

WATER & SANITARY SEWER ENGINEERING REPORT

for

Hackett Boulevard Apartments

Prepared by

Engineering Ventures, PC

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Applicant

Ronald Stein
204 Winding Brook Road
New Rochelle, NY 10804

January 19, 2021
Last Revised April 9, 2021

EV Job# 20483



I. Project Description

The Applicant, Ron Stein, is proposing a 39-unit, 4-story apartment building, with a building footprint of 15,750 SF+/- at 42 Besch Avenue, Albany NY 12208. The building will include a mix of (15) 1-bedroom units and (24) 2-bedroom units. Parking will be provided on the ground level of the proposed building. The total lot area is 0.67 acres +/- and is located on Tax Parcels 76.46-4-29 and -30. The project will be serviced by public water and sewer.

II. Existing Conditions of Site and Surrounding Areas

The site is bordered by Hackett Boulevard to the north, an existing Marriot Hotel and Parking area to the east, and residential properties to the south and west. The site is mostly wooded and steeply sloped, sloping from south to north towards Hackett Boulevard at an average slope 25%+/- . As shallow surface stormwater detention area is located on the north portion of the property, along Hackett Boulevard. This stormwater area collects/attenuates runoff from the adjacent Marriot property and will be relocated as part of this project. An 84" diameter concrete combined sanitary/storm sewer crosses the northeastern corner of the property. A 16" waterline is located on the northern side of Hackett Boulevard.

III. Site Soils Information

The soils on the site were mapped using the NRCS Web Soil Survey. The following soils are located on the site:

- Ut – Urban Land-Udorthents complex, 0-8 percent slopes. These soils are typically consistent with previous developed land.
- Uh-Udorthents, clayey-Urban Land complex, 0-8 percent slopes which are classified as hydric soils.

A Geotechnical Engineering Report dated March 8, 2021 was prepared by Terracon Consultants-NY, Inc. Per this report, Boring B-3, located in closest proximity to the proposed stormwater planter, revealed silt with sand to a depth of 4.0' below the surface elevation (corresponding to elevation 162+/-). Slight mottling was found below elevation 162.0, therefore elevation 162.0 was used as the restrictive layer

Engineering Ventures performed infiltration testing, per Appendix D of the NYS Stormwater Manual, on April 8, 2021. Per the on-site testing, and infiltration rate of 2.25" per hour was measured. Applying a factor of safety of 0.5, the infiltration utilized in this report is 1.0" per hour.

IV. Proposed Development/Utilities

As stated in the project description, a 39-unit, 4-story apartment building is proposed, along with an access drive and sidewalks in front of the building, providing building frontage to Hackett Boulevard. Stormwater management will be provided in an underground tank located within the

proposed parking garage area of the building. This proposed tank will capture runoff from the proposed roof leaders and will utilize an existing 8" storm pipe as an outlet, which discharges to the 84" diameter combined sewer. A proposed sanitary sewer service will discharge via a new, separate 6" SDR-26 PVC sewer lateral into the existing 84" combined sewer. Water service will be provided to the proposed building via a 6" DIP CL 52 water line that will tap into the existing 16" water line located in Hackett Boulevard. Backflow prevention devices will be installed for all utilities per discussions with the City of Albany Engineer.

V. Water and Sewer Design Calculations

The proposed water and sewer will be designed and constructed in accordance with City of Albany and Albany County Health Department Standards. Based on a similar project in the area, design flows were based on 90 GPD/bedroom. The proposed water and sewer demand for the project are as follows:

- Total Bedrooms: (15) 1-bedroom units plus (24) 2-bedroom units
 $15 + 2 \times 24 = 63$ bedrooms
- Water/Sewer Demand (with low-flow fixtures):
 $63 \text{ bedrooms} \times 90 \text{ GPD/bedroom} = 5,670 \text{ GPD}$

VI. Infiltration and Inflow (I/I) Reduction to Combined Sewer

Per City of Albany and NYSDEC regulations, infiltration and inflow (I/I) reduction for proposed developments that discharge to the combined sewer shall be at least equal to the estimated increased peak hourly dry-weather flow or four (4) times the average daily dry-weather flow, whichever is greater.

