

# PROJECT NARRATIVE

For

Deer Run Subdivision  
Weymouth, MA

Prepared For:

Edmund & Cheryl Harrington

Prepared By:



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1287 Washington Street  
Weymouth, MA 02189

August 24, 2023



The subject property is located at 54 & 94 Samoset Street in Weymouth, Massachusetts. The current use is two (2) single family residential lots with additional undeveloped parcels totaling approximately 395,142 SF. The lots front on Samoset Ave and Wampum Street. A portion of the parcel is the Town of Braintree. No wetlands were encountered within 100-feet of the proposed subdivision.

The majority of the existing site is vegetated with a mixture of woods and grass. The Soil Survey of Norfolk Massachusetts indicates that the soils in the Southerly portion of the lot consist of Hollis Rock Outcrop and soils on the northerly portion consist of Canton Fine Sandy Loam. Test pits performed by Crocker Design Group confirm the presence of loamy sands and gravels with a variable water table elevation.

In General, the existing site is mounded and splits stormwater flows towards Wampum Street as well contributing to the Wampum Street Conservation Area. A relatively small (approx. 60,000 SF) portion of the lot drains overland to Wampum Street. The remaining land generally meanders overland towards the conservation area as depicted in the attached Existing Drain Area Plan.

The proposal involves subdividing the land to retain the existing residences and create five (5) new buildable house lots. The new 380-foot roadway will be accessed from Wampum Street. the existing residence at 54 Samoset will be accessed from the new roadway and the remaining land will be combined with 94 Samoset Ave.

In order to mitigate the increase in impervious area associated with the roadway, a subsurface infiltration basin is proposed to infiltrate flows through a 100-year design storm. To mitigate the proposed residences and driveways, individual drainage systems have been depicted on the house lots. For reference, soil logs, HydroCAD design output and supporting information have been included with this submission. The purpose of the stormwater design is to collect and treat impervious areas, reduce runoff to the formal drainage system in Wampum Street and continue to contribute flows to the Wampum Street Conservation Area. For purposes of comparing “pre” and “post” construction stormflows for this report, we have assumed proposed sizes of residences, driveways and lawn areas. The results, summarized in the table below, reflect a decrease in post-construction peak stormwater flows and volumes to Wampum Street for all design storms with the exception of a negligible 0.01 cfs increase for the 25-year storm.

	Existing		Proposed	
	cfs	AF	cfs	AF
2- year	0.00	0.00	0.00	0.00
10-year	0.00	0.001	0.00	0.002
25-year	0.01	0.009	0.02	0.006
100-year	0.07	0.030	0.07	0.012

HydroCAD for the sizing of the individual infiltration systems on the lots has been attached as supporting calculations.

## Soil Data

8.5' between proposed bottom of basin & excavation (hard compact soil) @ 1327 LS—no GW encountered (12.5' Deep)

TOTAL, BOUTIQUE AREA = 100,547 ± S.F. (2,304 ACRES)

## RECORD OWNER

[illegible]

## NOTES:

1. PROPERTY LINE STREET LINE AND OTHER INFORMATION WAS OBTAINED FROM RECORDS ON FILE AT THE MISSOURI COUNTY READER'S OFFICE AND THE TOWN OF WENDOTA.
2. PROPERTY LINE STREET LINE AND OTHER INFORMATION WAS ALSO OBTAINED FROM A P.M. DRAWN BY HARRY EMMERTING, DATED MARCH 2, 2015 ENTITLED "TANQUOGON PROPERTY MAP" AND "SAGEST STREET REMOVAL / EXCHANGE, MAP" AND A PLAN DRAWN BY HOWE LAM, DATED FEBRUARY 19, 2016 ENTITLED "X-10-0101 SITE PLAN OF LAND".

3. THE SUBJECT SITE IS LOCATED WITHIN THE "RESIDENCE R-1" ZONING DISTRICT AND THE MATCHED PROTECTION DISTRICT AS DEPICTED ON THE TOWN OF WILMOUTH ZONING MAP DATED NOVEMBER 30, 2017.

## ENVIRONMENTAL RESOURCES AREA GO REVIEW

- [illegible]

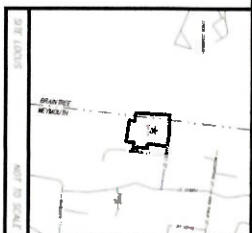
FLOOD NOTE

BY GEOGRAPHIC FLOODING ONLY. THIS PROPERTY IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP AS SHOWN ON MAP NO. 2502100256C, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 2012, AND IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARDOUS AREA.



- PRIVATE - LAND COURT PLAN 247974 - 50.00' WIDE -

3' separation between bottom of basin and excavation)



**DRAFT**

**Crocker  
Design  
Group**

HARRINGTON PROPERTY  
SUBDIVISION

**EDMUND & CHERYL  
HARRINGTON**  
14 JAMCOTT STREET  
WETTINGHAM, WA 6170

## CONCEPTUAL GRADING PLAN



### ON-SITE REVIEW

DEEP HOLE #: TP-1 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: \_\_\_\_\_

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-12"	Fill	Loam	10 YR 3/3		
12"-24"	B	SL	10 YR 5/8		
24"-150"	C	LS	2.5 Y 6/4		132" hard compacted loamy sand, no ground water observed, large boulders and cobbles

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☐ No: ☒ What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

### ON-SITE REVIEW

DEEP HOLE #: TP-2 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: \_\_\_\_\_

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-3"	O	-			
3"-6"	A	Loam			
6"-20"	B	SL			
20"-108"	C	LS			108" refusal-- hard pan with cobbles-- no water encountered

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☐ No: ☒ If Yes: What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

### ON-SITE REVIEW

DEEP HOLE #: TP-4 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-2"	O				
2"-4"	A	Loam			
4"-14"	B	SL			
14"-144"	C	LS			40-50% Boulders, no ground water observed, had some fines

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☐ No: ☐ If Yes: What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_ >120"

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

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### ON-SITE REVIEW

DEEP HOLE #: TP-5 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

### DEEP OBSERVATION HOLE LOG

Depth (Inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-12"	A/O	Loam			Large boulders & organics
12"-24"	B	SL			
24"-81"	C	LS			1"-2" cobbles water filling hole, weeping water at 4' some mottles at 3'--- clay deposit formed a cast

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☒ No: ☐ If Yes: What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.



### ON-SITE REVIEW

DEEP HOLE #: TP-6 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-6"	A/O	Loam			Large boulders & organics
6"-24"	B	SL			
24"-138"	C	LS			Compacted full of large boulders, water weeping into hole at 8.5'

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☒ No: ☐ If Yes: What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/ Discon/ Add. Test Req'd:	_____	Test Passed/ Failed/ Discon/ Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

### ON-SITE REVIEW

DEEP HOLE #: TP-7 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-4"	A/O	Loam			Large boulders & organics
4"-30"	B	SL			
30"-90"	C	LS			hit refusal, Compacted full of large boulders

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes: \_\_\_\_\_

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☐ No: ☐ If Yes: What is the depth of Groundwater: \_\_\_\_\_

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

### ON-SITE REVIEW

DEEP HOLE #: TP-10 DATE: TIME: WEATHER:

SITE ADDRESS or MAP/LOT #:

OWNER: JOB NO.:

LOCATION (Identify on Plan): GROUND ELEVATION AT SURFACE OF HOLE:

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%):

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

#### DISTANCES FROM:

OPEN WATER BODY: ft PROPERTY LINE: ft POSSIBLE WET AREA: ft DRAINAGEWAY: ft

DRINKING WATER WELL: ft OTHER:

