BEALS+THOMAS
CIVIL ENGINEERS | LANDSCAPE ARCHITECTS |
LAND SURVEYORS | PLANNERS | ENVIRONMENTAL SPECIALISTS

October 19, 2020

Mr. George Barrett, Chair
Wareham Planning Board
c/o Mr. Kenneth Buckland, Town Planner
54 Marion Road
Wareham, Massachusetts 02571

Ms. Sandra Slavin, Chair
c/o David Pichette, Conservation Administrator
Wareham Conservation Commission
Memorial Town Hall
54 Marion Road
Wareham, Massachusetts 02571

Via: Hand Delivery to Planning Board, FedEx to Conservation Commission, and Email to *sraposo@wareham.ma.us*, *kbuckland@wareham.ma.us*, and *dpichette@wareham.ma.us*

Reference: Response to Supplemental Peer Review Comments
27 Charge Pond Road PV+ES Project
Wareham, Massachusetts
B+T Project No. 1833.109

Dear Planning Board and Conservation Commission Members:

On behalf of the Applicant, Borrego Solar Systems, Inc. (BSSI), Beals and Thomas, Inc. (B+T) respectfully submits the enclosed revised plans and post-development hydrology calculations in response to feedback received from the Town and peer reviewer regarding the above-referenced solar project. Nine hard copies are being provided to the Planning Board, and two copies to the Conservation Commission, in addition to electronic copies via email.

As discussed with the Planning Board at its last hearing for the Project on September 28, 2020, we have coordinated with Mr. Rowley and believe that we have addressed the outstanding issues. Namely, the plans have been revised as follows:

- The interconnection design has been updated from pole-mounted to pad-mounted equipment and appropriate screening has been added to the deisgn.
- Black vinyl slats are proposed to be installed in the fence and gates along the southern property boundary to provide additional visual screening.
- Tree clearing and grading in the "Y" of the entrance drive has been eliminated.

- Infiltration Basin 8, located adjacent to the access drive, has been eliminated. The Applicant instead proposes to mitigate stormwater runoff by using the existing upland depression located to the southwest of the site entrance for infiltration. The elimination of Infiltration Basin 8 further allows for a reduced limit of clearing, improving the screening of the Project from Charge Pond Road.
- The grading of the access road has been adjusted, and a modified trap-rock roadway section is proposed beyond the paved apron, in order to maintain the natural hydrology of the area.

Furthermore, the Applicant notes the following information related to noise generated by the Project as requested by the Planning Board. Generally, sound levels are in the <79 decibel range for inverters and up to 76 decibels for some of the energy storage equipment; however, sound levels reduce to ambient within 100 feet. The Applicant has confirmed that the electrical equipment area closest to the property line is located approximately ±118 linear feet away. Therefore, it is anticipated that noise levels will not increase at the property line.

We trust that the information provided herein satisfies the comments on the Project, and look forward to meeting with the Planning Board at the continued hearing on October 19, 2020 and with the Conservation Commission at the continued hearing on October 21, 2020. Please do not hesitate to contact us should you have any questions in the interim.

Very truly yours,

BEALS AND THOMAS, INC.

Stacy H. Minihane

Stacy H. Minihane, PWS
Senior Associate

Attachments: Revised Plans dated October 16, 2020 in 15 sheets
Updated post-development hydrology calculations, dated October 15, 2020

cc: Wareham Fire Department (via Certified Mail)
MassDEP Southeast Regional Office (via Certified Mail)
Borrego Solar Systems, Inc. (via Box upload)
A.D. Makepeace Company, James Kane (1 copy via US Mail and email)
Charles L. Rowley PE, PLS (via email and hard copy via Planning Office, reduced size plans)

MKS/shm/aak/1833109LT005

B E A L S + T H O M A S
BEALS AND THOMAS, INC.
Reservoir Corporate Center
144 Turnpike Road
Southborough, MA 01772-2104

CALCULATION SUMMARY

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www.bealsandthomas.com
Regional Office: Plymouth, MA

JOB NO./LOCATION:

1833.109
Wareham, MA

CLIENT/PROJECT:

Borrego Solar Systems, Inc.
27 Charge Pond Road PV+ES Project

SUBJECT/TITLE:

Post Development Hydrologic Calculations

OBJECTIVE OF CALCULATION:

- To determine the post-development peak rates of runoff from the site for the 2, 10, & 100-year storm events at design points DP-1 through 7.