- I/I requirement = $4 \times 5,670 \text{ Gal} = 22,680 \text{ Gal} = 3,032 \text{ CF}$

A proposed Infiltration Stormwater Planter has been designed, in accordance with Section 5.3.9 of the NYS Stormwater Manual, to infiltrate the roof area in order to meet the I/I requirement for combined sewer discharges. The stormwater planter will consist of 12" of ponding, surface vegetation, 18" of growing medium consisting of organic soil media, and 12" of gravel. Runoff will filter through the growing medium and gravel and will infiltrate into the natural soil in an infiltration footprint located more than 10 feet away from the building. An overflow has been provided to allow the higher storm events to be directed to a proposed stormwater attenuation tank.

The proposed surface elevation for the planter is 167.0. An 18" diameter riser, with a rim elevation of 168.0 has been designed as an overflow to allow the higher storm events to be directed to the proposed subsurface attenuation tank. The planter will be surrounded with a concrete wall, with the lowest top of wall elevation set at 168.5. The 100-yr storm routing through the stormwater planter shows that runoff will not spill over the concrete wall.

The storage volume of the proposed planter, below the overflow, is 1,822 CF. Using an infiltration rate of 1.0" per hour, and an infiltration footprint of 800 SF, the stormwater planter will infiltrate 0.072 Ac-ft, or 3,136 CF during the 2-YR storm event, which exceeds the required I/I volume of 3,032 CF. See attached HydroCAD routings.

In addition to the proposed stormwater planter, a 45,000 Gallon subsurface stormwater attenuation tank has been designed to attenuate and reduce the post-development flows for the larger storm events to pre-development levels prior to discharging into the combined sanitary/storm sewer. The bottom of the proposed attenuation tank is at elevation 162.0. An outlet structure consisting of a 1" diameter orifice, set at the bottom of the tank, has been designed to meet the flow rate requirements for Channel Protection. A 4" diameter orifice and 8" diameter overflow have been designed to mitigate peak flows for the larger storm events. See Table 1 and Table 2 Below:

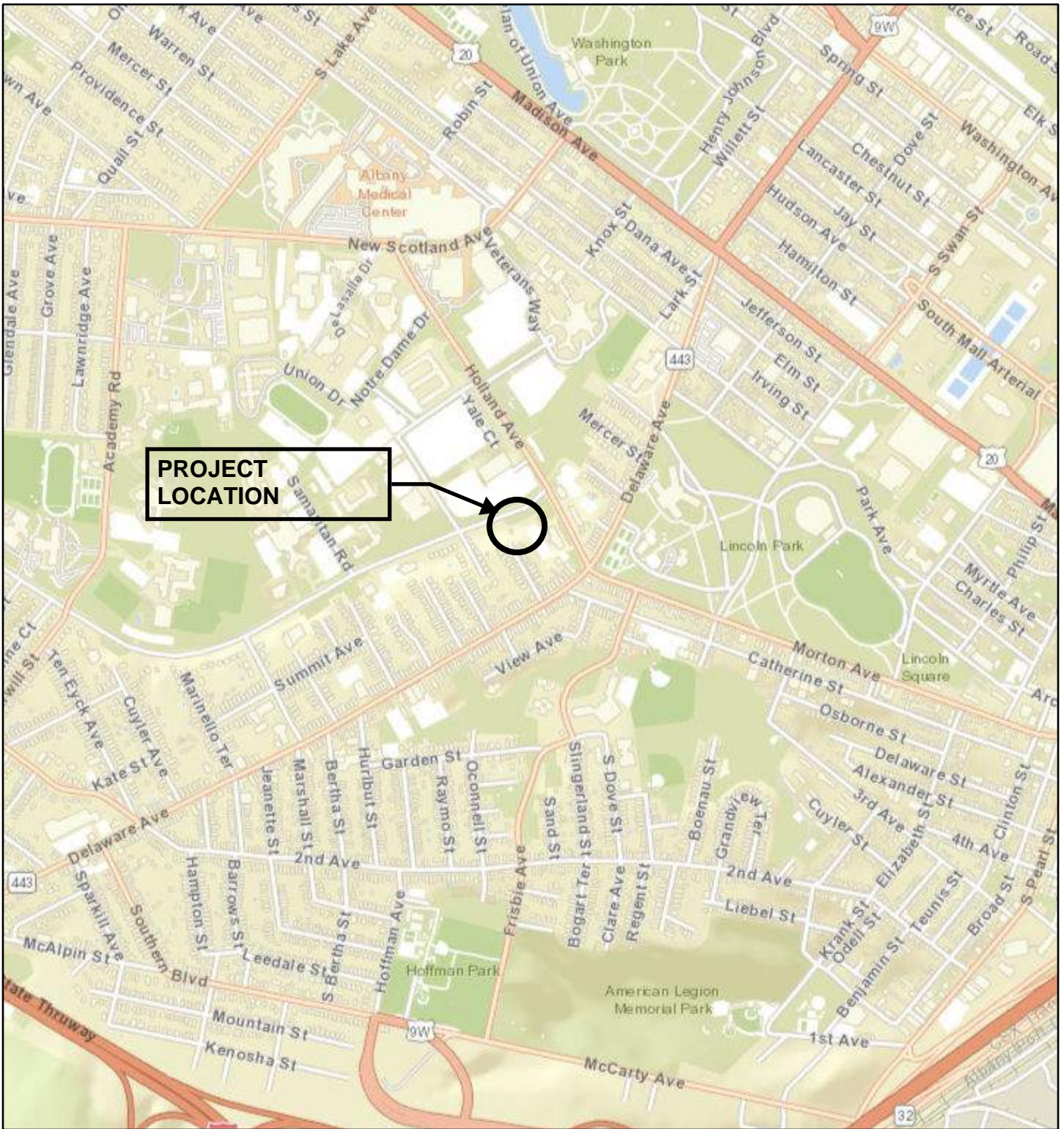
Table 1: P.O.I.#1 Summary of Peak Flows for On-Site Flows

