Z= 10.0 ' ' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 2.5 Bot.W=3.00' D=0.50' Z= 10.0 ' ' Top.W=13.00' n= 0.013 Asphalt, smooth
0.7	157	0.0159	3.49	37.34	Trap/Vee/Rect Channel Flow, 2.6 Bot.W=3.00' D=0.75' Z= 15.0 ' ' Top.W=25.50' n= 0.030 Stream, clean & straight
0.1	34	0.0221	7.02	89.51	Trap/Vee/Rect Channel Flow, 2.7 Bot.W=3.00' D=0.50' Z= 45.0 ' ' Top.W=48.00' n= 0.013 Asphalt, smooth
0.3	62	0.0258	3.42	22.26	Trap/Vee/Rect Channel Flow, 2.8 Bot.W=3.00' D=0.50' Z= 20.0 ' ' Top.W=23.00' n= 0.030 Stream, clean & straight
14.0	1,192	Total			

Summary for Reach 2R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.454 ac, 63.90% Impervious, Inflow Depth = 4.32" for 25 yr event
 Inflow = 19.95 cfs @ 12.18 hrs, Volume= 1.604 af
 Outflow = 19.95 cfs @ 12.18 hrs, Volume= 1.604 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 4.17" for 25 yr event
 Inflow = 21.10 cfs @ 12.18 hrs, Volume= 1.938 af
 Outflow = 21.10 cfs @ 12.18 hrs, Volume= 1.938 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 55.41% Impervious, Inflow Depth = 4.17" for 25 yr event
 Inflow = 21.10 cfs @ 12.18 hrs, Volume= 1.938 af
 Outflow = 21.10 cfs @ 12.18 hrs, Volume= 1.938 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.80 cfs @ 12.18 hrs, Volume= 1.770 af
 Secondary = 9.30 cfs @ 12.18 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.34' @ 12.18 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.80 cfs @ 12.18 hrs HW=47.33' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 11.80 cfs @ 6.68 fps)

Secondary OutFlow Max=9.28 cfs @ 12.18 hrs HW=47.33' TW=0.00' (Dynamic Tailwater)

↑2=Broad-Crested Rectangular Weir (Weir Controls 9.28 cfs @ 1.78 fps)

Summary for Pond 2P: CULVERT AT PROPERTY LINE

Inflow Area = 1.129 ac, 21.93% Impervious, Inflow Depth = 4.08" for 25 yr event
 Inflow = 4.72 cfs @ 12.13 hrs, Volume= 0.384 af
 Outflow = 4.72 cfs @ 12.13 hrs, Volume= 0.384 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.88 cfs @ 12.03 hrs, Volume= 0.334 af
 Secondary = 3.28 cfs @ 12.16 hrs, Volume= 0.050 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.37' @ 12.16 hrs

Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.86 cfs @ 12.03 hrs HW=47.17' TW=46.99' (Dynamic Tailwater)

↳ **1=Culvert** (Inlet Controls 2.86 cfs @ 1.62 fps)

Secondary OutFlow Max=3.27 cfs @ 12.16 hrs HW=47.37' TW=0.00' (Dynamic Tailwater)

↳ **2=Broad-Crested Rectangular Weir** (Weir Controls 3.27 cfs @ 1.25 fps)



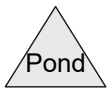
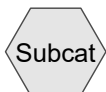
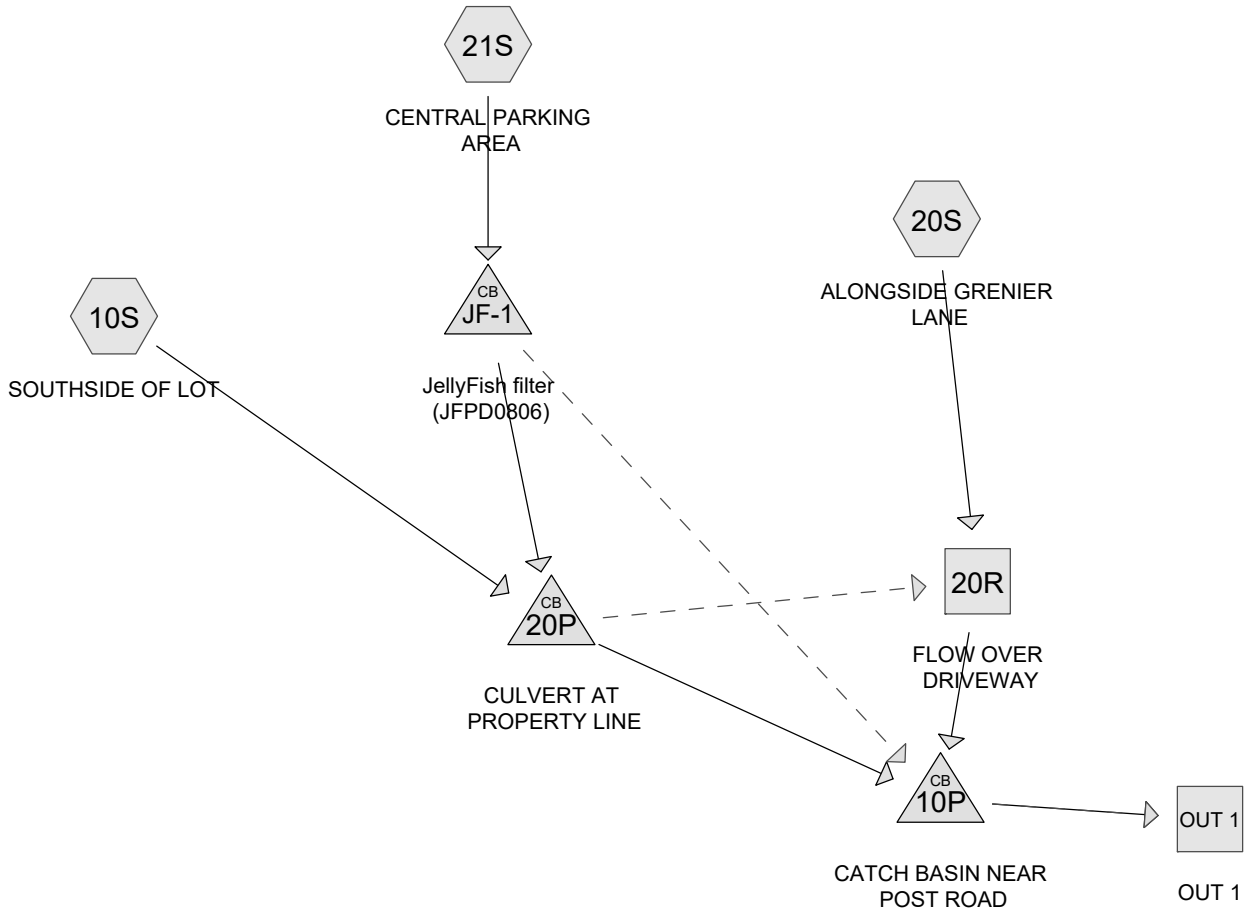
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.008	77	1/8 acre lots, 65% imp, HSG A (10S, 20S)
0.389	92	1/8 acre lots, 65% imp, HSG D (10S, 20S)
0.648	39	>75% Grass cover, Good, HSG A (10S, 20S)
0.611	80	>75% Grass cover, Good, HSG D (10S, 20S, 21S)
0.043	96	Gravel surface, HSG A (20S)
0.078	96	Gravel surface, HSG D (10S)
1.647	98	Paved parking, HSG D (10S, 20S, 21S)
0.168	93	Paved roads w/open ditches, 50% imp, HSG D (10S, 20S)
0.566	98	Roofs, HSG D (10S, 20S, 21S)
0.018	98	Water Surface, HSG D (20S)
0.407	77	Woods, Good, HSG D (10S)
5.583	83	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.699	HSG A	10S, 20S
0.000	HSG B	
0.000	HSG C	
3.884	HSG D	10S, 20S, 21S
0.000	Other	
5.583		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
1.008	0.000	0.000	0.389	0.000	1.397	1/8 acre lots, 65% imp	
0.648	0.000	0.000	0.611	0.000	1.259	>75% Grass cover, Good	
0.043	0.000	0.000	0.078	0.000	0.121	Gravel surface	
0.000	0.000	0.000	1.647	0.000	1.647	Paved parking	
0.000	0.000	0.000	0.168	0.000	0.168	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.566	0.000	0.566	Roofs	
0.000	0.000	0.000	0.018	0.000	0.018	Water Surface	
0.000	0.000	0.000	0.407	0.000	0.407	Woods, Good	
1.699	0.000	0.000	3.884	0.000	5.583	TOTAL AREA	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: SOUTHSIDE OF LOT Runoff Area=1.683 ac 32.49% Impervious Runoff Depth=1.38"
Flow Length=902' Tc=11.5 min CN=80 Runoff=2.24 cfs 0.193 af

Subcatchment 20S: ALONGSIDE GRENIER Runoff Area=2.627 ac 56.54% Impervious Runoff Depth=1.31"
Flow Length=1,192' Tc=14.5 min CN=79 Runoff=3.04 cfs 0.288 af

Subcatchment 21S: CENTRAL PARKING Runoff Area=55,459 sf 93.54% Impervious Runoff Depth=2.83"
Tc=6.0 min CN=97 Runoff=3.86 cfs 0.300 af