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-5"	O/Fill	Loam			Large boulders & organics
5"-18"	B	SL			
18"-132"	C	LS			Boulders and gravel, clay deposit, water weeping in hole at 11'-- spots of coarse sand mixed.
					Redox at 7'

PARENT MATERIAL: Unsuitable Material Present? Yes: ☐ No: ☒ If Yes:

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☒ No: ☐ If Yes: What is the depth of Groundwater:

Standing in Hole: Weeping from Face: Saturating the Face: Mottling:

Estimated Depth to Seasonal High Ground Water:

#### PERCOLATION TEST

Percolation Hole #:		Percolation Hole #:	
Test Date:		Test Date:	
Depth of Perc:		Depth of Perc:	
Start of Presoak:		Start of Presoak:	
End of Presoak:		End of Presoak:	
Time @ 12":		Time @ 12":	
Time @ 9":		Time @ 9":	
Time Elapse:(12"-9")		Time Elapse:(12"-9")	
Time AT 6":		Time AT 6":	
Time Elapse: (9"-6"):		Time Elapse: (9"-6"):	
Rate: (min/in.):		Rate: (min/in.):	
Test Passed/ Failed/		Test Passed/ Failed/ Discon/	
Discon/ Add. Test Req'd:		Add. Testing Req'd:	

Performed By: Witnessed By: Mach./Oper.:

Comments:

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

### ON-SITE REVIEW

DEEP HOLE #: TP-11 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ WEATHER: \_\_\_\_\_

SITE ADDRESS or MAP/LOT #: \_\_\_\_\_

OWNER: \_\_\_\_\_ JOB NO.: \_\_\_\_\_

LOCATION (Identify on Plan): \_\_\_\_\_ GROUND ELEVATION AT SURFACE OF HOLE: \_\_\_\_\_

LAND USE: Residential SURFACE STONES: Yes: ☐ No: ☐ SLOPE (%): \_\_\_\_\_

VEGETATION: Grass LANDFORM: Outwash Plains, Moraines

#### DISTANCES FROM:

OPEN WATER BODY: \_\_\_\_\_ ft PROPERTY LINE: \_\_\_\_\_ ft POSSIBLE WET AREA: \_\_\_\_\_ ft DRAINAGEWAY: \_\_\_\_\_ ft

DRINKING WATER WELL: \_\_\_\_\_ ft OTHER: \_\_\_\_\_

#### DEEP OBSERVATION HOLE LOG

Depth (inches)	Soil Hor./ Layer	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Consistency, % Gravels, Stones, Boulders)
0-2"	O				Large boulders & organics
2"-4"	A	Loam			
4"-18"	B	SL			
18"-96"	C	LS			1'-2' Boulders, hit refusal @ 8'- hard compact soil

PARENT MATERIAL: \_\_\_\_\_ Unsuitable Material Present? Yes: ☐ No: ☒ If Yes:

Disturbed Soil: ☐ Fill Mat'l: ☐ Impervious Layer(s): ☐ Weathered/Fractured Rock: ☐ Bedrock: ☐

GROUNDWATER OBSERVED: Yes: ☐ No: ☐ If Yes: What is the depth of Groundwater:

Standing in Hole: \_\_\_\_\_ Weeping from Face: \_\_\_\_\_ Saturating the Face: \_\_\_\_\_ Mottling: \_\_\_\_\_

Estimated Depth to Seasonal High Ground Water : \_\_\_\_\_

#### PERCOLATION TEST

Percolation Hole #:	_____	Percolation Hole #:	_____
Test Date:	_____	Test Date:	_____
Depth of Perc:	_____	Depth of Perc:	_____
Start of Presoak:	_____	Start of Presoak:	_____
End of Presoak:	_____	End of Presoak:	_____
Time @ 12":	_____	Time @ 12":	_____
Time @ 9":	_____	Time @ 9":	_____
Time Elapse:(12"-9")	_____	Time Elapse:(12"-9")	_____
Time AT 6":	_____	Time AT 6":	_____
Time Elapse: (9"-6"):	_____	Time Elapse: (9"-6"):	_____
Rate: (min/in.):	_____	Rate: (min/in.):	_____
Test Passed/ Failed/	_____	Test Passed/ Failed/ Discon/	_____
Discon/ Add. Test Req'd:	_____	Add. Testing Req'd:	_____

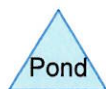
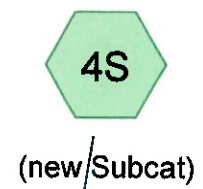
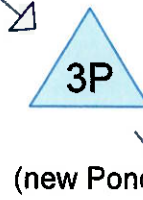
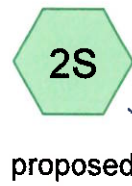
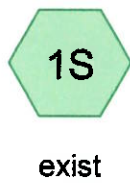
Performed By: \_\_\_\_\_ Witnessed By: \_\_\_\_\_ Mach./Oper.: \_\_\_\_\_

Comments: \_\_\_\_\_

An indication that the "site passed" indicates only that the basic criteria for a soil evaluation and percolation test under Title 5 have been met in the area tested. Further soil evaluations and design work are necessary to determine whether a septic system for a particular use, meeting the requirements of Title 5 and applicable local bylaws, will in fact be feasible on this site.

An indication that the "site failed" indicates only that the area tested did not meet the minimum criteria (at the time of testing) for a successful soil evaluation and/or percolation test in the area tested. Additional testing at another depth or other areas may result in passing results.

# HydroCAD Documentation



**Road Drainage 6-30-2023**

Type III 24-hr 2 year Rainfall=3.40"

Prepared by Hardy + Man Group, P.C.

Printed 8/24/2023

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Time span=0.00-40.00 hrs, dt=0.02 hrs, 2001 points

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

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

**Subcatchment 1S: exist**Runoff Area=57,900 sf 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=32 Runoff=0.00 cfs 0.000 af**Subcatchment 2S: proposed**Runoff Area=33,434 sf 58.56% Impervious Runoff Depth=1.17"  
Tc=6.0 min CN=74 Runoff=1.01 cfs 0.075 af**Subcatchment 4S: (new Subcat)**Runoff Area=9,062 sf 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af**Reach 5R: Proposed Reach**Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af**Pond 3P: (new Pond)**Peak Elev=206.16' Storage=952 cf Inflow=1.01 cfs 0.075 af  
Outflow=0.18 cfs 0.075 af**Total Runoff Area = 2.305 ac Runoff Volume = 0.075 af Average Runoff Depth = 0.39"**  
**80.50% Pervious = 1.855 ac 19.50% Impervious = 0.449 ac**

**Road Drainage 6-30-2023**

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Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Subcatchment 1S: exist**

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
57,900	32	Woods/grass comb., Good, HSG A
57,900		100.00% Pervious Area

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

**Summary for Subcatchment 2S: proposed**

Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.075 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
19,579	98	Paved parking, HSG A
8,855	39	>75% Grass cover, Good, HSG A
5,000	39	>75% Grass cover, Good, HSG A
33,434	74	Weighted Average
13,855		41.44% Pervious Area
19,579		58.56% Impervious Area

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

**Summary for Subcatchment 4S: (new Subcat)**

Runoff = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
9,062	39	>75% Grass cover, Good, HSG A
9,062		100.00% Pervious Area



**Road Drainage 6-30-2023**

Type III 24-hr 2 year Rainfall=3.40"

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

**Summary for Reach 5R: Proposed Reach**

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

Inflow Area = 0.976 ac, 46.07% Impervious, Inflow Depth = 0.00" for 2 year event  
 Inflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 3P: (new Pond)**