	1-YR	2-YR	10-YR	100-YR
<i>PRE-DEVELOPMENT (Node 1L)</i>	<i>0.48 cfs</i>	<i>0.76 cfs</i>	<i>2.11 cfs</i>	<i>5.07 cfs</i>
POST-DEVELOPMENT (Node 2L)	0.19 cfs	0.24 cfs	0.46 cfs	1.09 cfs

Table 2: P.O.I.#1 Summary of Total Peak Flows (On-site and Off-site)

	1-YR	2-YR	10-YR	50-YR	100-YR
<i>PRE-DEVELOPMENT (Node 3L)</i>	<i>0.66 cfs</i>	<i>1.03 cfs</i>	<i>2.76 cfs</i>	<i>4.53 cfs</i>	<i>6.52 cfs</i>
POST-DEVELOPMENT (Node 4L)	0.64 cfs	0.81 cfs	1.51 cfs	2.16 cfs	3.03 cfs
% reduction	3.0%	21.4%	45.3%	52.3%	53.5%

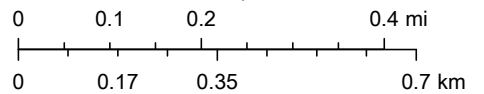
Hackett Boulevard Apartments Location Map



1/21/2021, 8:48:13 AM

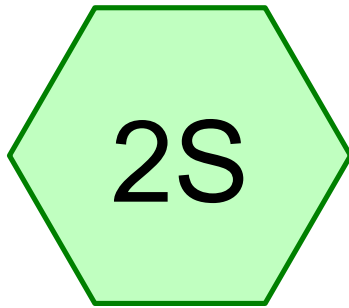
 Municipal Boundaries

1:18,056

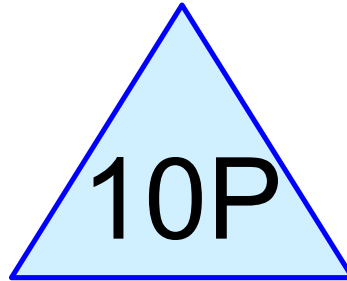


Esri, HERE, Garmin, INCREMENT P, NGA, USGS

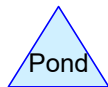
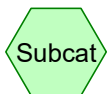
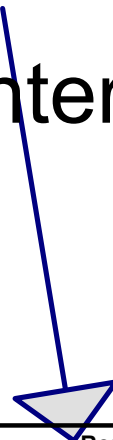
In Cooperation with CHA, Inc.
Esri, HERE, Garmin, INCREMENT P, NGA, USGS |



POST- SW Planter



SW Planter #1



20483-hydro

Type II 24-hr 2-YR Rainfall=2.62"

Prepared by Engineering Ventures, PC

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Summary for Subcatchment 2S: POST- SW Planter

Runoff = 1.47 cfs @ 11.96 hrs, Volume= 0.076 af, Depth= 2.24"