Reach 20R: FLOW OVER DRIVEWAY Inflow=3.04 cfs 0.288 af
Outflow=3.04 cfs 0.288 af

Reach OUT 1: OUT 1 Inflow=8.02 cfs 0.781 af
Outflow=8.02 cfs 0.781 af

Pond 10P: CATCH BASIN NEAR POST ROAD Peak Elev=45.68' Inflow=8.02 cfs 0.781 af
Primary=8.02 cfs 0.781 af Secondary=0.00 cfs 0.000 af Outflow=8.02 cfs 0.781 af

Pond 20P: CULVERT AT PROPERTY LINE Peak Elev=46.36' Inflow=5.66 cfs 0.493 af
Primary=5.66 cfs 0.493 af Secondary=0.00 cfs 0.000 af Outflow=5.66 cfs 0.493 af

Pond JF-1: JellyFish filter (JFPD0806) Peak Elev=46.65' Inflow=3.86 cfs 0.300 af
Primary=3.86 cfs 0.300 af Secondary=0.00 cfs 0.000 af Outflow=3.86 cfs 0.300 af

Total Runoff Area = 5.583 ac Runoff Volume = 0.781 af Average Runoff Depth = 1.68"
42.27% Pervious = 2.360 ac 57.73% Impervious = 3.223 ac

Summary for Subcatchment 10S: SOUTHSIDE OF LOT

Runoff = 2.24 cfs @ 12.16 hrs, Volume= 0.193 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.17"

Area (ac)	CN	Description
0.115	98	Roofs, HSG D
0.160	92	1/8 acre lots, 65% imp, HSG D
0.379	77	1/8 acre lots, 65% imp, HSG A
0.078	96	Gravel surface, HSG D
0.355	80	>75% Grass cover, Good, HSG D
0.407	77	Woods, Good, HSG D
0.077	98	Paved parking, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.103	39	>75% Grass cover, Good, HSG A
1.683	80	Weighted Average
1.136		67.51% Pervious Area
0.547		32.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0500	0.15		Sheet Flow, 10.1 Grass: Dense n= 0.240 P2= 3.17"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, 10.2 Unpaved Kv= 16.1 fps
1.7	101	0.0198	0.98		Shallow Concentrated Flow, 10.3 Short Grass Pasture Kv= 7.0 fps
3.6	676	0.0197	3.16	12.64	Trap/Vee/Rect Channel Flow, 10.4 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.030 Stream, clean & straight
11.5	902	Total			

Summary for Subcatchment 20S: ALONGSIDE GRENIER LANE

Runoff = 3.04 cfs @ 12.20 hrs, Volume= 0.288 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.17"

Area (ac)	CN	Description
0.229	92	1/8 acre lots, 65% imp, HSG D
0.629	77	1/8 acre lots, 65% imp, HSG A
0.174	80	>75% Grass cover, Good, HSG D
0.565	98	Paved parking, HSG D
0.043	96	Gravel surface, HSG A
0.265	98	Roofs, HSG D
0.018	98	Water Surface, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.545	39	>75% Grass cover, Good, HSG A
2.627	79	Weighted Average
1.142		43.46% Pervious Area
1.485		56.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 20.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 20.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 20.3 Bot.W=3.00' D=0.50' Z= 20.0 '/' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 20.4 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 20.5 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.1	157	0.0127	2.41	25.58	Trap/Vee/Rect Channel Flow, 20.6 Bot.W=5.00' D=0.50' Z= 15.0 & 50.0 '/' Top.W=37.50' n= 0.030
0.1	34	0.0221	7.15	107.18	Trap/Vee/Rect Channel Flow, 20.7 Bot.W=5.00' D=0.50' Z= 50.0 '/' Top.W=55.00' n= 0.013 Asphalt, smooth
0.4	62	0.0121	2.37	22.83	Trap/Vee/Rect Channel Flow, 20.8 Bot.W=5.00' D=0.50' Z= 22.0 & 35.0 '/' Top.W=33.50' n= 0.030 Stream, clean & straight
14.5	1,192	Total			

Summary for Subcatchment 21S: CENTRAL PARKING AREA

Runoff = 3.86 cfs @ 12.08 hrs, Volume= 0.300 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.17"

Area (sf)	CN	Description
8,102	98	Roofs, HSG D
43,777	98	Paved parking, HSG D
3,580	80	>75% Grass cover, Good, HSG D
55,459	97	Weighted Average
3,580		6.46% Pervious Area
51,879		93.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 21.1 Min Tc

Summary for Reach 20R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.627 ac, 56.54% Impervious, Inflow Depth = 1.31" for 2 yr event
 Inflow = 3.04 cfs @ 12.20 hrs, Volume= 0.288 af
 Outflow = 3.04 cfs @ 12.20 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 1.68" for 2 yr event
 Inflow = 8.02 cfs @ 12.13 hrs, Volume= 0.781 af
 Outflow = 8.02 cfs @ 12.13 hrs, Volume= 0.781 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 10P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 1.68" for 2 yr event
 Inflow = 8.02 cfs @ 12.13 hrs, Volume= 0.781 af
 Outflow = 8.02 cfs @ 12.13 hrs, Volume= 0.781 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.02 cfs @ 12.13 hrs, Volume= 0.781 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 45.68' @ 12.13 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60

Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=8.02 cfs @ 12.13 hrs HW=45.68' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 8.02 cfs @ 4.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.50' TW=0.00' (Dynamic Tailwater)

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

Summary for Pond 20P: CULVERT AT PROPERTY LINE

Inflow Area = 2.956 ac, 58.79% Impervious, Inflow Depth = 2.00" for 2 yr event
 Inflow = 5.66 cfs @ 12.10 hrs, Volume= 0.493 af
 Outflow = 5.66 cfs @ 12.10 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.66 cfs @ 12.10 hrs, Volume= 0.493 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 46.36' @ 12.12 hrs

Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.66 cfs @ 12.10 hrs HW=46.32' TW=45.61' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 5.66 cfs @ 3.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.70' TW=0.00' (Dynamic Tailwater)

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

Summary for Pond JF-1: JellyFish filter (JFPD0806)

Inflow Area = 1.273 ac, 93.54% Impervious, Inflow Depth = 2.83" for 2 yr event
 Inflow = 3.86 cfs @ 12.08 hrs, Volume= 0.300 af
 Outflow = 3.86 cfs @ 12.08 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.86 cfs @ 12.08 hrs, Volume= 0.300 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 46.65' @ 12.11 hrs

Flood Elev= 50.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	18.0" Round Culvert L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 45.00' / 44.75' S= 0.0086 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

#2 Secondary 47.25' **6.0" Round Culvert (to existing 6" drain)**
L= 80.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 47.25' / 45.00' S= 0.0281 '/ Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=3.86 cfs @ 12.08 hrs HW=46.52' TW=46.19' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 3.86 cfs @ 2.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' TW=43.50' (Dynamic Tailwater)

↑2=Culvert (to existing 6" drain) (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: SOUTHSIDE OF LOT Runoff Area=1.683 ac 32.49% Impervious Runoff Depth=2.68"
Flow Length=902' Tc=11.5 min CN=80 Runoff=4.40 cfs 0.375 af

Subcatchment 20S: ALONGSIDE GRENIER Runoff Area=2.627 ac 56.54% Impervious Runoff Depth=2.59"
Flow Length=1,192' Tc=14.5 min CN=79 Runoff=6.11 cfs 0.566 af

Subcatchment 21S: CENTRAL PARKING Runoff Area=55,459 sf 93.54% Impervious Runoff Depth=4.40"
Tc=6.0 min CN=97 Runoff=5.87 cfs 0.467 af

Reach 20R: FLOW OVER DRIVEWAY Inflow=10.38 cfs 0.645 af
Outflow=10.38 cfs 0.645 af

Reach OUT 1: OUT 1 Inflow=14.62 cfs 1.408 af
Outflow=14.62 cfs 1.408 af

Pond 10P: CATCH BASIN NEAR POST ROAD Peak Elev=47.12' Inflow=14.62 cfs 1.408 af
Primary=11.37 cfs 1.369 af Secondary=3.24 cfs 0.039 af Outflow=14.62 cfs 1.408 af

Pond 20P: CULVERT AT PROPERTY LINE Peak Elev=47.44' Inflow=9.02 cfs 0.835 af
Primary=6.44 cfs 0.756 af Secondary=5.12 cfs 0.079 af Outflow=9.02 cfs 0.835 af

Pond JF-1: JellyFish filter (JFPD0806) Peak Elev=48.06' Inflow=5.87 cfs 0.467 af
Primary=5.31 cfs 0.459 af Secondary=0.56 cfs 0.007 af Outflow=5.87 cfs 0.467 af

Total Runoff Area = 5.583 ac Runoff Volume = 1.408 af Average Runoff Depth = 3.03"
42.27% Pervious = 2.360 ac 57.73% Impervious = 3.223 ac

Summary for Subcatchment 10S: SOUTHSIDE OF LOT

Runoff = 4.40 cfs @ 12.16 hrs, Volume= 0.375 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.75"