CALCULATION METHOD(S):

- Runoff curve numbers (CN), time-of-concentration (Tc), and runoff rates were calculated based on TR-55 methodology.
- Autodesk Civil 3D 2019 computer program was utilized for digitizing ground cover areas.
- Peak runoff rates were computed using HydroCAD version 10.00.

ASSUMPTIONS:

- The ground cover types were determined using MassGIS aerial imagery and hydrologic soil groups based on United States Department of Agriculture, NRCS Soil Survey map information.
- Watershed boundaries have been estimated based upon a combination of existing contour information depicted on the Existing Conditions Plan as well as MassGIS contours in offsite areas outside limits of those shown on the existing conditions plan, and those shown on the grading and erosion control plans.
- Wetland systems that were included in the hydrologic analysis were modeled as Woods, Good.
- Proposed solar panel area were modeled as Grass, Good.

SOURCES OF DATA/EQUATIONS:

- Post-Development Conditions Hydrologic Areas Map prepared by Beals and Thomas, Inc. File No. 1833109P600C-002.
- NRCS Soil Survey for Plymouth County, hydrologic soil group report, downloaded from Web Soil Survey on 4/15/2020, and 5/21/2020.
- TR-55 urban Hydrology for Small Watersheds, SCS, 1986.
- Massachusetts DEP Stormwater Management Handbook, February 2008

REV	CALC. BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
0	N. Bautz	05/22/2020	J. Murphy	05/22/2020	J. Murphy	05/22/2020
1	E. Ennis	09/15/2020	J. Murphy	09/15/2020	J. Murphy	09/15/2020
2	N. Bautz	10/15/2020	J. Murphy	10/15/2020	J. Murphy	10/15/2020

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CONCLUSIONS:

Storm Event	2-Year	10-Year	100-Year
DP-1 (cfs)	0.00	0.41	5.98
DP-2 (cfs)	0.00	0.00	0.04
DP-3 (cfs)	0.00	0.00	0.08
DP-4 (cfs)	0.00	0.00	0.11
DP-5 (cfs)	0.00	0.00	0.06
DP-6 (cfs)	0.00	0.00	0.33
DP-7 (cfs)	0.00	0.00	0.06

- Post-development peak runoff rates are less than or equal to pre-development rates in accordance with the Mass DEP Stormwater Handbook.

REV	CALC. BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
0	N. Bautz	05/22/2020	J. Murphy	05/22/2020	J. Murphy	05/22/2020
1	E. Ennis	09/15/2020	J. Murphy	09/15/2020	J. Murphy	09/15/2020
2	N. Bautz	10/15/2020	J. Murphy	10/15/2020	J. Murphy	10/15/2020