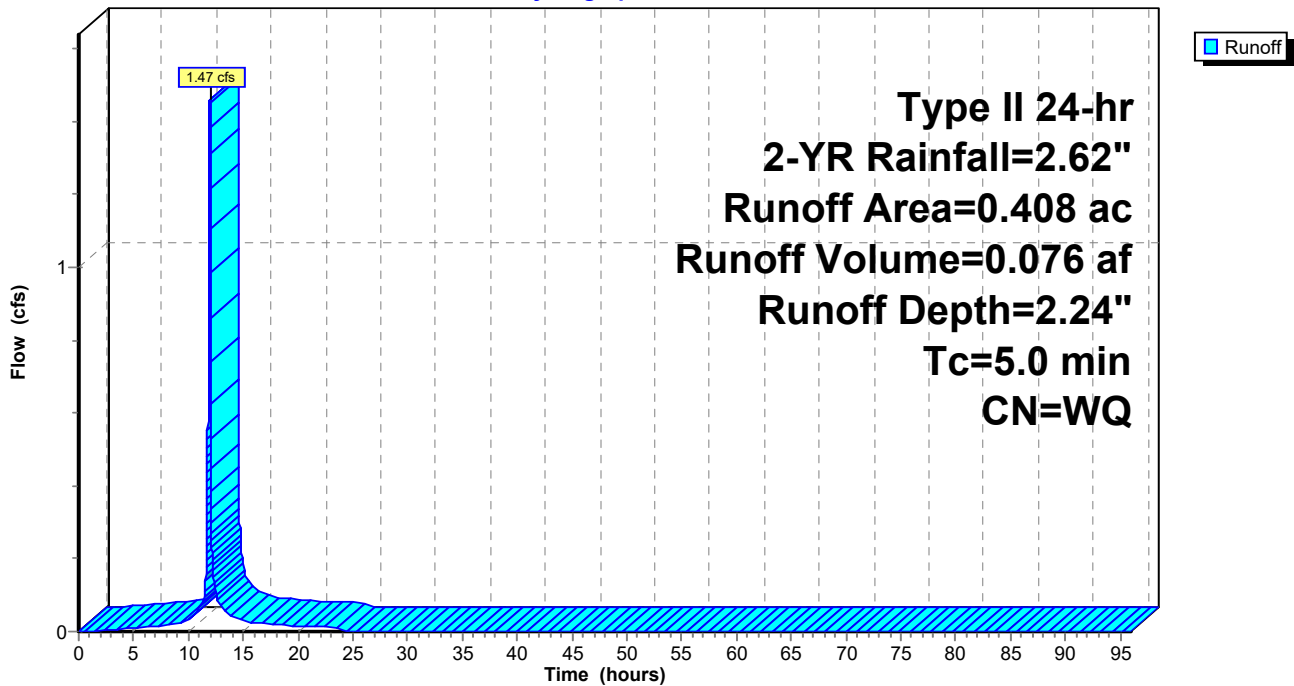
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Type II 24-hr 2-YR Rainfall=2.62"

Area (ac)	CN	Description
* 0.362	98	Building
* 0.004	98	Planter Ret Wall
0.042	80	>75% Grass cover, Good, HSG D
0.408		Weighted Average
0.042		10.29% Pervious Area
0.366		89.71% Impervious Area

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

Subcatchment 2S: POST- SW Planter

Hydrograph



Summary for Pond 10P: SW Planter #1

Inflow Area = 0.408 ac, 89.71% Impervious, Inflow Depth = 2.24" for 2-YR event
 Inflow = 1.47 cfs @ 11.96 hrs, Volume= 0.076 af
 Outflow = 0.06 cfs @ 13.07 hrs, Volume= 0.078 af, Atten= 96%, Lag= 66.7 min
 Discarded = 0.02 cfs @ 1.47 hrs, Volume= 0.072 af
 Primary = 0.04 cfs @ 13.07 hrs, Volume= 0.006 af

Routing by Sim-Route method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
 Peak Elev= 168.02' @ 13.07 hrs Surf.Area= 1,822 sf Storage= 1,863 cf

VOLUME INFILTRATED
 0.072 ac-ft = 3,136 CF

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 725.9 min (1,486.1 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	2,733 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	1,822	0	0
168.00	1,822	1,822	1,822
168.50	1,822	911	2,733