Inflow Area = 0.768 ac, 58.56% Impervious, Inflow Depth = 1.17" for 2 year event  
 Inflow = 1.01 cfs @ 12.10 hrs, Volume= 0.075 af  
 Outflow = 0.18 cfs @ 12.62 hrs, Volume= 0.075 af, Atten= 83%, Lag= 31.6 min  
 Discarded = 0.18 cfs @ 12.62 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3  
 Peak Elev= 206.16' @ 12.62 hrs Surf.Area= 2,246 sf Storage= 952 cf

Plug-Flow detention time= 42.8 min calculated for 0.075 af (100% of inflow)  
 Center-of-Mass det. time= 42.8 min ( 901.2 - 858.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	205.40'	1,907 cf	<b>25.67'W x 87.50'L x 3.54'H Field A</b> 7,954 cf Overall - 3,185 cf Embedded = 4,769 cf x 40.0% Voids
#2A	205.90'	3,185 cf	<b>Cultec R-330XLHD x 60 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 5 rows
		5,093 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.40'	<b>2.410 in/hr Exfiltration over Wetted area</b> Conductivity to Groundwater Elevation = 203.00'

**Discarded OutFlow** Max=0.18 cfs @ 12.62 hrs HW=206.16' (Free Discharge)  
 ↑**1=Exfiltration** ( Controls 0.18 cfs)

**Road Drainage 6-30-2023**

Type III 24-hr 10 year Rainfall=4.70"

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Time span=0.00-40.00 hrs, dt=0.02 hrs, 2001 points

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

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

**Subcatchment 1S: exist**Runoff Area=57,900 sf 0.00% Impervious Runoff Depth=0.01"  
Tc=6.0 min CN=32 Runoff=0.00 cfs 0.001 af**Subcatchment 2S: proposed**Runoff Area=33,434 sf 58.56% Impervious Runoff Depth=2.13"  
Tc=6.0 min CN=74 Runoff=1.89 cfs 0.136 af**Subcatchment 4S: (new Subcat)**Runoff Area=9,062 sf 0.00% Impervious Runoff Depth=0.14"  
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.002 af**Reach 5R: Proposed Reach**Inflow=0.00 cfs 0.002 af  
Outflow=0.00 cfs 0.002 af**Pond 3P: (new Pond)**Peak Elev=206.83' Storage=2,194 cf Inflow=1.89 cfs 0.136 af  
Outflow=0.22 cfs 0.136 af**Total Runoff Area = 2.305 ac Runoff Volume = 0.140 af Average Runoff Depth = 0.73"**  
**80.50% Pervious = 1.855 ac 19.50% Impervious = 0.449 ac**

**Road Drainage 6-30-2023**

Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Subcatchment 1S: exist**

Runoff = 0.00 cfs @ 22.88 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
57,900	32	Woods/grass comb., Good, HSG A
57,900		100.00% Pervious Area

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

**Summary for Subcatchment 2S: proposed**

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
19,579	98	Paved parking, HSG A
8,855	39	>75% Grass cover, Good, HSG A
5,000	39	>75% Grass cover, Good, HSG A
33,434	74	Weighted Average
13,855		41.44% Pervious Area
19,579		58.56% Impervious Area

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

**Summary for Subcatchment 4S: (new Subcat)**

Runoff = 0.00 cfs @ 13.76 hrs, Volume= 0.002 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
9,062	39	>75% Grass cover, Good, HSG A
9,062		100.00% Pervious Area

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

**Road Drainage 6-30-2023**

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Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Reach 5R: Proposed Reach**

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

Inflow Area = 0.976 ac, 46.07% Impervious, Inflow Depth = 0.03" for 10 year event  
 Inflow = 0.00 cfs @ 13.76 hrs, Volume= 0.002 af  
 Outflow = 0.00 cfs @ 13.76 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 3P: (new Pond)**

Inflow Area = 0.768 ac, 58.56% Impervious, Inflow Depth = 2.13" for 10 year event  
 Inflow = 1.89 cfs @ 12.09 hrs, Volume= 0.136 af  
 Outflow = 0.22 cfs @ 12.92 hrs, Volume= 0.136 af, Atten= 88%, Lag= 49.6 min  
 Discarded = 0.22 cfs @ 12.92 hrs, Volume= 0.136 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3  
 Peak Elev= 206.83' @ 12.92 hrs Surf.Area= 2,246 sf Storage= 2,194 cf

Plug-Flow detention time= 94.9 min calculated for 0.136 af (100% of inflow)  
 Center-of-Mass det. time= 94.8 min ( 935.3 - 840.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	205.40'	1,907 cf	<b>25.67'W x 87.50'L x 3.54'H Field A</b> 7,954 cf Overall - 3,185 cf Embedded = 4,769 cf x 40.0% Voids
#2A	205.90'	3,185 cf	<b>Cultec R-330XLHD x 60 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 5 rows
		5,093 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.40'	<b>2.410 in/hr Exfiltration over Wetted area</b> Conductivity to Groundwater Elevation = 203.00'

**Discarded OutFlow** Max=0.22 cfs @ 12.92 hrs HW=206.83' (Free Discharge)  
 ↑1=Exfiltration ( Controls 0.22 cfs)

**Road Drainage 6-30-2023**

Type III 24-hr 25 year Rainfall=5.60"

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Time span=0.00-40.00 hrs, dt=0.02 hrs, 2001 points

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

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

**Subcatchment 1S: exist**Runoff Area=57,900 sf 0.00% Impervious Runoff Depth=0.08"  
Tc=6.0 min CN=32 Runoff=0.01 cfs 0.009 af**Subcatchment 2S: proposed**Runoff Area=33,434 sf 58.56% Impervious Runoff Depth=2.85"  
Tc=6.0 min CN=74 Runoff=2.56 cfs 0.182 af**Subcatchment 4S: (new Subcat)**Runoff Area=9,062 sf 0.00% Impervious Runoff Depth=0.34"  
Tc=6.0 min CN=39 Runoff=0.02 cfs 0.006 af**Reach 5R: Proposed Reach**Inflow=0.02 cfs 0.006 af  
Outflow=0.02 cfs 0.006 af**Pond 3P: (new Pond)**Peak Elev=207.38' Storage=3,181 cf Inflow=2.56 cfs 0.182 af  
Outflow=0.26 cfs 0.182 af**Total Runoff Area = 2.305 ac Runoff Volume = 0.197 af Average Runoff Depth = 1.03"**  
**80.50% Pervious = 1.855 ac 19.50% Impervious = 0.449 ac**

**Road Drainage 6-30-2023**

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Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: exist**

Runoff = 0.01 cfs @ 15.32 hrs, Volume= 0.009 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
57,900	32	Woods/grass comb., Good, HSG A
57,900		100.00% Pervious Area

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

**Summary for Subcatchment 2S: proposed**

Runoff = 2.56 cfs @ 12.09 hrs, Volume= 0.182 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
19,579	98	Paved parking, HSG A
8,855	39	>75% Grass cover, Good, HSG A
5,000	39	>75% Grass cover, Good, HSG A
33,434	74	Weighted Average
13,855		41.44% Pervious Area
19,579		58.56% Impervious Area

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

**Summary for Subcatchment 4S: (new Subcat)**

Runoff = 0.02 cfs @ 12.39 hrs, Volume= 0.006 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
9,062	39	>75% Grass cover, Good, HSG A
9,062		100.00% Pervious Area

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

**Road Drainage 6-30-2023**

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Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Reach 5R: Proposed Reach**