Area (ac)	CN	Description
0.115	98	Roofs, HSG D
0.160	92	1/8 acre lots, 65% imp, HSG D
0.379	77	1/8 acre lots, 65% imp, HSG A
0.078	96	Gravel surface, HSG D
0.355	80	>75% Grass cover, Good, HSG D
0.407	77	Woods, Good, HSG D
0.077	98	Paved parking, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.103	39	>75% Grass cover, Good, HSG A
1.683	80	Weighted Average
1.136		67.51% Pervious Area
0.547		32.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0500	0.15		Sheet Flow, 10.1 Grass: Dense n= 0.240 P2= 3.17"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, 10.2 Unpaved Kv= 16.1 fps
1.7	101	0.0198	0.98		Shallow Concentrated Flow, 10.3 Short Grass Pasture Kv= 7.0 fps
3.6	676	0.0197	3.16	12.64	Trap/Vee/Rect Channel Flow, 10.4 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.030 Stream, clean & straight
11.5	902	Total			

Summary for Subcatchment 20S: ALONGSIDE GRENIER LANE

Runoff = 6.11 cfs @ 12.20 hrs, Volume= 0.566 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.75"

Area (ac)	CN	Description
0.229	92	1/8 acre lots, 65% imp, HSG D
0.629	77	1/8 acre lots, 65% imp, HSG A
0.174	80	>75% Grass cover, Good, HSG D
0.565	98	Paved parking, HSG D
0.043	96	Gravel surface, HSG A
0.265	98	Roofs, HSG D
0.018	98	Water Surface, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.545	39	>75% Grass cover, Good, HSG A
2.627	79	Weighted Average
1.142		43.46% Pervious Area
1.485		56.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 20.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 20.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 20.3 Bot.W=3.00' D=0.50' Z= 20.0 '/' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 20.4 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 20.5 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.1	157	0.0127	2.41	25.58	Trap/Vee/Rect Channel Flow, 20.6 Bot.W=5.00' D=0.50' Z= 15.0 & 50.0 '/' Top.W=37.50' n= 0.030
0.1	34	0.0221	7.15	107.18	Trap/Vee/Rect Channel Flow, 20.7 Bot.W=5.00' D=0.50' Z= 50.0 '/' Top.W=55.00' n= 0.013 Asphalt, smooth
0.4	62	0.0121	2.37	22.83	Trap/Vee/Rect Channel Flow, 20.8 Bot.W=5.00' D=0.50' Z= 22.0 & 35.0 '/' Top.W=33.50' n= 0.030 Stream, clean & straight
14.5	1,192	Total			

Summary for Subcatchment 21S: CENTRAL PARKING AREA

Runoff = 5.87 cfs @ 12.08 hrs, Volume= 0.467 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.75"

Area (sf)	CN	Description
8,102	98	Roofs, HSG D
43,777	98	Paved parking, HSG D
3,580	80	>75% Grass cover, Good, HSG D
55,459	97	Weighted Average
3,580		6.46% Pervious Area
51,879		93.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 21.1 Min Tc

Summary for Reach 20R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.627 ac, 56.54% Impervious, Inflow Depth = 2.95" for 10 yr event
 Inflow = 10.38 cfs @ 12.15 hrs, Volume= 0.645 af
 Outflow = 10.38 cfs @ 12.15 hrs, Volume= 0.645 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 3.03" for 10 yr event
 Inflow = 14.62 cfs @ 12.13 hrs, Volume= 1.408 af
 Outflow = 14.62 cfs @ 12.13 hrs, Volume= 1.408 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 10P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 3.03" for 10 yr event
 Inflow = 14.62 cfs @ 12.13 hrs, Volume= 1.408 af
 Outflow = 14.62 cfs @ 12.13 hrs, Volume= 1.408 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.37 cfs @ 12.13 hrs, Volume= 1.369 af
 Secondary = 3.24 cfs @ 12.13 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.12' @ 12.13 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60

Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.37 cfs @ 12.13 hrs HW=47.12' TW=0.00' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 11.37 cfs @ 6.44 fps)

Secondary OutFlow Max=3.23 cfs @ 12.13 hrs HW=47.12' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 3.23 cfs @ 1.25 fps)

Summary for Pond 20P: CULVERT AT PROPERTY LINE

Inflow Area = 2.956 ac, 58.79% Impervious, Inflow Depth = 3.39" for 10 yr event
 Inflow = 9.02 cfs @ 12.11 hrs, Volume= 0.835 af
 Outflow = 9.02 cfs @ 12.11 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.44 cfs @ 12.02 hrs, Volume= 0.756 af
 Secondary = 5.12 cfs @ 12.11 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 47.44' @ 12.11 hrs
 Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=6.32 cfs @ 12.02 hrs HW=47.07' TW=46.18' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 6.32 cfs @ 3.58 fps)

Secondary OutFlow Max=5.11 cfs @ 12.11 hrs HW=47.44' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 5.11 cfs @ 1.46 fps)

Summary for Pond JF-1: JellyFish filter (JFPD0806)

Inflow Area = 1.273 ac, 93.54% Impervious, Inflow Depth = 4.40" for 10 yr event
 Inflow = 5.87 cfs @ 12.08 hrs, Volume= 0.467 af
 Outflow = 5.87 cfs @ 12.08 hrs, Volume= 0.467 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.31 cfs @ 12.08 hrs, Volume= 0.459 af
 Secondary = 0.56 cfs @ 12.09 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 48.06' @ 12.09 hrs
 Flood Elev= 50.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	18.0" Round Culvert L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 45.00' / 44.75' S= 0.0086 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

#2 Secondary 47.25' **6.0" Round Culvert (to existing 6" drain)**
L= 80.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 47.25' / 45.00' S= 0.0281 '/ Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=5.30 cfs @ 12.08 hrs HW=48.05' TW=47.43' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 5.30 cfs @ 3.00 fps)

Secondary OutFlow Max=0.56 cfs @ 12.09 hrs HW=48.05' TW=47.07' (Dynamic Tailwater)

↑2=Culvert (to existing 6" drain) (Inlet Controls 0.56 cfs @ 2.83 fps)

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Type III 24-hr 25 yr Rainfall=5.99"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: SOUTHSIDE OF LOT Runoff Area=1.683 ac 32.49% Impervious Runoff Depth=3.77"
Flow Length=902' Tc=11.5 min CN=80 Runoff=6.19 cfs 0.529 af

Subcatchment 20S: ALONGSIDE GRENIER Runoff Area=2.627 ac 56.54% Impervious Runoff Depth=3.67"
Flow Length=1,192' Tc=14.5 min CN=79 Runoff=8.67 cfs 0.804 af

Subcatchment 21S: CENTRAL PARKING Runoff Area=55,459 sf 93.54% Impervious Runoff Depth=5.63"
Tc=6.0 min CN=97 Runoff=7.44 cfs 0.598 af

Reach 20R: FLOW OVER DRIVEWAY Inflow=16.07 cfs 0.981 af
Outflow=16.07 cfs 0.981 af

Reach OUT 1: OUT 1 Inflow=20.02 cfs 1.930 af
Outflow=20.02 cfs 1.930 af

Pond 10P: CATCH BASIN NEAR POST ROAD Peak Elev=47.30' Inflow=20.02 cfs 1.930 af
Primary=11.74 cfs 1.780 af Secondary=8.28 cfs 0.151 af Outflow=20.02 cfs 1.930 af

Pond 20P: CULVERT AT PROPERTY LINE Peak Elev=47.56' Inflow=11.98 cfs 1.113 af
Primary=6.20 cfs 0.936 af Secondary=8.50 cfs 0.177 af Outflow=11.98 cfs 1.113 af

Pond JF-1: JellyFish filter (JFPD0806) Peak Elev=48.54' Inflow=7.44 cfs 0.598 af
Primary=6.68 cfs 0.584 af Secondary=0.75 cfs 0.014 af Outflow=7.44 cfs 0.598 af

Total Runoff Area = 5.583 ac Runoff Volume = 1.930 af Average Runoff Depth = 4.15"
42.27% Pervious = 2.360 ac 57.73% Impervious = 3.223 ac

Summary for Subcatchment 10S: SOUTHSIDE OF LOT

Runoff = 6.19 cfs @ 12.16 hrs, Volume= 0.529 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=5.99"

Area (ac)	CN	Description
0.115	98	Roofs, HSG D
0.160	92	1/8 acre lots, 65% imp, HSG D
0.379	77	1/8 acre lots, 65% imp, HSG A
0.078	96	Gravel surface, HSG D
0.355	80	>75% Grass cover, Good, HSG D
0.407	77	Woods, Good, HSG D
0.077	98	Paved parking, HSG D
0.009	93	Paved roads w/open ditches, 50% imp, HSG D
0.103	39	>75% Grass cover, Good, HSG A
1.683	80	Weighted Average
1.136		67.51% Pervious Area
0.547		32.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0500	0.15		Sheet Flow, 10.1 Grass: Dense n= 0.240 P2= 3.17"
0.5	75	0.0200	2.28		Shallow Concentrated Flow, 10.2 Unpaved Kv= 16.1 fps
1.7	101	0.0198	0.98		Shallow Concentrated Flow, 10.3 Short Grass Pasture Kv= 7.0 fps
3.6	676	0.0197	3.16	12.64	Trap/Vee/Rect Channel Flow, 10.4 Bot.W=3.00' D=0.50' Z= 10.0 ' Top.W=13.00' n= 0.030 Stream, clean & straight
11.5	902	Total			