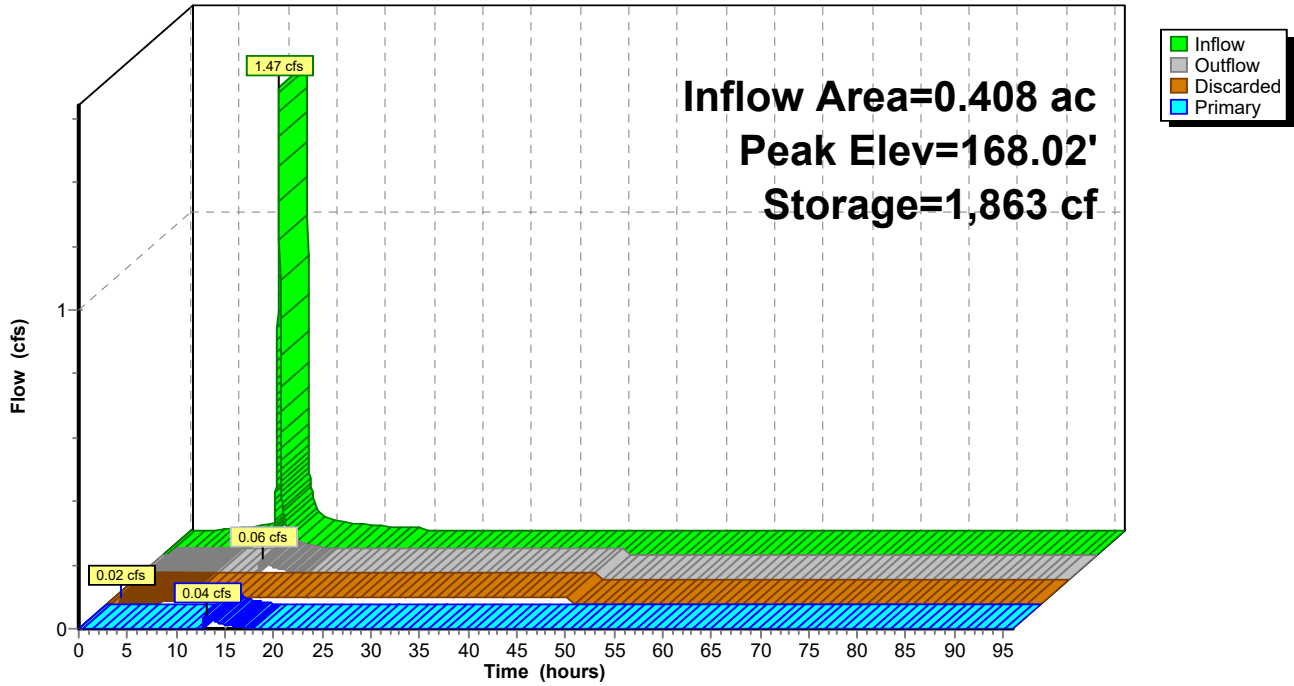
Device	Routing	Invert	Outlet Devices
#1	Discarded	167.00'	0.02 cfs Exfiltration at all elevations
#2	Primary	164.00'	12.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 164.00' / 162.00' S= 0.0667 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	168.00'	15.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