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

Inflow Area = 0.976 ac, 46.07% Impervious, Inflow Depth = 0.07" for 25 year event  
 Inflow = 0.02 cfs @ 12.39 hrs, Volume= 0.006 af  
 Outflow = 0.02 cfs @ 12.39 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 3P: (new Pond)**

Inflow Area = 0.768 ac, 58.56% Impervious, Inflow Depth = 2.85" for 25 year event  
 Inflow = 2.56 cfs @ 12.09 hrs, Volume= 0.182 af  
 Outflow = 0.26 cfs @ 13.01 hrs, Volume= 0.182 af, Atten= 90%, Lag= 54.9 min  
 Discarded = 0.26 cfs @ 13.01 hrs, Volume= 0.182 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3  
 Peak Elev= 207.38' @ 13.01 hrs Surf.Area= 2,246 sf Storage= 3,181 cf

Plug-Flow detention time= 125.5 min calculated for 0.182 af (100% of inflow)  
 Center-of-Mass det. time= 125.5 min ( 957.5 - 832.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	205.40'	1,907 cf	<b>25.67'W x 87.50'L x 3.54'H Field A</b> 7,954 cf Overall - 3,185 cf Embedded = 4,769 cf x 40.0% Voids
#2A	205.90'	3,185 cf	<b>Cultec R-330XLHD x 60 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 5 rows
		5,093 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.40'	<b>2.410 in/hr Exfiltration over Wetted area</b> Conductivity to Groundwater Elevation = 203.00'

**Discarded OutFlow** Max=0.26 cfs @ 13.01 hrs HW=207.38' (Free Discharge)  
 ↳1=Exfiltration ( Controls 0.26 cfs)

**Road Drainage 6-30-2023**

Type III 24-hr 100 year Rainfall=6.80"

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Time span=0.00-40.00 hrs, dt=0.02 hrs, 2001 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: exist** Runoff Area=57,900 sf 0.00% Impervious Runoff Depth=0.27"  
Tc=6.0 min CN=32 Runoff=0.07 cfs 0.030 af

**Subcatchment 2S: proposed** Runoff Area=33,434 sf 58.56% Impervious Runoff Depth=3.87"  
Tc=6.0 min CN=74 Runoff=3.48 cfs 0.247 af

**Subcatchment 4S: (new Subcat)** Runoff Area=9,062 sf 0.00% Impervious Runoff Depth=0.70"  
Tc=6.0 min CN=39 Runoff=0.07 cfs 0.012 af

**Reach 5R: Proposed Reach** Inflow=0.07 cfs 0.012 af  
Outflow=0.07 cfs 0.012 af

**Pond 3P: (new Pond)** Peak Elev=208.37' Storage=4,581 cf Inflow=3.48 cfs 0.247 af  
Outflow=0.33 cfs 0.247 af

**Total Runoff Area = 2.305 ac Runoff Volume = 0.290 af Average Runoff Depth = 1.51"**  
**80.50% Pervious = 1.855 ac 19.50% Impervious = 0.449 ac**



**Road Drainage 6-30-2023**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: exist**

Runoff = 0.07 cfs @ 12.48 hrs, Volume= 0.030 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
57,900	32	Woods/grass comb., Good, HSG A
57,900		100.00% Pervious Area

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

**Summary for Subcatchment 2S: proposed**

Runoff = 3.48 cfs @ 12.09 hrs, Volume= 0.247 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
19,579	98	Paved parking, HSG A
8,855	39	>75% Grass cover, Good, HSG A
5,000	39	>75% Grass cover, Good, HSG A
33,434	74	Weighted Average
13,855		41.44% Pervious Area
19,579		58.56% Impervious Area

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

**Summary for Subcatchment 4S: (new Subcat)**

Runoff = 0.07 cfs @ 12.15 hrs, Volume= 0.012 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
9,062	39	>75% Grass cover, Good, HSG A
9,062		100.00% Pervious Area

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

**Road Drainage 6-30-2023**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Reach 5R: Proposed Reach**

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

Inflow Area = 0.976 ac, 46.07% Impervious, Inflow Depth = 0.15" for 100 year event  
 Inflow = 0.07 cfs @ 12.15 hrs, Volume= 0.012 af  
 Outflow = 0.07 cfs @ 12.15 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 3P: (new Pond)**

Inflow Area = 0.768 ac, 58.56% Impervious, Inflow Depth = 3.87" for 100 year event  
 Inflow = 3.48 cfs @ 12.09 hrs, Volume= 0.247 af  
 Outflow = 0.33 cfs @ 13.02 hrs, Volume= 0.247 af, Atten= 90%, Lag= 56.1 min  
 Discarded = 0.33 cfs @ 13.02 hrs, Volume= 0.247 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3  
 Peak Elev= 208.37' @ 13.02 hrs Surf.Area= 2,246 sf Storage= 4,581 cf

Plug-Flow detention time= 156.1 min calculated for 0.247 af (100% of inflow)  
 Center-of-Mass det. time= 156.0 min ( 979.2 - 823.2 )

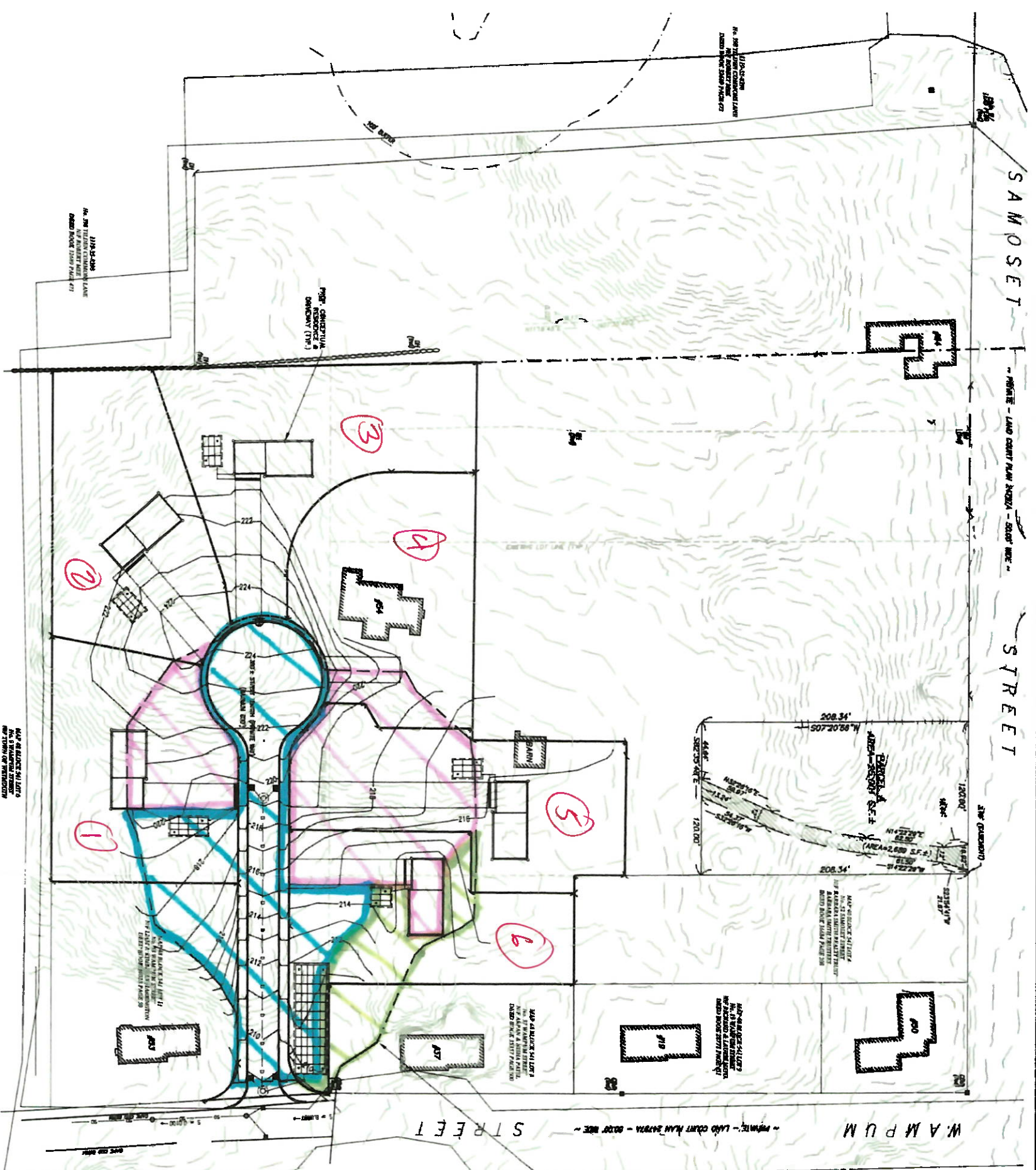
Volume	Invert	Avail.Storage	Storage Description
#1A	205.40'	1,907 cf	<b>25.67'W x 87.50'L x 3.54'H Field A</b> 7,954 cf Overall - 3,185 cf Embedded = 4,769 cf x 40.0% Voids
#2A	205.90'	3,185 cf	<b>Cultec R-330XLHD x 60 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 5 rows
		5,093 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.40'	<b>2.410 in/hr Exfiltration over Wetted area</b> Conductivity to Groundwater Elevation = 203.00'