Post-Development Conditions Hydrologic Areas Map

Figure Number 002

~~Scale: 1" = 150'~~

Date: 10/15/2020

Plan 1833109P600C-002

B+T Project No. 1833.109

27 Charge Pond Road
PV+ES Project
Wareham, Massachusetts

Borrego Solar Systems, Inc.
55 Technology Drive, Suite 102
Lowell, Massachusetts

North Arrow

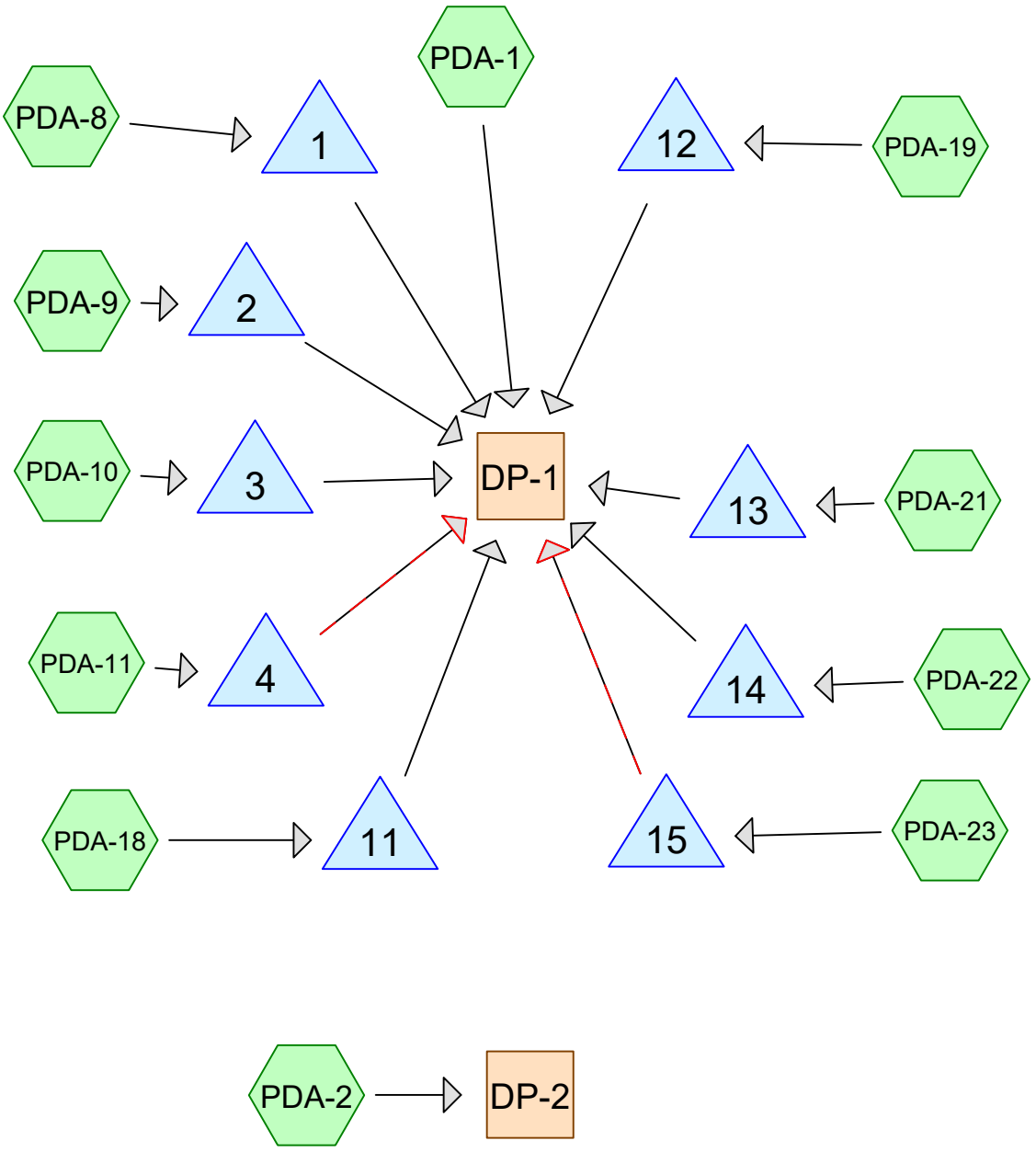
NORTH

DRAINAGE AREA

Tc PATH

BEALS AND THOMAS, INC.

Post-Development
Conditions Hydrology



Subcat Reach Pond Link

Routing Diagram for 1833109HC002B
Prepared by Beals and Thomas, Inc., Printed 10/9/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
20.929	39	>75% Grass cover, Good, HSG A (PDA-1, PDA-10, PDA-11, PDA-18, PDA-19, PDA-2, PDA-21, PDA-22, PDA-23, PDA-8, PDA-9)
4.934	61	>75% Grass cover, Good, HSG B (PDA-1, PDA-10, PDA-11, PDA-9)
0.182	80	>75% Grass cover, Good, HSG D (PDA-1, PDA-11)
3.475	30	Brush, Good, HSG A (PDA-1, PDA-10, PDA-11, PDA-18, PDA-2)
0.433	48	Brush, Good, HSG B (PDA-1, PDA-10, PDA-11)
0.039	65	Brush, Good, HSG C (PDA-1)
0.069	98	Equipment Pad Areas, HSG A (PDA-11, PDA-21)
0.407	96	Existing Gravel surface, HSG B (PDA-1, PDA-10, PDA-11)
2.549	96	Gravel surface, HSG A (PDA-1, PDA-10, PDA-11, PDA-18, PDA-19, PDA-21, PDA-22, PDA-23, PDA-8, PDA-9)
0.236	96	Gravel surface, HSG B (PDA-10, PDA-11, PDA-9)
0.056	96	Gravel surface, HSG D (PDA-11)
0.049	98	Roofs, HSG B (PDA-11)
11.171	30	Woods, Good, HSG A (PDA-1, PDA-11, PDA-2)
1.056	55	Woods, Good, HSG B (PDA-1, PDA-10, PDA-11)
0.721	77	Woods, Good, HSG D (PDA-1)
46.306	**44**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-1: Runoff Area=15.554 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=147' Tc=18.6 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-10: Runoff Area=0.815 ac 0.00% Impervious Runoff Depth=0.25"
Flow Length=244' Tc=8.7 min CN=53 Runoff=0.08 cfs 0.017 af