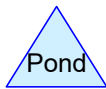
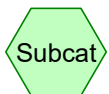
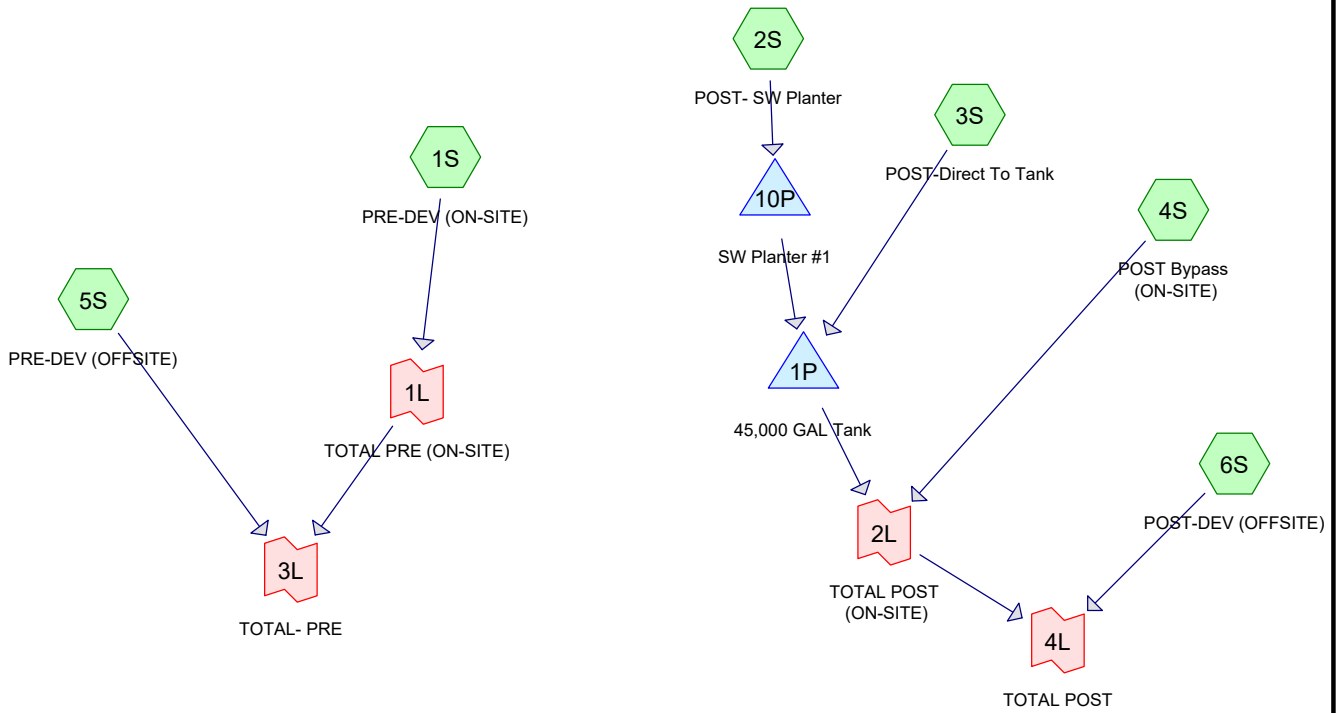
Discarded OutFlow Max=0.02 cfs @ 1.47 hrs HW=167.00' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.04 cfs @ 13.07 hrs HW=168.02' TW=162.29' (Dynamic Tailwater)
 ↑2=Culvert (Passes 0.04 cfs of 7.10 cfs potential flow)
 ↑3=Orifice/Grate (Weir Controls 0.04 cfs @ 0.49 fps)

Pond 10P: SW Planter #1

Hydrograph





Routing Diagram for 20483-hydro
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20483-hydro

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	2.23	2
2	2-YR	Type II 24-hr		Default	24.00	1	2.62	2
3	10-YR	Type II 24-hr		Default	24.00	1	4.15	2
4	50-YR	Type II 24-hr		Default	24.00	1	5.53	2
5	100-YR	Type II 24-hr		Default	24.00	1	7.00	2
6	WQv	Type II 24-hr		Default	24.00	1	1.20	2

20483-hydro

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.086	74	>75% Grass cover, Good, HSG C (3S, 4S)
0.210	80	>75% Grass cover, Good, HSG D (2S, 4S, 6S)
0.362	98	Building (2S)
0.004	98	Planter Ret Wall (2S)
0.006	98	Ret Wall (3S)
0.038	98	Sidewalks/Driveway (4S)
0.091	98	Sidewalks/Driveways (6S)
0.713	70	Woods, Good, HSG C (1S, 3S)
0.506	77	Woods, Good, HSG D (1S, 5S)
2.016	80	TOTAL AREA

20483-hydro

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.799	HSG C	1S, 3S, 4S
0.716	HSG D	1S, 2S, 4S, 5S, 6S
0.501	Other	2S, 3S, 4S, 6S
2.016		TOTAL AREA

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=0.42"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=0.48 cfs 0.028 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=1.87"
Tc=5.0 min CN=WQ Runoff=1.23 cfs 0.064 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=0.40"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=0.17 cfs 0.010 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=WQ Runoff=0.19 cfs 0.009 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=0.58"
Tc=5.0 min CN=77 Runoff=0.22 cfs 0.010 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=1.26"
Tc=5.0 min CN=WQ Runoff=0.45 cfs 0.022 af

Pond 1P: 45,000 GAL Tank Peak Elev=162.16' Storage=180 cf Inflow=0.17 cfs 0.010 af
Outflow=0.01 cfs 0.010 af

Pond 10P: SW Planter #1 Peak Elev=167.91' Storage=1,664 cf Inflow=1.23 cfs 0.064 af
Discarded=0.02 cfs 0.066 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.066 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=0.48 cfs 0.028 af
Primary=0.48 cfs 0.028 af