**Discarded OutFlow** Max=0.33 cfs @ 13.02 hrs HW=208.37' (Free Discharge)  
 ↑1=Exfiltration ( Controls 0.33 cfs)

## Supporting Calculations



== Routed to Individual lot  
Culter Infiltration systems  
== Routed to large Culter  
Infiltration system  
== Direct Runoff

REVISIONS:		DATE	
NO.	COMMENTS	DATE	
1	CLIENT COMMENTS	6-28-2022	

PROPOSED DRAINAGE AREA		DATE: 06-31-2022	
WEYMOUTH, MASSACHUSETTS		LATEST REVISION: 6-28-2022	
DRAWN BY: ZLD		DESIGNED BY: SPH	
CHECKED BY: SPH			

HARRY HAN		1285 WASHINGTON STREET	
ENGINEER, P.E.		WEYMOUTH, MA	
ONE FORTYFOUR CORNING		(781) 335-1464	
PREPARED FOR:		SHEET	
EDMUND & CHERYL HARRINGTON		C-7	

**LOT 1 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.040 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,518	98	Paved parking, HSG A
5,366	39	>75% Grass cover, Good, HSG A
8,396	60	Weighted Average
5,366		63.91% Pervious Area
3,030		36.09% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.13 cfs @ 12.15 hrs, Volume= 0.022 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
16,607	39	>75% Grass cover, Good, HSG A
16,607		100.00% Pervious Area

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

**LOT 2 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.041 af, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
106	39	>75% Grass cover, Good, HSG A
3,418	96	Weighted Average
106		3.10% Pervious Area
3,312		96.90% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.18 cfs @ 12.15 hrs, Volume= 0.029 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
21,588	39	>75% Grass cover, Good, HSG A
21,588		100.00% Pervious Area

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

**LOT 3 drainage**

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Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
3,312	98	Weighted Average
3,312		100.00% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.06 cfs @ 12.39 hrs, Volume= 0.014 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
21,694	39	>75% Grass cover, Good, HSG A
21,694		100.00% Pervious Area

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

**LOT 5 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.77 cfs @ 12.10 hrs, Volume= 0.058 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
2,713	98	Paved parking, HSG A
2,918	39	>75% Grass cover, Good, HSG A
6,717	39	>75% Grass cover, Good, HSG A
13,860	57	Weighted Average
9,635		69.52% Pervious Area
4,225		30.48% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.10 cfs @ 12.15 hrs, Volume= 0.017 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
12,589	39	>75% Grass cover, Good, HSG A
12,589		100.00% Pervious Area

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



**LOT 6 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,876	98	Paved parking, HSG A
2,615	39	>75% Grass cover, Good, HSG A
2,942	39	>75% Grass cover, Good, HSG A
8,945	61	Weighted Average
5,557		62.12% Pervious Area
3,388		37.88% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.16 cfs @ 12.15 hrs, Volume= 0.026 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
19,568	39	>75% Grass cover, Good, HSG A
19,568		100.00% Pervious Area

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

**LOT 2 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
106	39	>75% Grass cover, Good, HSG A
3,418	96	Weighted Average
106		3.10% Pervious Area
3,312		96.90% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
21,588	39	>75% Grass cover, Good, HSG A
21,588		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

**LOT 2 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.09" for 2 year event  
 Inflow = 0.01 cfs @ 15.17 hrs, Volume= 0.004 af  
 Outflow = 0.01 cfs @ 15.17 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2 year event  
 Inflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af  
 Outflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.078 ac, 96.90% Impervious, Inflow Depth = 2.95" for 2 year event  
 Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af  
 Outflow = 0.01 cfs @ 15.17 hrs, Volume= 0.004 af, Atten= 96%, Lag= 185.0 min  
 Primary = 0.01 cfs @ 15.17 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.06' @ 15.17 hrs Surf.Area= 392 sf Storage= 684 cf

Plug-Flow detention time= 545.0 min calculated for 0.004 af (20% of inflow)

Center-of-Mass det. time= 335.5 min ( 1,107.8 - 772.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

Primary OutFlow Max=0.01 cfs @ 15.17 hrs HW=220.06' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.01 cfs @ 0.84 fps)

**LOT 2 drainage**

Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
106	39	>75% Grass cover, Good, HSG A
3,418	96	Weighted Average
106		3.10% Pervious Area
3,312		96.90% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.01 cfs @ 13.76 hrs, Volume= 0.006 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
21,588	39	>75% Grass cover, Good, HSG A
21,588		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

**LOT 2 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.38" for 10 year event  
 Inflow = 0.10 cfs @ 12.43 hrs, Volume= 0.018 af  
 Outflow = 0.10 cfs @ 12.43 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10 year event  
 Inflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af  
 Outflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.078 ac, 96.90% Impervious, Inflow Depth = 4.23" for 10 year event  
 Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.028 af  
 Outflow = 0.10 cfs @ 12.42 hrs, Volume= 0.012 af, Atten= 72%, Lag= 20.1 min  
 Primary = 0.10 cfs @ 12.42 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.22' @ 12.42 hrs Surf.Area= 392 sf Storage= 721 cf

Plug-Flow detention time= 292.7 min calculated for 0.012 af (44% of inflow)

Center-of-Mass det. time= 161.5 min ( 925.4 - 763.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.10 cfs @ 12.42 hrs HW=220.22' (Free Discharge)↑**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 1.61 fps)

**LOT 2 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
106	39	>75% Grass cover, Good, HSG A
3,418	96	Weighted Average
106		3.10% Pervious Area
3,312		96.90% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.06 cfs @ 12.39 hrs, Volume= 0.014 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
21,588	39	>75% Grass cover, Good, HSG A
21,588		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