Subcatchment PDA-11: Runoff Area=10.137 ac 0.80% Impervious Runoff Depth=0.38"
Flow Length=819' Tc=30.1 min CN=57 Runoff=1.51 cfs 0.320 af

Subcatchment PDA-18: Runoff Area=2.111 ac 0.00% Impervious Runoff Depth=0.11"
Flow Length=476' Tc=10.2 min CN=47 Runoff=0.03 cfs 0.019 af

Subcatchment PDA-19: Runoff Area=1.721 ac 0.00% Impervious Runoff Depth=0.09"
Flow Length=281' Tc=8.1 min CN=46 Runoff=0.02 cfs 0.012 af

Subcatchment PDA-2: Runoff Area=1.351 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=153' Tc=6.2 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-21: Runoff Area=7.713 ac 0.48% Impervious Runoff Depth=0.03"
Flow Length=846' Tc=18.3 min CN=42 Runoff=0.03 cfs 0.018 af

Subcatchment PDA-22: Runoff Area=2.070 ac 0.00% Impervious Runoff Depth=0.07"
Flow Length=178' Tc=7.9 min CN=45 Runoff=0.02 cfs 0.012 af

Subcatchment PDA-23: Runoff Area=1.817 ac 0.00% Impervious Runoff Depth=0.13"
Flow Length=568' Tc=9.8 min CN=48 Runoff=0.03 cfs 0.019 af

Subcatchment PDA-8: Runoff Area=0.788 ac 0.00% Impervious Runoff Depth=0.07"
Flow Length=278' Tc=7.4 min CN=45 Runoff=0.01 cfs 0.005 af

Subcatchment PDA-9: Runoff Area=2.229 ac 0.00% Impervious Runoff Depth=0.13"
Flow Length=343' Tc=10.3 min CN=48 Runoff=0.04 cfs 0.023 af

Reach DP-1: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-2: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1: Peak Elev=21.00' Storage=3 cf Inflow=0.01 cfs 0.005 af
Discarded=0.01 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 2: Peak Elev=23.00' Storage=14 cf Inflow=0.04 cfs 0.023 af
Discarded=0.04 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.023 af

Pond 3: Peak Elev=29.02' Storage=26 cf Inflow=0.08 cfs 0.017 af
Discarded=0.07 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.017 af

Pond 4: Peak Elev=21.76' Storage=4,040 cf Inflow=1.51 cfs 0.320 af
Discarded=0.37 cfs 0.320 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.320 af

Pond 11: Peak Elev=27.01' Storage=16 cf Inflow=0.03 cfs 0.019 af
Discarded=0.03 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.019 af

Pond 12: Peak Elev=26.01' Storage=10 cf Inflow=0.02 cfs 0.012 af
Discarded=0.02 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.012 af

Pond 13: Peak Elev=20.51' Storage=16 cf Inflow=0.03 cfs 0.018 af
Discarded=0.03 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.018 af

Pond 14: Peak Elev=21.51' Storage=8 cf Inflow=0.02 cfs 0.012 af
Discarded=0.02 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.012 af

Pond 15: Peak Elev=21.08' Storage=39 cf Inflow=0.03 cfs 0.019 af
Discarded=0.03 cfs 0.019 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.019 af

Total Runoff Area = 46.306 ac Runoff Volume = 0.445 af Average Runoff Depth = 0.12"
99.75% Pervious = 46.188 ac 0.25% Impervious = 0.118 ac

Summary for Subcatchment PDA-1:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	10.235	30	Woods, Good, HSG A
	0.411	55	Woods, Good, HSG B
	0.721	77	Woods, Good, HSG D
	2.976	30	Brush, Good, HSG A
	0.055	48	Brush, Good, HSG B
	0.039	65	Brush, Good, HSG C
	0.883	39	>75% Grass cover, Good, HSG A
	0.005	61	>75% Grass cover, Good, HSG B
	0.034	80	>75% Grass cover, Good, HSG D
*	0.093	96	Existing Gravel surface, HSG B
	0.102	96	Gravel surface, HSG A
	15.554	34	Weighted Average
	15.554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0100	0.05		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	97	0.0130	0.57		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
18.6	147	Total			