Link 2L: TOTAL POST (ON-SITE) Inflow=0.19 cfs 0.019 af
Primary=0.19 cfs 0.019 af

Link 3L: TOTAL-PRE Inflow=0.66 cfs 0.038 af
Primary=0.66 cfs 0.038 af

Link 4L: TOTAL POST Inflow=0.64 cfs 0.042 af
Primary=0.64 cfs 0.042 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.143 af Average Runoff Depth = 0.85"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=0.62"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=0.76 cfs 0.041 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=2.24"
Tc=5.0 min CN=WQ Runoff=1.47 cfs 0.076 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=0.59"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=0.28 cfs 0.014 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=1.50"
Tc=5.0 min CN=WQ Runoff=0.24 cfs 0.012 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=0.82"
Tc=5.0 min CN=77 Runoff=0.32 cfs 0.015 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=1.57"
Tc=5.0 min CN=WQ Runoff=0.57 cfs 0.028 af

Pond 1P: 45,000 GAL Tank Peak Elev=162.45' Storage=501 cf Inflow=0.28 cfs 0.021 af
Outflow=0.02 cfs 0.021 af

Pond 10P: SW Planter #1 Peak Elev=168.02' Storage=1,863 cf Inflow=1.47 cfs 0.076 af
Discarded=0.02 cfs 0.072 af Primary=0.04 cfs 0.006 af Outflow=0.06 cfs 0.078 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=0.76 cfs 0.041 af
Primary=0.76 cfs 0.041 af

Link 2L: TOTAL POST (ON-SITE) Inflow=0.24 cfs 0.033 af
Primary=0.24 cfs 0.033 af

Link 3L: TOTAL-PRE Inflow=1.03 cfs 0.056 af
Primary=1.03 cfs 0.056 af

Link 4L: TOTAL POST Inflow=0.81 cfs 0.061 af
Primary=0.81 cfs 0.061 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.187 af Average Runoff Depth = 1.11"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=1.61"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=2.11 cfs 0.107 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=3.73"
Tc=5.0 min CN=WQ Runoff=2.39 cfs 0.127 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=1.55"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=0.78 cfs 0.038 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=2.80"
Tc=5.0 min CN=WQ Runoff=0.45 cfs 0.022 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=77 Runoff=0.77 cfs 0.035 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=2.91"
Tc=5.0 min CN=WQ Runoff=1.05 cfs 0.052 af

Pond 1P: 45,000 GAL Tank Peak Elev=164.01' Storage=2,234 cf Inflow=2.33 cfs 0.088 af
Outflow=0.12 cfs 0.088 af

Pond 10P: SW Planter #1 Peak Elev=168.25' Storage=2,283 cf Inflow=2.39 cfs 0.127 af
Discarded=0.02 cfs 0.078 af Primary=1.63 cfs 0.050 af Outflow=1.65 cfs 0.128 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=2.11 cfs 0.107 af
Primary=2.11 cfs 0.107 af

Link 2L: TOTAL POST (ON-SITE) Inflow=0.46 cfs 0.110 af
Primary=0.46 cfs 0.110 af

Link 3L: TOTAL-PRE Inflow=2.76 cfs 0.141 af
Primary=2.76 cfs 0.141 af

Link 4L: TOTAL POST Inflow=1.51 cfs 0.162 af
Primary=1.51 cfs 0.162 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.380 af Average Runoff Depth = 2.26"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=2.67"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=3.50 cfs 0.176 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=5.09"
Tc=5.0 min CN=WQ Runoff=3.23 cfs 0.173 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=2.59"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=1.31 cfs 0.062 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=4.06"
Tc=5.0 min CN=WQ Runoff=0.64 cfs 0.032 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=77 Runoff=1.21 cfs 0.055 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=4.18"
Tc=5.0 min CN=WQ Runoff=1.50 cfs 0.075 af

Pond 1P: 45,000 GAL Tank Peak Elev=165.26' Storage=3,620 cf Inflow=4.21 cfs 0.157 af
Outflow=0.33 cfs 0.157 af

Pond 10P: SW Planter #1 Peak Elev=168.37' Storage=2,499 cf Inflow=3.23 cfs 0.173 af
Discarded=0.02 cfs 0.079 af Primary=2.91 cfs 0.095 af Outflow=2.93 cfs 0.174 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=3.50 cfs 0.176 af
Primary=3.50 cfs 0.176 af