**LOT 2 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.67" for 25 year event  
 Inflow = 0.25 cfs @ 12.28 hrs, Volume= 0.032 af  
 Outflow = 0.25 cfs @ 12.28 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.65" for 25 year event  
 Inflow = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af  
 Outflow = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.078 ac, 96.90% Impervious, Inflow Depth = 5.13" for 25 year event  
 Inflow = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af  
 Outflow = 0.20 cfs @ 12.24 hrs, Volume= 0.018 af, Atten= 52%, Lag= 9.2 min  
 Primary = 0.20 cfs @ 12.24 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.40' @ 12.24 hrs Surf.Area= 392 sf Storage= 756 cf

Plug-Flow detention time= 244.2 min calculated for 0.018 af (54% of inflow)

Center-of-Mass det. time= 128.2 min ( 887.9 - 759.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.20 cfs @ 12.24 hrs HW=220.40' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.20 cfs @ 2.34 fps)

**LOT 2 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.041 af, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
106	39	>75% Grass cover, Good, HSG A
3,418	96	Weighted Average
106		3.10% Pervious Area
3,312		96.90% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.18 cfs @ 12.15 hrs, Volume= 0.029 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
21,588	39	>75% Grass cover, Good, HSG A
21,588		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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



**LOT 2 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 1.15" for 100 year event  
 Inflow = 0.51 cfs @ 12.17 hrs, Volume= 0.055 af  
 Outflow = 0.51 cfs @ 12.17 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 1.14" for 100 year event  
 Inflow = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af  
 Outflow = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.078 ac, 96.90% Impervious, Inflow Depth = 6.32" for 100 year event  
 Inflow = 0.52 cfs @ 12.08 hrs, Volume= 0.041 af  
 Outflow = 0.34 cfs @ 12.17 hrs, Volume= 0.026 af, Atten= 35%, Lag= 5.4 min  
 Primary = 0.34 cfs @ 12.17 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.82' @ 12.17 hrs Surf.Area= 392 sf Storage= 822 cf

Plug-Flow detention time= 211.3 min calculated for 0.026 af (63% of inflow)

Center-of-Mass det. time= 107.6 min ( 863.2 - 755.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.34 cfs @ 12.17 hrs HW=220.81' (Free Discharge)↑ **1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 3.87 fps)

**LOT 3 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
3,312	98	Weighted Average
3,312		100.00% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
21,694	39	>75% Grass cover, Good, HSG A
21,694		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

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Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.10" for 2 year event  
 Inflow = 0.01 cfs @ 14.33 hrs, Volume= 0.005 af  
 Outflow = 0.01 cfs @ 14.33 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2 year event  
 Inflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af  
 Outflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 3.17" for 2 year event  
 Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af  
 Outflow = 0.01 cfs @ 14.33 hrs, Volume= 0.005 af, Atten= 95%, Lag= 135.0 min  
 Primary = 0.01 cfs @ 14.33 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.07' @ 14.33 hrs Surf.Area= 392 sf Storage= 686 cf

Plug-Flow detention time= 528.3 min calculated for 0.005 af (23% of inflow)

Center-of-Mass det. time= 305.9 min ( 1,061.1 - 755.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

Primary OutFlow Max=0.01 cfs @ 14.33 hrs HW=220.07' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.01 cfs @ 0.89 fps)

**LOT 3 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
3,312	98	Weighted Average
3,312		100.00% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.01 cfs @ 13.76 hrs, Volume= 0.006 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
21,694	39	>75% Grass cover, Good, HSG A
21,694		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

**LOT 3 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.39" for 10 year event  
 Inflow = 0.12 cfs @ 12.36 hrs, Volume= 0.019 af  
 Outflow = 0.12 cfs @ 12.36 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10 year event  
 Inflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af  
 Outflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 4.46" for 10 year event  
 Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.028 af  
 Outflow = 0.12 cfs @ 12.36 hrs, Volume= 0.013 af, Atten= 66%, Lag= 16.4 min  
 Primary = 0.12 cfs @ 12.36 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.25' @ 12.36 hrs Surf.Area= 392 sf Storage= 726 cf

Plug-Flow detention time= 302.5 min calculated for 0.013 af (46% of inflow)

Center-of-Mass det. time= 163.5 min ( 912.6 - 749.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.12 cfs @ 12.36 hrs HW=220.25' (Free Discharge)↑**1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.69 fps)

**LOT 3 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
3,312	98	Weighted Average
3,312		100.00% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.06 cfs @ 12.39 hrs, Volume= 0.014 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
21,694	39	>75% Grass cover, Good, HSG A
21,694		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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

**LOT 3 drainage**

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Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 0.68" for 25 year event  
 Inflow = 0.26 cfs @ 12.25 hrs, Volume= 0.033 af  
 Outflow = 0.26 cfs @ 12.25 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 0.65" for 25 year event  
 Inflow = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af  
 Outflow = 0.22 cfs @ 12.14 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 5.36" for 25 year event  
 Inflow = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af  
 Outflow = 0.23 cfs @ 12.21 hrs, Volume= 0.019 af, Atten= 46%, Lag= 7.4 min  
 Primary = 0.23 cfs @ 12.21 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.46' @ 12.21 hrs Surf.Area= 392 sf Storage= 765 cf

Plug-Flow detention time= 254.5 min calculated for 0.019 af (55% of inflow)

Center-of-Mass det. time= 134.2 min ( 880.4 - 746.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

Primary OutFlow Max=0.23 cfs @ 12.21 hrs HW=220.45' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.23 cfs @ 2.58 fps)

**LOT 3 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.042 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,800	98	Paved parking, HSG A
3,312	98	Weighted Average
3,312		100.00% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.18 cfs @ 12.15 hrs, Volume= 0.029 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
21,694	39	>75% Grass cover, Good, HSG A
21,694		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
25,006	45	Woods, Poor, HSG A
25,006		100.00% Pervious Area

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



**LOT 3 drainage**

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Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.574 ac, 13.24% Impervious, Inflow Depth = 1.15" for 100 year event  
 Inflow = 0.52 cfs @ 12.16 hrs, Volume= 0.055 af  
 Outflow = 0.52 cfs @ 12.16 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.574 ac, 0.00% Impervious, Inflow Depth = 1.14" for 100 year event  
 Inflow = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af  
 Outflow = 0.56 cfs @ 12.11 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 6.56" for 100 year event  
 Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.042 af  
 Outflow = 0.35 cfs @ 12.17 hrs, Volume= 0.026 af, Atten= 32%, Lag= 5.0 min  
 Primary = 0.35 cfs @ 12.17 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 220.84' @ 12.17 hrs Surf.Area= 392 sf Storage= 826 cf

Plug-Flow detention time= 221.9 min calculated for 0.026 af (63% of inflow)

Center-of-Mass det. time= 115.1 min ( 858.4 - 743.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	217.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b>
			1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	218.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b>
			Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
			Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
			Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	220.00'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.34 cfs @ 12.17 hrs HW=220.84' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.34 cfs @ 3.95 fps)

**LOT 5 drainage**

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Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.07 cfs @ 12.14 hrs, Volume= 0.010 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
2,713	98	Paved parking, HSG A
2,918	39	>75% Grass cover, Good, HSG A
6,717	39	>75% Grass cover, Good, HSG A
13,860	57	Weighted Average
9,635		69.52% Pervious Area
4,225		30.48% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
12,589	39	>75% Grass cover, Good, HSG A
12,589		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
26,146	45	Woods, Poor, HSG A
26,146		100.00% Pervious Area