Summary for Subcatchment 20S: ALONGSIDE GRENIER LANE

Runoff = 8.67 cfs @ 12.20 hrs, Volume= 0.804 af, Depth= 3.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=5.99"

Area (ac)	CN	Description
0.229	92	1/8 acre lots, 65% imp, HSG D
0.629	77	1/8 acre lots, 65% imp, HSG A
0.174	80	>75% Grass cover, Good, HSG D
0.565	98	Paved parking, HSG D
0.043	96	Gravel surface, HSG A
0.265	98	Roofs, HSG D
0.018	98	Water Surface, HSG D
0.159	93	Paved roads w/open ditches, 50% imp, HSG D
0.545	39	>75% Grass cover, Good, HSG A
2.627	79	Weighted Average
1.142		43.46% Pervious Area
1.485		56.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, 20.1 Woods: Light underbrush n= 0.400 P2= 3.17"
0.8	100	0.1000	2.21		Shallow Concentrated Flow, 20.2 Short Grass Pasture Kv= 7.0 fps
0.5	210	0.0190	6.78	44.07	Trap/Vee/Rect Channel Flow, 20.3 Bot.W=3.00' D=0.50' Z= 20.0 '/' Top.W=23.00' n= 0.013 Asphalt, smooth
0.6	282	0.0213	7.58	30.34	Trap/Vee/Rect Channel Flow, 20.4 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.6	297	0.0034	3.03	12.12	Trap/Vee/Rect Channel Flow, 20.5 Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
1.1	157	0.0127	2.41	25.58	Trap/Vee/Rect Channel Flow, 20.6 Bot.W=5.00' D=0.50' Z= 15.0 & 50.0 '/' Top.W=37.50' n= 0.030
0.1	34	0.0221	7.15	107.18	Trap/Vee/Rect Channel Flow, 20.7 Bot.W=5.00' D=0.50' Z= 50.0 '/' Top.W=55.00' n= 0.013 Asphalt, smooth
0.4	62	0.0121	2.37	22.83	Trap/Vee/Rect Channel Flow, 20.8 Bot.W=5.00' D=0.50' Z= 22.0 & 35.0 '/' Top.W=33.50' n= 0.030 Stream, clean & straight
14.5	1,192	Total			

Summary for Subcatchment 21S: CENTRAL PARKING AREA

Runoff = 7.44 cfs @ 12.08 hrs, Volume= 0.598 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=5.99"

Area (sf)	CN	Description
8,102	98	Roofs, HSG D
43,777	98	Paved parking, HSG D
3,580	80	>75% Grass cover, Good, HSG D
55,459	97	Weighted Average
3,580		6.46% Pervious Area
51,879		93.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 21.1 Min Tc

Summary for Reach 20R: FLOW OVER DRIVEWAY

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.627 ac, 56.54% Impervious, Inflow Depth = 4.48" for 25 yr event
 Inflow = 16.07 cfs @ 12.15 hrs, Volume= 0.981 af
 Outflow = 16.07 cfs @ 12.15 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 4.15" for 25 yr event
 Inflow = 20.02 cfs @ 12.14 hrs, Volume= 1.930 af
 Outflow = 20.02 cfs @ 12.14 hrs, Volume= 1.930 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 10P: CATCH BASIN NEAR POST ROAD

Inflow Area = 5.583 ac, 57.73% Impervious, Inflow Depth = 4.15" for 25 yr event
 Inflow = 20.02 cfs @ 12.14 hrs, Volume= 1.930 af
 Outflow = 20.02 cfs @ 12.14 hrs, Volume= 1.930 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.74 cfs @ 12.14 hrs, Volume= 1.780 af
 Secondary = 8.28 cfs @ 12.14 hrs, Volume= 0.151 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 47.30' @ 12.14 hrs

Flood Elev= 47.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	18.0" Round Culvert L= 122.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 43.50' / 42.10' S= 0.0115 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	46.90'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60

Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=11.74 cfs @ 12.14 hrs HW=47.30' TW=0.00' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 11.74 cfs @ 6.64 fps)

Secondary OutFlow Max=8.27 cfs @ 12.14 hrs HW=47.30' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 8.27 cfs @ 1.71 fps)

Summary for Pond 20P: CULVERT AT PROPERTY LINE

Inflow Area = 2.956 ac, 58.79% Impervious, Inflow Depth = 4.52" for 25 yr event
 Inflow = 11.98 cfs @ 12.11 hrs, Volume= 1.113 af
 Outflow = 11.98 cfs @ 12.11 hrs, Volume= 1.113 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.20 cfs @ 11.97 hrs, Volume= 0.936 af
 Secondary = 8.50 cfs @ 12.11 hrs, Volume= 0.177 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 47.56' @ 12.11 hrs
 Flood Elev= 48.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.70'	18.0" Round Culvert L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.70' / 43.40' S= 0.0181 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Secondary	47.15'	12.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=6.14 cfs @ 11.97 hrs HW=47.10' TW=46.27' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 6.14 cfs @ 3.47 fps)

Secondary OutFlow Max=8.49 cfs @ 12.11 hrs HW=47.56' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 8.49 cfs @ 1.73 fps)

Summary for Pond JF-1: JellyFish filter (JFPD0806)

Inflow Area = 1.273 ac, 93.54% Impervious, Inflow Depth = 5.63" for 25 yr event
 Inflow = 7.44 cfs @ 12.08 hrs, Volume= 0.598 af
 Outflow = 7.44 cfs @ 12.08 hrs, Volume= 0.598 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.68 cfs @ 12.08 hrs, Volume= 0.584 af
 Secondary = 0.75 cfs @ 12.08 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 48.54' @ 12.09 hrs
 Flood Elev= 50.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	18.0" Round Culvert L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 45.00' / 44.75' S= 0.0086 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

#2 Secondary 47.25' **6.0" Round Culvert (to existing 6" drain)**
L= 80.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 47.25' / 45.00' S= 0.0281 '/ Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=6.67 cfs @ 12.08 hrs HW=48.53' TW=47.54' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 6.67 cfs @ 3.78 fps)

Secondary OutFlow Max=0.75 cfs @ 12.08 hrs HW=48.53' TW=47.25' (Dynamic Tailwater)

↑2=Culvert (to existing 6" drain) (Outlet Controls 0.75 cfs @ 3.82 fps)