Link 2L: TOTAL POST (ON-SITE) Inflow=0.67 cfs 0.189 af
Primary=0.67 cfs 0.189 af

Link 3L: TOTAL-PRE Inflow=4.53 cfs 0.232 af
Primary=4.53 cfs 0.232 af

Link 4L: TOTAL POST Inflow=2.16 cfs 0.264 af
Primary=2.16 cfs 0.264 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.574 af Average Runoff Depth = 3.42"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=3.89"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=5.07 cfs 0.257 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=6.55"
Tc=5.0 min CN=WQ Runoff=4.13 cfs 0.223 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=3.79"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=1.91 cfs 0.092 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=5.43"
Tc=5.0 min CN=WQ Runoff=0.86 cfs 0.043 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=4.37"
Tc=5.0 min CN=77 Runoff=1.70 cfs 0.078 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=5.57"
Tc=5.0 min CN=WQ Runoff=1.98 cfs 0.100 af

Pond 1P: 45,000 GAL Tank Peak Elev=166.95' Storage=5,500 cf Inflow=5.73 cfs 0.235 af
Outflow=0.56 cfs 0.234 af

Pond 10P: SW Planter #1 Peak Elev=168.45' Storage=2,635 cf Inflow=4.13 cfs 0.223 af
Discarded=0.02 cfs 0.080 af Primary=3.83 cfs 0.143 af Outflow=3.85 cfs 0.223 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=5.07 cfs 0.257 af
Primary=5.07 cfs 0.257 af

Link 2L: TOTAL POST (ON-SITE) Inflow=1.09 cfs 0.277 af
Primary=1.09 cfs 0.277 af

Link 3L: TOTAL-PRE Inflow=6.52 cfs 0.335 af
Primary=6.52 cfs 0.335 af

Link 4L: TOTAL POST Inflow=3.03 cfs 0.377 af
Primary=3.03 cfs 0.377 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.792 af Average Runoff Depth = 4.72"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac

20483-hydro

Type II 24-hr WQv Rainfall=1.20"

Prepared by Engineering Ventures, PC

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1S: PRE-DEV (ON-SITE) Runoff Area=0.793 ac 0.00% Impervious Runoff Depth=0.05"
Flow Length=272' Tc=8.1 min CN=WQ Runoff=0.02 cfs 0.004 af

Subcatchment2S: POST- SW Planter Runoff Area=0.408 ac 89.71% Impervious Runoff Depth=0.90"
Tc=5.0 min CN=WQ Runoff=0.62 cfs 0.031 af

Subcatchment3S: POST-Direct To Tank Runoff Area=0.290 ac 2.07% Impervious Runoff Depth=0.05"
Flow Length=298' Tc=6.4 min CN=WQ Runoff=0.01 cfs 0.001 af

Subcatchment4S: POST Bypass (ON-SITE) Runoff Area=0.095 ac 40.00% Impervious Runoff Depth=0.47"
Tc=5.0 min CN=WQ Runoff=0.07 cfs 0.004 af

Subcatchment5S: PRE-DEV (OFFSITE) Runoff Area=0.215 ac 0.00% Impervious Runoff Depth=0.10"
Tc=5.0 min CN=77 Runoff=0.02 cfs 0.002 af

Subcatchment6S: POST-DEV (OFFSITE) Runoff Area=0.215 ac 42.33% Impervious Runoff Depth=0.51"
Tc=5.0 min CN=WQ Runoff=0.18 cfs 0.009 af

Pond 1P: 45,000 GAL Tank Peak Elev=162.03' Storage=29 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond 10P: SW Planter #1 Peak Elev=167.36' Storage=659 cf Inflow=0.62 cfs 0.031 af
Discarded=0.02 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.034 af

Link 1L: TOTAL PRE (ON-SITE) Inflow=0.02 cfs 0.004 af
Primary=0.02 cfs 0.004 af

Link 2L: TOTAL POST (ON-SITE) Inflow=0.07 cfs 0.005 af
Primary=0.07 cfs 0.005 af

Link 3L: TOTAL-PRE Inflow=0.04 cfs 0.005 af
Primary=0.04 cfs 0.005 af

Link 4L: TOTAL POST Inflow=0.25 cfs 0.014 af
Primary=0.25 cfs 0.014 af

Total Runoff Area = 2.016 ac Runoff Volume = 0.050 af Average Runoff Depth = 0.30"
75.15% Pervious = 1.515 ac 24.85% Impervious = 0.501 ac