**LOT 5 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.607 ac, 15.97% Impervious, Inflow Depth = 0.00" for 2 year event  
 Inflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2 year event  
 Inflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af  
 Outflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.318 ac, 30.48% Impervious, Inflow Depth = 0.38" for 2 year event  
 Inflow = 0.07 cfs @ 12.14 hrs, Volume= 0.010 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 213.16' @ 24.36 hrs Surf.Area= 392 sf Storage= 438 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	211.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	212.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	214.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 5 drainage***Type III 24-hr 2 year Rainfall=3.40"*

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**Page 3****Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=211.50' (Free Discharge)

↑1=Orifice/Grate ( Controls 0.00 cfs)

**LOT 5 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.29 cfs @ 12.11 hrs, Volume= 0.025 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
2,713	98	Paved parking, HSG A
2,918	39	>75% Grass cover, Good, HSG A
6,717	39	>75% Grass cover, Good, HSG A
13,860	57	Weighted Average
9,635		69.52% Pervious Area
4,225		30.48% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.01 cfs @ 13.76 hrs, Volume= 0.003 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
12,589	39	>75% Grass cover, Good, HSG A
12,589		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.08 cfs @ 12.34 hrs, Volume= 0.018 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
26,146	45	Woods, Poor, HSG A
26,146		100.00% Pervious Area

**LOT 5 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.607 ac, 15.97% Impervious, Inflow Depth = 0.22" for 10 year event  
 Inflow = 0.02 cfs @ 16.18 hrs, Volume= 0.011 af  
 Outflow = 0.02 cfs @ 16.18 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10 year event  
 Inflow = 0.08 cfs @ 12.34 hrs, Volume= 0.018 af  
 Outflow = 0.08 cfs @ 12.34 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.318 ac, 30.48% Impervious, Inflow Depth = 0.95" for 10 year event  
 Inflow = 0.29 cfs @ 12.11 hrs, Volume= 0.025 af  
 Outflow = 0.02 cfs @ 16.20 hrs, Volume= 0.007 af, Atten= 94%, Lag= 245.4 min  
 Primary = 0.02 cfs @ 16.20 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 214.57' @ 16.20 hrs Surf.Area= 392 sf Storage= 784 cf

Plug-Flow detention time= 435.5 min calculated for 0.007 af (30% of inflow)

Center-of-Mass det. time= 274.4 min ( 1,165.2 - 890.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	211.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	212.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	214.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 5 drainage**

*Type III 24-hr 10 year Rainfall=4.70"*

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**Primary OutFlow** Max=0.02 cfs @ 16.20 hrs HW=214.57' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.02 cfs @ 0.93 fps)

**LOT 5 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.038 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
2,713	98	Paved parking, HSG A
2,918	39	>75% Grass cover, Good, HSG A
6,717	39	>75% Grass cover, Good, HSG A
13,860	57	Weighted Average
9,635		69.52% Pervious Area
4,225		30.48% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.03 cfs @ 12.39 hrs, Volume= 0.008 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
12,589	39	>75% Grass cover, Good, HSG A
12,589		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
26,146	45	Woods, Poor, HSG A
26,146		100.00% Pervious Area



**LOT 5 drainage**

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Type III 24-hr 25 year Rainfall=5.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, min</b>

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.607 ac, 15.97% Impervious, Inflow Depth = 0.56" for 25 year event  
 Inflow = 0.07 cfs @ 13.16 hrs, Volume= 0.029 af  
 Outflow = 0.07 cfs @ 13.16 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 0.65" for 25 year event  
 Inflow = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af  
 Outflow = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.318 ac, 30.48% Impervious, Inflow Depth = 1.44" for 25 year event  
 Inflow = 0.48 cfs @ 12.10 hrs, Volume= 0.038 af  
 Outflow = 0.06 cfs @ 13.16 hrs, Volume= 0.020 af, Atten= 88%, Lag= 63.7 min  
 Primary = 0.06 cfs @ 13.16 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 214.64' @ 13.16 hrs Surf.Area= 392 sf Storage= 794 cf

Plug-Flow detention time= 266.4 min calculated for 0.020 af (54% of inflow)

Center-of-Mass det. time= 132.5 min ( 1,008.7 - 876.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	211.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	212.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	<b>Total Available Storage</b>

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	214.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

## LOT 5 drainage

Type III 24-hr 25 year Rainfall=5.60"

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Primary OutFlow Max=0.06 cfs @ 13.16 hrs HW=214.64' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.06 cfs @ 1.28 fps)

**LOT 5 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.77 cfs @ 12.10 hrs, Volume= 0.058 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
2,713	98	Paved parking, HSG A
2,918	39	>75% Grass cover, Good, HSG A
6,717	39	>75% Grass cover, Good, HSG A
13,860	57	Weighted Average
9,635		69.52% Pervious Area
4,225		30.48% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.10 cfs @ 12.15 hrs, Volume= 0.017 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
12,589	39	>75% Grass cover, Good, HSG A
12,589		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.59 cfs @ 12.11 hrs, Volume= 0.057 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
26,146	45	Woods, Poor, HSG A
26,146		100.00% Pervious Area

**LOT 5 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.607 ac, 15.97% Impervious, Inflow Depth = 1.13" for 100 year event  
 Inflow = 0.44 cfs @ 12.35 hrs, Volume= 0.057 af  
 Outflow = 0.44 cfs @ 12.35 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 1.14" for 100 year event  
 Inflow = 0.59 cfs @ 12.11 hrs, Volume= 0.057 af  
 Outflow = 0.59 cfs @ 12.11 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.318 ac, 30.48% Impervious, Inflow Depth = 2.18" for 100 year event  
 Inflow = 0.77 cfs @ 12.10 hrs, Volume= 0.058 af  
 Outflow = 0.35 cfs @ 12.35 hrs, Volume= 0.040 af, Atten= 55%, Lag= 15.2 min  
 Primary = 0.35 cfs @ 12.35 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 214.89' @ 12.35 hrs Surf.Area= 392 sf Storage= 833 cf

Plug-Flow detention time= 175.6 min calculated for 0.040 af (69% of inflow)

Center-of-Mass det. time= 69.8 min ( 932.5 - 862.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	211.50'	354 cf	<b>16.00'W x 24.50'L x 3.54'H Field A</b> 1,388 cf Overall - 503 cf Embedded = 885 cf x 40.0% Voids
#2A	212.00'	503 cf	<b>Cultec R-330XLHD x 9 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		857 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	214.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 5 drainage**

*Type III 24-hr 100 year Rainfall=6.80"*

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**Primary OutFlow** Max=0.35 cfs @ 12.35 hrs HW=214.89' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.35 cfs @ 2.12 fps)

**LOT 6 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.009 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,876	98	Paved parking, HSG A
2,615	39	>75% Grass cover, Good, HSG A
2,942	39	>75% Grass cover, Good, HSG A
8,945	61	Weighted Average
5,557		62.12% Pervious Area
3,388		37.88% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
19,568	39	>75% Grass cover, Good, HSG A
19,568		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
25,898	45	Woods, Poor, HSG A
25,898		100.00% Pervious Area

**LOT 6 drainage**

Type III 24-hr 2 year Rainfall=3.40"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.655 ac, 11.88% Impervious, Inflow Depth = 0.00" for 2 year event  
 Inflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 23.44 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.595 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2 year event  
 Inflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af  
 Outflow = 0.01 cfs @ 14.92 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.205 ac, 37.88% Impervious, Inflow Depth = 0.53" for 2 year event  
 Inflow = 0.09 cfs @ 12.12 hrs, Volume= 0.009 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 210.58' @ 24.36 hrs Surf.Area= 280 sf Storage= 394 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	208.50'	258 cf	<b>16.00'W x 17.50'L x 3.54'H Field A</b> 992 cf Overall - 346 cf Embedded = 645 cf x 40.0% Voids
#2A	209.00'	346 cf	<b>Cultec R-330XLHD x 6 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	211.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 6 drainage**