**CIVIL
CONSULTANTS**

Engineers

Planners

Surveyors

APPENDICIES

A – Location & Topographic Plan

B – Soils Information

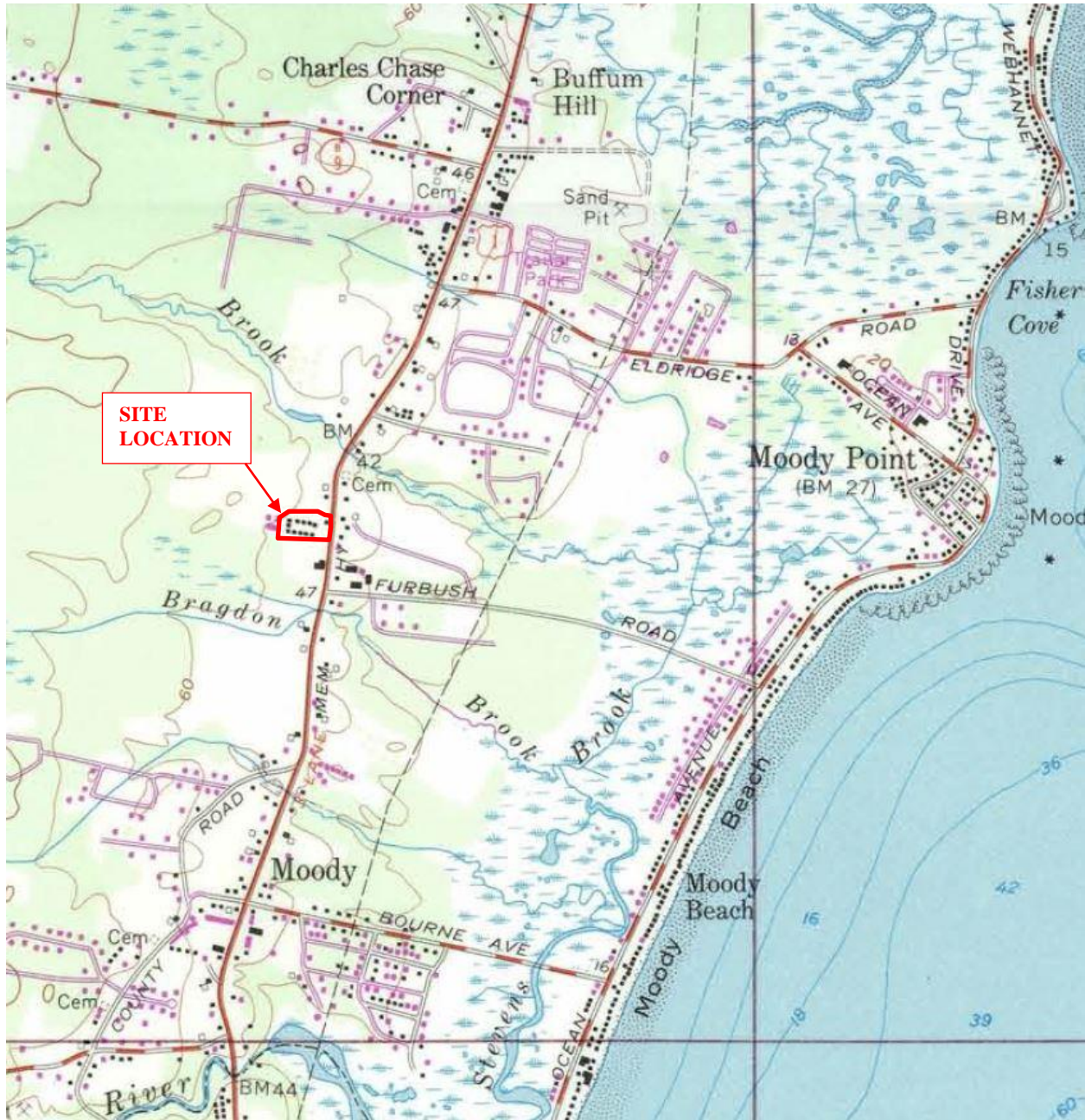
C – Supplemental Calculations

D – Stormwater Maintenance Plan and Inspection Log

E – FIRM Flood Mapping

F – Drainage & Site Plans

APPENDIX A LOCATION AND TOPOGRAPHIC PLAN



Portion of

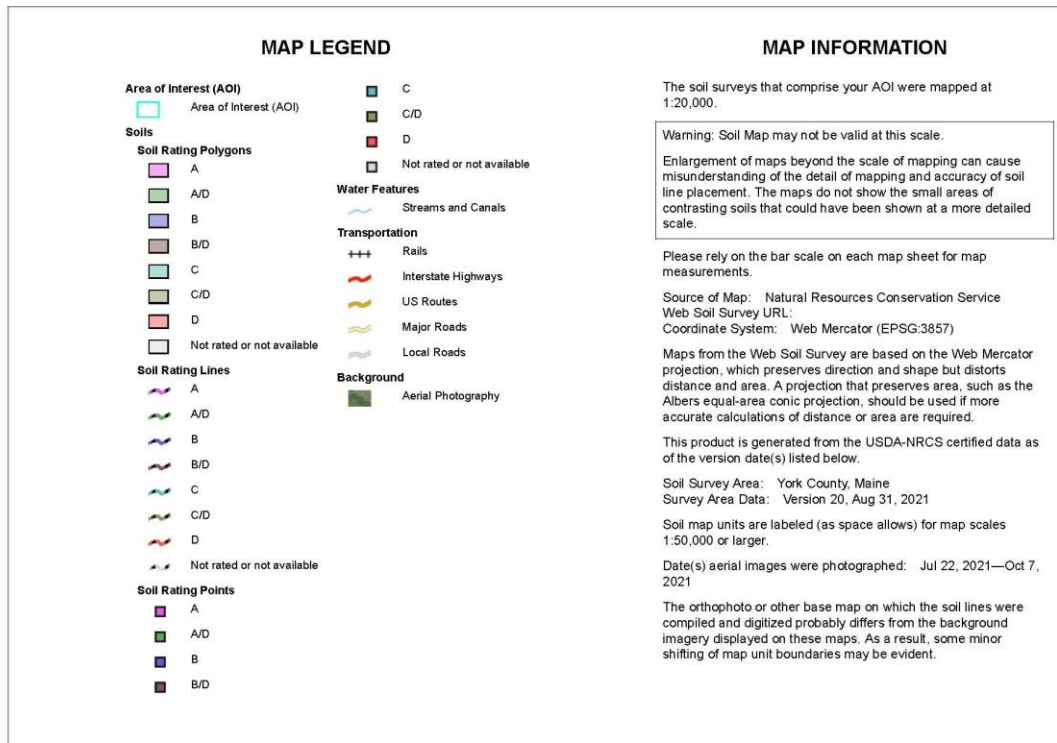
U.S.G.S. Map for Wells, ME Quadrangle
7.5 Minute Series (Topographic)
Not To Scale



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P.O. Box 100 South Berwick, Maine 03908 207-384-2550

Hydrologic Soil Group—York County, Maine



Hydrologic Soil Group—York County, Maine

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	A	2.3	9.2%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	3.1	12.2%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	0.0	0.2%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	3.3	13.2%
Na	Naumburg sand	A/D	16.5	65.1%
Totals for Area of Interest			25.3	100.0%



Hydrologic Soil Group—York County, Maine

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
mcuomosoil@gmail.com

SOIL DATA
For
Civil Consultants

Location: Anchor Inn and Cottages, 424 Post Road, Wells
Date: 24 March 2023

Test Pit One

<u>Depth</u>	<u>Description</u>
0-10"	Very dark brown sandy loam fill, granular, friable.
10-20"	Very dark gray loamy sand, granular, friable, redox.
20-28"	Gray sand, massive, loose, redox.
28-36"	Strong brown sand, massive, loose, redox.
36-52"	Yellowish brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 10"
Restrictive layer: none
Soil series name: fill over Naumburg
Hydrologic Soil Group: D

Test Pit Two

<u>Depth</u>	<u>Description</u>
0-7"	Dark brown loamy sand fill, granular, friable.
7-21"	Yellowish brown sand fill, single grain, loose.
21-24"	Black loamy fine sand, massive, friable, redox.
24-32"	Gray loamy sand, massive, friable, redox.
32-52"	Strong brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 21"
Restrictive layer: none
Soil series name: fill over Naumburg
Hydrologic Soil Group: C

Test Pit Three

<u>Depth</u>	<u>Description</u>
0-8"	Dark brown sandy loam fill, granular, friable.
8-19"	Very dark gray loamy fine sand, granular, friable, redox.
19-26"	Light gray loamy sand, granular, friable, redox.
26-30"	Light olive brown sand, single grain, loose, redox.
30-53"	Olive brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 8"
Restrictive layer: none
Soil series name: fill over Naumburg
Hydrologic Soil Group: D

Test Pit Four

<u>Depth</u>	<u>Description</u>
0-7"	Very dark brown loamy sand fill, granular, friable.
7-16"	Light yellowish brown gravelly loamy sand fill, granular, friable.
16-30"	Gray sand, massive, friable, redox.
30-48"	Dark yellowish brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 16"

Restrictive layer: none

Soil series name: fill over Naumburg

Hydrologic Soil Group: C

Test Pit Five

<u>Depth</u>	<u>Description</u>
0-5"	Very dark brown stony fine sandy loam, granular, friable.
5-15"	Yellowish brown stony loamy sand, granular, friable.
15"+	Bedrock.

Depth to Seasonal High Water Table: none

Restrictive layer: bedrock at 15"

Soil series name: Lyman

Hydrologic Soil Group: D

Test Pit Six

<u>Depth</u>	<u>Description</u>
0-12"	Dark brown sandy loam fill, granular, friable.
12-20"	Dark gray loamy sand, granular, friable, redox.
20-26"	Gray sand, massive, friable, redox.
26-36"	Yellow sand, single grain, loose, redox.
36-52"	Dark yellowish brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 12"

Restrictive layer: none

Soil series name: fill over Naumburg

Hydrologic Soil Group: D

Test Pit Seven

<u>Depth</u>	<u>Description</u>
0-8"	Very dark brown sandy loam fill, granular, friable.
8-18"	Yellowish brown loamy sand fill, granular, friable.
18-22"	Very dark gray loamy fine sand, granular, friable, redox.
22-28"	Gray fine sand, massive, friable, redox.
28-36"	Light yellowish brown sand, massive, loose, redox.
36-50"	Olive brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 18"

Restrictive layer: none

Soil series name: fill over Naumburg

Hydrologic Soil Group: C

Test Pit Eight

<u>Depth</u>	<u>Description</u>
0-10"	Very dark brown sandy loam fill, granular, friable.
10-24"	Yellowish brown loamy sand fill, granular, friable.
24-32"	Very dark gray loamy sand, granular, friable, redox.
32-38"	Gray sand, massive, loose, redox.
38-52"	Yellowish brown sand, single grain, loose, redox.

Depth to Seasonal High Water Table: 24"

Restrictive layer: none

Soil series name: fill over Naumburg

Hydrologic Soil Group: C

Test Pit Nine

<u>Depth</u>	<u>Description</u>
0-20"	Very dark brown sandy loam fill, granular, friable.
20-24"	Light yellowish brown loamy sand, granular, friable.
24-32"	Light olive brown loamy sand, granular, friable, redox.
32-48"	Olive brown stony loamy sand, massive, friable, redox.
48"+	Bedrock.

Depth to Seasonal High Water Table: 24"

Restrictive layer: bedrock at 48"

Soil series name: fill over Waumbek

Hydrologic Soil Group: C

APPENDIX C

Supplemental Stormwater Calculations

Conveyance Systems.

- Calculations for sizing on-site conveyance structures, including culverts are included in the HydroCad print outs included in this report. Stabilization calculations are included here. Ditch stabilization is per MDOT Highway design manual. Riprap sizing will remain as existing and erosion control measures are shown and noted on the Site Plans. These plans also show scaled drawings and cross sections of these conveyance systems and associated practices.

Jellyfish Treatment System.

- Manufacturer provided sizing calculations attached.



Redevelopment Pollutant Ranking Calculation

*Per Chapter 500 Section 4.C(2)(d)

* Excludes developed area beyond limits of work.

Use / Pollutant Ranking (Per Table 2)	Area Pre 12/31/1997		Pollutant Load	Area Post		Pollutant Load	
	(sf)	(acres)		(sf)	(acres)		
Idling traffic	5	- 0.00	0.00	- 0.00	0.00	0.00	
Roads, medium parking	4	10,209.00 0.23	0.94	19,302.00 0.44	1.77	1.77	
Driveways, flat roofs	3	17,847.00 0.41	1.23	21,915.00 0.50	1.51	1.51	
Other roof, lawn, sidewalks	2	55,023.00 1.26	2.53	41,862.00 0.96	1.92	1.92	
Landscaping, treatment BMP	1	- 0.00	0.00	- 0.00	0.00	0.00	
Natural meadow, forest	0	- 0.00	0.00	- 0.00	0.00	0.00	
Total		83,079.00 1.91	4.69	83,079.00 1.91	5.20	5.20	
			Pollutant ranking (pre) = 2.46				Pollutant ranking (post) = 2.73

Ranked Impact Change = 0.27

Required Treatment = 60%

(Per Table 3)

POLLUTANT LOAD - EXISTING

Area (See D3)	Description	Pollutant Ranking					
		5	4	3	2	1	0
10	South swale & cottages	0	0	0	4,725	0	0
20	Northeast cottages	0	0	370	12,725	0	0
21	Main parking area	0	9,912	14,545	31,002	0	0
25	Entry drive and parking	0	297	2,932	6,571	0	0
Totals		0	10,209	17,847	55,023	0	0

POLLUTANT LOAD - PROPOSED

Area (See D3)	Description	Pollutant Ranking					
		5	4	3	2	1	0
10	South swale & cottages	0	0	0	4,725	0	0
20	Northeast cottages	0	0	1,210	11,885	0	0
21	Main parking area	0	19,005	17,773	18,681	0	0
25	Entry drive and parking	0	297	2,932	6,571	0	0
Totals		0	19,302	21,915	41,862	0	0

STORMWATER TREATMENT SIZING TABLE

	Area (See D3)	BMP Type	Developed area	Linear non impv	Drives	Linear Impv.	Buildings	Lawn	Min BMP size	BMP provided	Untreated developed	Untreated linear dvlpd	Untreated linear impervious
10	South property line	Untreated	4,725	0	0	0	2,160	2,565	Untreated area		2565	0	0
20	North property line	Untreated	13,095	0	6,958	0	718	5,419	Untreated area		5419	0	0
21	Parking to pervious pave	Jellyfish	55,459	0	41,107	0	7,661	6,691	See attached	Jellyfish Filter per Manf	0	0	0
25	Adjacent to pool	Untreated	9,800	0	3,571	0	1,210	5,019	Untreated area		5019	0	0
											0	0	0
											0	0	0
											0	0	0
											0	0	0
											0	0	0
											0	0	0
											0	0	0

TOTAL	83,079	0	51,636	0	11,749	19,694	13003	0	0
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TOTAL IMPERVIOUS AREA 63,385 sf 1.455 acres

TOTAL DEVELOPED AREA 83,079 sf 1.91 acres

PERCENT OF TOTAL DEVELOPED AREA TREATED	67 %	>	60% MINIMUM REQUIRED TREATMENT (see redevelopment calc per Chpt 500 4(c)2.d)
PERCENT OF IMPERVIOUS TREATED	77 %		

BMP Sizing: **JellyFish Filter Systems**

See attached sizing worksheets and review letter provided by manufacturer



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PATRICIA W. AHO
COMMISSIONER

January 21, 2015

CONTECH Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074
ATTN: Derek Berg

Dear Mr. Berg:

This letter is to inform you that the Department of Environmental Protection (Department) will review and approve, on a case-by-case basis, applicants' requests to use the Jellyfish Filter, manhole or vault housing, a cartridge deck supporting membrane filtration cartridges, as a low flow rate filter meeting the requirements of the General Standards (Section 4.B.) of the Stormwater Management Rules (Chapter 500) when sized, installed and maintained in accordance with the following provisions:

1. The Jellyfish Filter must be sized in accordance with the tested hydraulic loading rate, and is approved for a maximum rate of 80 gallons per minute (gpm) for each 54-inch long membrane filter cartridge (1.48 gpm per inch of cartridge length). The structure must include at least one draindown cartridge, which is approved for a hydraulic loading rate of 40 gpm per 54" cartridge (0.74 gpm per inch of cartridge length).
2. Upstream storage must be provided for the water quality/channel protection volume (WQv) consisting of the first 1.0 inch of runoff from impervious areas and 0.4 inch of runoff from lawns and landscaped areas. The WQv should be hydraulically isolated from any additional storage provided onsite by weirs or other means so that only the WQv is routed through the Jellyfish Filter. Additionally, the WQv must be detained for a minimum of 24 hours and a maximum of 48 hours (emptying time). Storage can typically be provided in an underground facility such as corrugated metal pipe, polypropylene chambers, concrete vaults or similar means.
3. All storage systems must include sufficient maintenance access for the removal of accumulated sediment and debris. It is desirable that a pretreatment structure be located upstream of the WQv storage to facilitate capture of coarse solids and trash.
4. The Jellyfish Filter must be delivered to the site and installed under the supervision of the manufacturer's representative.
5. The system must be inspected at least once every six months, and the filters maintained yearly per the manufacturer's guidelines to maintain the established efficiency for pollutant removal. A five-year binding inspection and maintenance contract must be provided prior to review and approval by the Department, and must be renewed before contract expiration.
6. The overall stormwater management design must meet all Department criteria and sizing specifications and shall be reviewed and approved by the Department prior to use.
7. Review and approval by the manufacturer for the proposed use and sizing of the Jellyfish Filter at each specific project is required to ensure conformance with the manufacturer's design specifications.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANGO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1255 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

web site: www.maine.gov/dep



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CONSULTANTS

P.O. Box 100 South Berwick, Maine 03908 207-384-2550

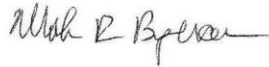
Letter to Derek Berg
January 21, 2015
Page 2 of 2

8. This approval is conditional to on-the-ground experience confirming that the Jellyfish Filter's pollutant removal efficiency and sizing are appropriate. The "permit shield" provision (Section 14) of the Chapter 500 rules will apply, and the Department will not require the replacement of the system if pollutant removals do not satisfy the General Standard Best Management Practices.

We look forward to working with you as these stormwater management structures are installed on new projects. And, we hope that this stormwater BMP will be included in our manual in the near future.

Questions concerning this decision should be directed to Marianne Hubert at (207) 215-6485 or Jeff Dennis at (207) 215-6376.

Sincerely,



Mark Bergeron, P.E.
Director, Division of Land Resource Regulation
Bureau of Land & Water Quality

C: Don Witherill, Maine DEP





Jellyfish Filter Design Calculations

CONTECH Engineered Solutions Engineer: JBS
 Date Prepared: 4/26/2023

Site Information

Project Name	Proposed Hotel Redevelopment - 424 Post Road	
Project City	Wells	
Project State	ME	
Total Drainage Area, Ad	1.27 ac	
Post Development Impervious Area, Ai	1.12 ac	
Pervious Area, Ap	0.15 ac	
% Impervious	88 %	
Runoff Coefficient, Rc	0.84	
Water Quality Flow, $Q_{required}$	0.94 cfs	

Upstream Detention System

Peak release rate from detention, $Q_{release\ peak}$	0.00 cfs
Treatment release rate from detention, $Q_{release\ treat}$	0.00 cfs
Upstream pretreatment credit	50%

Mass Loading Calculations

Mean Annual Rainfall, P	48 in
Agency Required % Removal	80%
Percent Runoff Capture	90%
Mean Annual Runoff, Vt	183,302 ft ³
Influent Event Mean Concentration of Pollutant, EMC	75 mg/l
Annual Mass Load, M total	858 lbs

Water Quality Volume

MEDEP WQv (1" impervious / 0.4" pervious)	4,288 cf	
WQv drain down period	24 hrs	48 hrs
Detention restricted outflow rate range, N_{flow}	0.050 cfs	0.025 cfs

Filter System

Filtration Brand	Jellyfish
Cartridge Length	40 in

Jellyfish Mass Load Sizing

Mass removed by pretreatment system	429 lbs
Mass load to filters after pretreatment	429 lbs
Mass to be Captured by System	343 lbs
Number of Cartridges required, N_{mass}	5 Total
Mass load per cartridge (lbs) (High Flow, HF)	93 lbs
Mass load per cartridge (lbs) (Drain Down, DD)	46 lbs
Number of Cartridges required, N_{mass}	4 HF, 1 DD

Determine Critical Sizing Value

Number of Cartridges using N_{flow}	1 HF, 1 DD 24 hr	1 HF, 1 DD 48 hr
Number of Cartridges using N_{mass}	4 HF, 1 DD	

Method to Use

FLOW BASED

Water Quality Flow, $Q_{required}$	0.94 cfs
------------------------------------	----------

Summary		
Mass	Treatment Mass Provided	418 lbs
	Required Cartridge Quantity	4 HF, 1 DD
	Draindown Period	1.981 hrs
Flow	Treatment Flow Rate Provided	1.07 cfs
	Required Cartridge Quantity	7 HF, 2 DD
	Draindown Period	1.11 hrs

Shows what the CARTRIDGES will do, not the actual rate if controlled from Detention



Stormwater Maintenance & Inspection Plan

Prepared by: Neil J. Rapoza, PE, CIVIL CONSULTANTS

(May 2023)

During the construction of the Anchor Inn & Cottages Redevelopment, maintenance of all erosion, sedimentation, and stormwater flow control structures and devices will be the responsibility of the contractor on site. Upon stabilization of the completed Development (or current phase), the developer will assume all responsibilities. The developer will be responsible for the required maintenance of the stormwater treatment system.