*Type III 24-hr 2 year Rainfall=3.40"*

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**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=208.50' (Free Discharge)

↑1=Orifice/Grate ( Controls 0.00 cfs)



**LOT 6 drainage**

Type III 24-hr 10 year Rainfall=4.70"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.020 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,876	98	Paved parking, HSG A
2,615	39	>75% Grass cover, Good, HSG A
2,942	39	>75% Grass cover, Good, HSG A
8,945	61	Weighted Average
5,557		62.12% Pervious Area
3,388		37.88% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.01 cfs @ 13.76 hrs, Volume= 0.005 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
19,568	39	>75% Grass cover, Good, HSG A
19,568		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
25,898	45	Woods, Poor, HSG A
25,898		100.00% Pervious Area

**LOT 6 drainage**

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Type III 24-hr 10 year Rainfall=4.70"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.655 ac, 11.88% Impervious, Inflow Depth = 0.27" for 10 year event  
 Inflow = 0.03 cfs @ 13.81 hrs, Volume= 0.015 af  
 Outflow = 0.03 cfs @ 13.81 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.595 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10 year event  
 Inflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af  
 Outflow = 0.08 cfs @ 12.34 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.205 ac, 37.88% Impervious, Inflow Depth = 1.19" for 10 year event  
 Inflow = 0.25 cfs @ 12.10 hrs, Volume= 0.020 af  
 Outflow = 0.03 cfs @ 13.81 hrs, Volume= 0.010 af, Atten= 90%, Lag= 102.6 min  
 Primary = 0.03 cfs @ 13.81 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 211.09' @ 13.81 hrs Surf.Area= 280 sf Storage= 487 cf

Plug-Flow detention time= 308.5 min calculated for 0.010 af (47% of inflow)

Center-of-Mass det. time= 167.5 min ( 1,044.4 - 876.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	208.50'	258 cf	<b>16.00'W x 17.50'L x 3.54'H Field A</b> 992 cf Overall - 346 cf Embedded = 645 cf x 40.0% Voids
#2A	209.00'	346 cf	<b>Cultec R-330XLHD x 6 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	211.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 6 drainage***Type III 24-hr 10 year Rainfall=4.70"*

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**Primary OutFlow** Max=0.03 cfs @ 13.81 hrs HW=211.09' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.03 cfs @ 1.03 fps)

**LOT 6 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.39 cfs @ 12.10 hrs, Volume= 0.030 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,876	98	Paved parking, HSG A
2,615	39	>75% Grass cover, Good, HSG A
2,942	39	>75% Grass cover, Good, HSG A
8,945	61	Weighted Average
5,557		62.12% Pervious Area
3,388		37.88% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.05 cfs @ 12.39 hrs, Volume= 0.013 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
19,568	39	>75% Grass cover, Good, HSG A
19,568		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
25,898	45	Woods, Poor, HSG A
25,898		100.00% Pervious Area

**LOT 6 drainage**

Type III 24-hr 25 year Rainfall=5.60"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.655 ac, 11.88% Impervious, Inflow Depth = 0.58" for 25 year event  
 Inflow = 0.17 cfs @ 12.47 hrs, Volume= 0.032 af  
 Outflow = 0.17 cfs @ 12.47 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.595 ac, 0.00% Impervious, Inflow Depth = 0.65" for 25 year event  
 Inflow = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af  
 Outflow = 0.23 cfs @ 12.14 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.205 ac, 37.88% Impervious, Inflow Depth = 1.74" for 25 year event  
 Inflow = 0.39 cfs @ 12.10 hrs, Volume= 0.030 af  
 Outflow = 0.12 cfs @ 12.48 hrs, Volume= 0.019 af, Atten= 69%, Lag= 23.1 min  
 Primary = 0.12 cfs @ 12.48 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 211.21' @ 12.48 hrs Surf.Area= 280 sf Storage= 506 cf

Plug-Flow detention time= 206.5 min calculated for 0.019 af (64% of inflow)

Center-of-Mass det. time= 91.0 min ( 955.5 - 864.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	208.50'	258 cf	<b>16.00'W x 17.50'L x 3.54'H Field A</b> 992 cf Overall - 346 cf Embedded = 645 cf x 40.0% Voids
#2A	209.00'	346 cf	<b>Cultec R-330XLHD x 6 Inside #1</b> Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	211.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600

**LOT 6 drainage**

*Type III 24-hr 25 year Rainfall=5.60"*

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**Primary OutFlow** Max=0.12 cfs @ 12.48 hrs HW=211.21' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.12 cfs @ 1.56 fps)

**LOT 6 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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**Summary for Subcatchment 1S: impervious**

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
1,512	98	Roofs, HSG A
1,876	98	Paved parking, HSG A
2,615	39	>75% Grass cover, Good, HSG A
2,942	39	>75% Grass cover, Good, HSG A
8,945	61	Weighted Average
5,557		62.12% Pervious Area
3,388		37.88% Impervious Area

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

**Summary for Subcatchment 2S: pervious**

Runoff = 0.16 cfs @ 12.15 hrs, Volume= 0.026 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
19,568	39	>75% Grass cover, Good, HSG A
19,568		100.00% Pervious Area

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

**Summary for Subcatchment 5S: Pervious Wooded Area**

Runoff = 0.58 cfs @ 12.11 hrs, Volume= 0.057 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs  
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
25,898	45	Woods, Poor, HSG A
25,898		100.00% Pervious Area

**LOT 6 drainage**

Type III 24-hr 100 year Rainfall=6.80"

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

**Summary for Reach 3R: (new Reach)**

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

Inflow Area = 0.655 ac, 11.88% Impervious, Inflow Depth = 1.08" for 100 year event  
 Inflow = 0.53 cfs @ 12.21 hrs, Volume= 0.059 af  
 Outflow = 0.53 cfs @ 12.21 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Reach 7R: (new Reach)**

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

Inflow Area = 0.595 ac, 0.00% Impervious, Inflow Depth = 1.14" for 100 year event  
 Inflow = 0.58 cfs @ 12.11 hrs, Volume= 0.057 af  
 Outflow = 0.58 cfs @ 12.11 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs

**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.205 ac, 37.88% Impervious, Inflow Depth = 2.56" for 100 year event  
 Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.044 af  
 Outflow = 0.38 cfs @ 12.21 hrs, Volume= 0.033 af, Atten= 37%, Lag= 6.7 min  
 Primary = 0.38 cfs @ 12.21 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.02 hrs / 3

Peak Elev= 211.41' @ 12.21 hrs Surf.Area= 280 sf Storage= 533 cf

Plug-Flow detention time= 145.8 min calculated for 0.033 af (75% of inflow)

Center-of-Mass det. time= 53.9 min ( 906.7 - 852.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	208.50'	258 cf	16.00'W x 17.50'L x 3.54'H Field A 992 cf Overall - 346 cf Embedded = 645 cf x 40.0% Voids
#2A	209.00'	346 cf	Cultec R-330XLHD x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		605 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	211.00'	6.0" Vert. Orifice/Grate C= 0.600



**LOT 6 drainage***Type III 24-hr 100 year Rainfall=6.80"*

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**Primary OutFlow** Max=0.37 cfs @ 12.21 hrs HW=211.41' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 0.37 cfs @ 2.17 fps)