The developer will be responsible for the maintenance of all erosion, sedimentation, and stormwater flow control structures and devices within the limits of the development and will retain that responsibility until such time as another individual and/or agency (acceptable to the Town and DEP) accepts the responsibility. All post-construction inspections shall be conducted by personnel with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

During and after construction all erosion control devices and structures shall be checked monthly and after each “significant rainfall”**. Necessary repairs will be made to correct undermining or deterioration of the devices and/or structures. Sediment in the pretreatment structures and forebays will be removed annually or as needed to maintain functionality of the structure.

If corrective action is required, it shall be started by the end of the next workday and completed within seven days or before the next storm event, whichever comes first. Documentation of all corrective actions shall be maintained with the inspection forms.

The developer shall maintain inspection logs as shown below (or similar) of all stormwater and erosion control measures. The log shall reflect the dates of the inspections and describe actions taken (if any) and be kept on file for a minimum of 5 years. This logbook will be made available to the Town or DEP upon request.

The Department of Environmental Protection 5 year recertification requirement applies to this project.

Where a major storm event is noted in the plan, this is classified as a rainfall exceeding 1.0 inch storm event.

** significant rainfall is ½” in 24 hr



Sweeping

Paved surfaces shall be swept or vacuumed at least annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

Roadways and Parking Surfaces				
	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Clear accumulated winter sand in parking lots and along roadways	X			
Sweep pavement to remove sediment	X			
Grade road shoulders and remove excess sand either manually or by a front-end loader	X			
Grade gravel roads and gravel shoulders	X			
Clean-out the sediment within water bars or open top culverts	X			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X			

Catch Basins & Culverts

All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. These will be cleared, if necessary on a yearly basis or when sediment reaches two thirds of total volume. Catch basins need to be vacuumed and cleaned of all accumulated sediment. This work must be done by a vacuum truck. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Catch Basins Systems				
	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X		

Culverts				
	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X	
Repair any erosion damage at the culvert's inlet and outlet	X	X	X	



Vegetated Areas

All areas of maintained lawn are to be inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized. Channelized flows from the eroded land shall be diverted to buffers or other areas able to withstand the high sediment load in the erosive runoff.

	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Vegetated Areas				
Inspect all slopes and embankments	X		X	
Replant bare areas or areas with sparse growth	X		X	
Armor areas with fill erosions with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows. Any materials used to armor/stabilize the affected areas shall be submitted to the Town and Engineer for review and approval prior to installation.	X		X	

Filtration Facilities

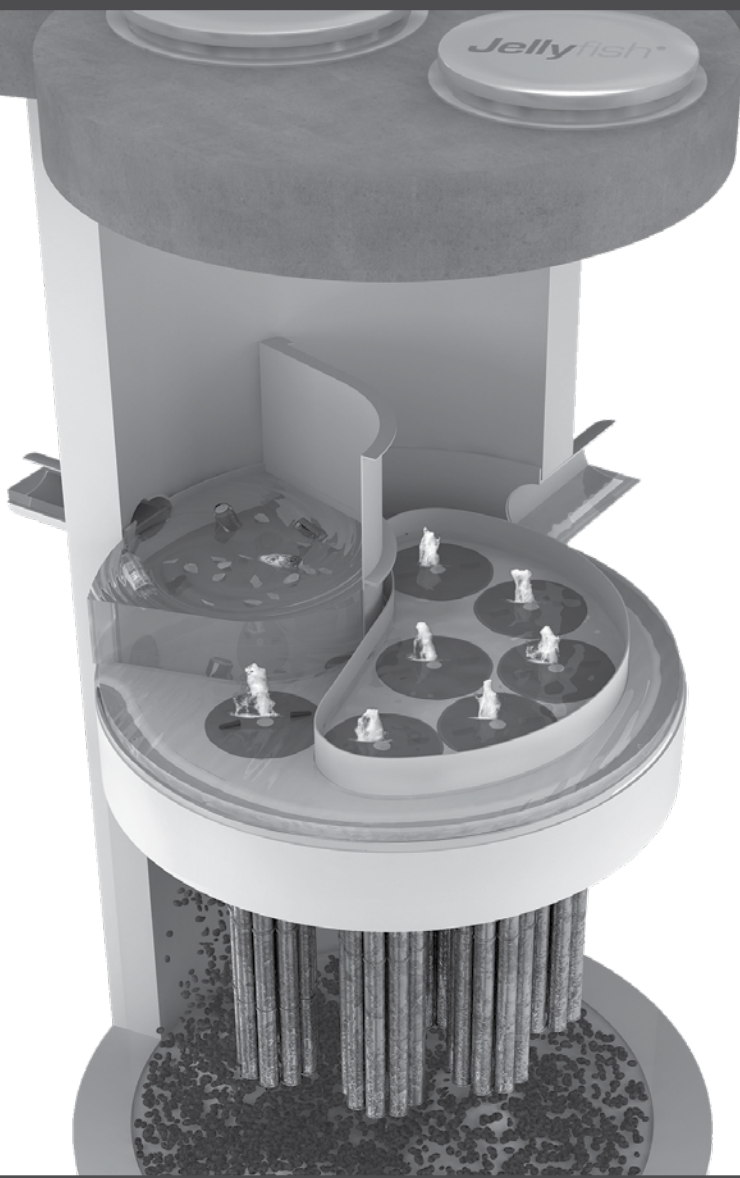
Applicable structures: Proprietary Jelly Fish Filter

Refer to proprietary system maintenance procedures guide included in this Maintenance & Inspection Plan.

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Jellyfish[®] Filter Maintenance Guide





JELLYFISH® FILTER INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

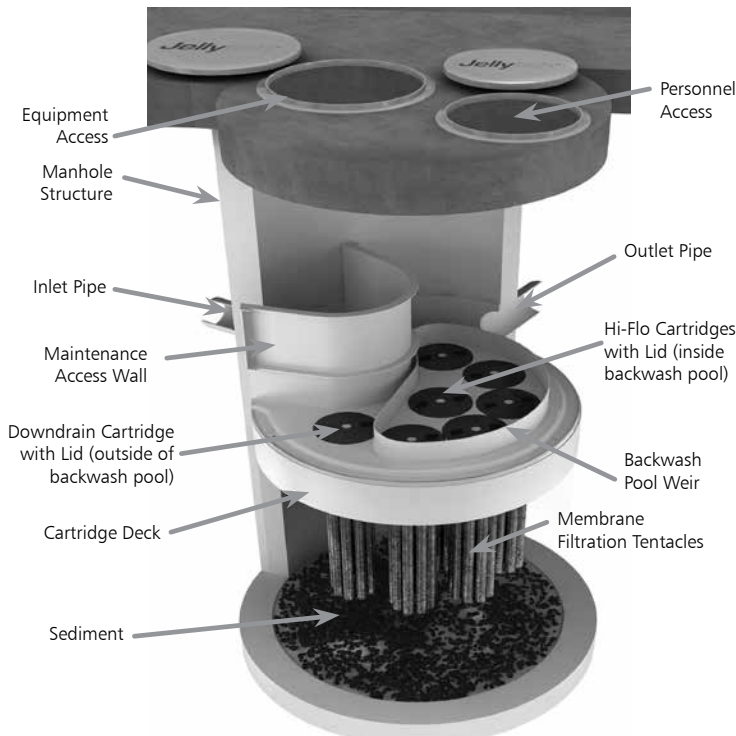
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

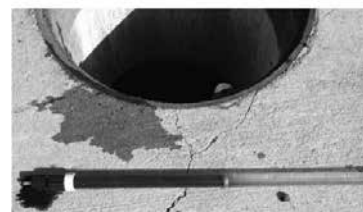
3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment ($\geq 1/16''$) accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
Caution: Dropping objects onto the cartridge deck may cause damage.

3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. **Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.**
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device



2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.**

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Floatables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥ 8 -ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. **Caution: Do not force the cartridge downward; damage may occur.**
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

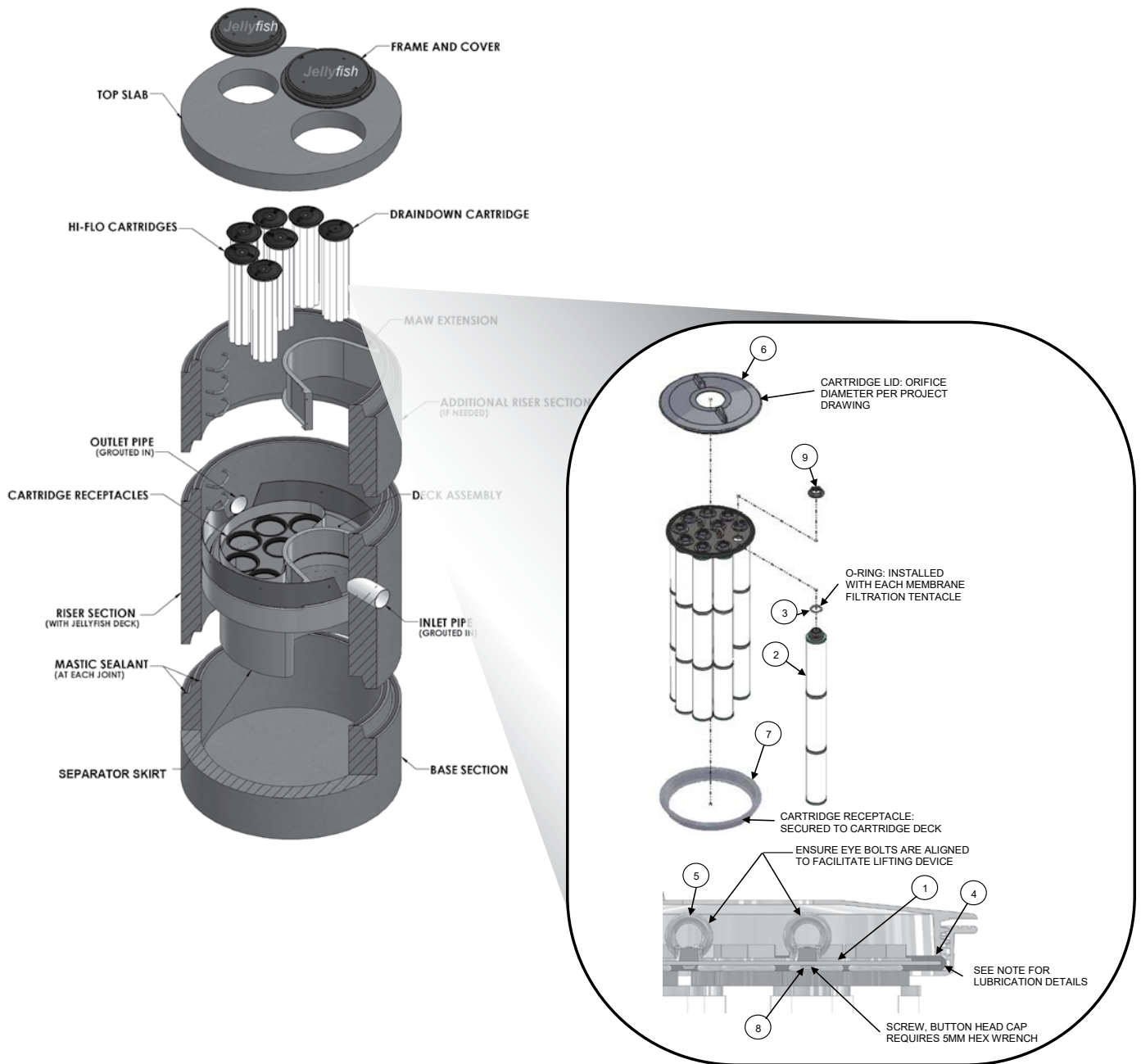


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:

Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:

Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clockwise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:		Jellyfish Model No:	
Location:		GPS Coordinates:	
Land Use:	Commercial:	Industrial:	Service Station:
	Roadway/Highway:	Airport:	Residential:

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

Jellyfish[®]

CONTECH[®]
ENGINEERED SOLUTIONS

800.338.1122

www.ContechES.com

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Stormwater Maintenance
424 Post Road, LLC, Site Modifications
Maintenance Log

This log is intended to accompany the Stormwater Management Facilities Maintenance Plan for the Anchor Inn & Cottages Redevelopment. The following items shall be checked, cleaned and maintained on regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five years and shall be available for review by MDEP. Qualified personnel familiar with drainage systems and soils shall perform all inspections.



Item	Maintenance Required & Frequency				Date Completed	Maintenance Personnel	Comments
		Spring	Fall or Yearly	After a Major Storm			
Sweeping of Roads	Clear accumulated winter sand in parking lots and along roadways	X					
	Sweep pavement to remove sediment	X					
	Grade road shoulders and remove excess sand either manually or by a front-end loader	X					
	Grade gravel roads and gravel shoulders	X					
	Clean-out the sediment within water bars or open top culverts	X					
	Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X					



Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
		Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years			
Catch Basins and Culverts	Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X					
	Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X					
	Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X				
	Repair any erosion damage at the culvert's inlet and outlet	X	X	X				

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Stormwater Management System
Anchor Inn & Cottages Redevelopment

Inspection & Maintenance Checklist

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (List Items/Comments)	Date of Cleaning/Repair	Performed By

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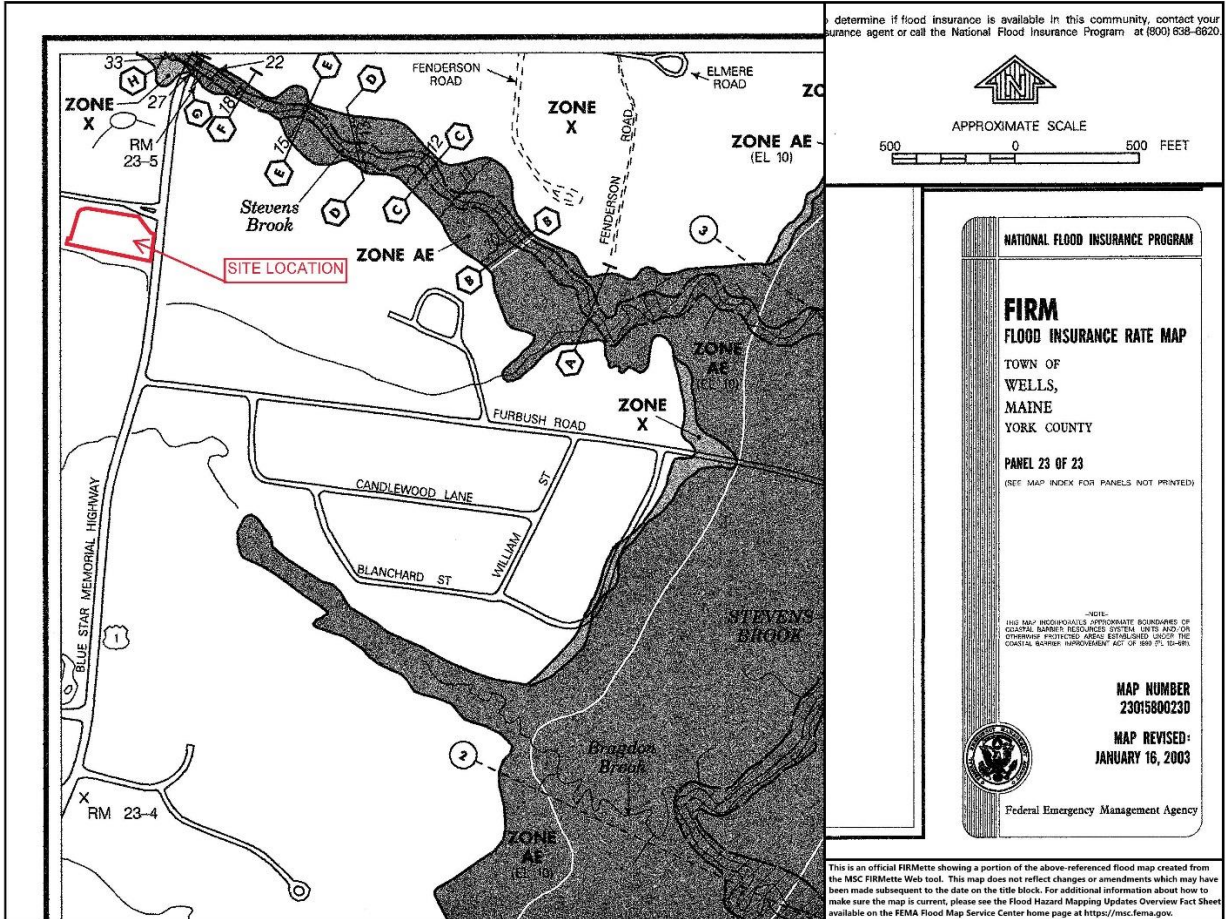
**CIVIL
CONSULTANTS**



P.O. Box 100 South Berwick, Maine 03908 207-384-2550

APPENDIX E

NATIONAL FLOOD INSURANCE RATE MAP- FIRM



Reduced Scale Sketch Reproduced from Portion of
Town of Wells, ME
Panel 2301580023D
(Effective dates: January 16, 2003)



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**CIVIL
CONSULTANTS**

Engineers

Planners

Surveyors

APPENDIX F

Plans at 1/2 scale 11x17 prints, 22x34 included with application

D1 – Pre-Development Stormwater Management Plan

D2 – Post-Development Stormwater Management Plan

D3 – Post-Development Stormwater Treatment Plan

ES1 – Existing Conditions Plan

L1 – Site Plan*

L2 – Construction Details*

L3 – Construction Details*