Summary for Subcatchment PDA-10:

Runoff = 0.08 cfs @ 12.39 hrs, Volume= 0.017 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	0.001	55	Woods, Good, HSG B
	0.012	30	Brush, Good, HSG A
	0.049	48	Brush, Good, HSG B
	0.465	39	>75% Grass cover, Good, HSG A
	0.145	61	>75% Grass cover, Good, HSG B
	0.088	96	Gravel surface, HSG A
	0.035	96	Gravel surface, HSG B
*	0.020	96	Existing Gravel surface, HSG B
	0.815	53	Weighted Average
	0.815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.0	68	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.5	126	0.0870	4.42		**Shallow Concentrated Flow, Tc-3** Grassed Waterway Kv= 15.0 fps
8.7	244	Total			

Summary for Subcatchment PDA-11:

Runoff = 1.51 cfs @ 12.61 hrs, Volume= 0.320 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	0.096	30	Woods, Good, HSG A
	0.644	55	Woods, Good, HSG B
	0.025	30	Brush, Good, HSG A
	0.329	48	Brush, Good, HSG B
	3.221	39	>75% Grass cover, Good, HSG A
	4.421	61	>75% Grass cover, Good, HSG B
	0.148	80	>75% Grass cover, Good, HSG D
	0.645	96	Gravel surface, HSG A
	0.177	96	Gravel surface, HSG B
	0.056	96	Gravel surface, HSG D
*	0.294	96	Existing Gravel surface, HSG B
	0.049	98	Roofs, HSG B
*	0.032	98	Equipment Pad Areas, HSG A
	10.137	57	Weighted Average
	10.056		99.20% Pervious Area
	0.081		0.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0050	0.09		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
13.3	394	0.0050	0.49		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.8	58	0.0520	1.14		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
1.2	70	0.0180	0.94		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	23	0.0050	1.14		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
4.5	134	0.0050	0.49		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow, Tc-7** Short Grass Pasture Kv= 7.0 fps
0.1	20	0.0500	3.60		**Shallow Concentrated Flow, Tc-8** Unpaved Kv= 16.1 fps
0.1	13	0.3100	3.90		**Shallow Concentrated Flow, Tc-9** Short Grass Pasture Kv= 7.0 fps
30.1	819	Total			

Summary for Subcatchment PDA-18:

Runoff = 0.03 cfs @ 13.81 hrs, Volume= 0.019 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.019	30	Brush, Good, HSG A
1.799	39	>75% Grass cover, Good, HSG A
0.293	96	Gravel surface, HSG A
2.111	47	Weighted Average
2.111		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
3.7	267	0.0300	1.21		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	35	0.0290	2.74		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	17	0.1180	2.40		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.7	107	0.0280	2.51		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
10.2	476	Total			

Summary for Subcatchment PDA-19:

Runoff = 0.02 cfs @ 14.70 hrs, Volume= 0.012 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.520	39	>75% Grass cover, Good, HSG A
0.201	96	Gravel surface, HSG A
1.721	46	Weighted Average
1.721		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.4	89	0.0220	1.04		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.9	86	0.0580	1.69		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.2	34	0.0290	2.74		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.1	22	0.1360	2.58		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
8.1	281	Total			

Summary for Subcatchment PDA-2:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.840	30	Woods, Good, HSG A
0.068	39	>75% Grass cover, Good, HSG A
0.443	30	Brush, Good, HSG A
1.351	30	Weighted Average
1.351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.6	53	0.0400	1.40		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.0	50	0.0300	0.87		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
6.2	153	Total			

Summary for Subcatchment PDA-21:

Runoff = 0.03 cfs @ 17.09 hrs, Volume= 0.018 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
7.254	39	>75% Grass cover, Good, HSG A
0.422	96	Gravel surface, HSG A
0.037	98	Equipment Pad Areas, HSG A
7.713	42	Weighted Average
7.676		99.52% Pervious Area
0.037		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
12.6	691	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.1	105	0.0490	1.55		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
18.3	846	Total			

Summary for Subcatchment PDA-22:

Runoff = 0.02 cfs @ 14.95 hrs, Volume= 0.012 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.840	39	>75% Grass cover, Good, HSG A
0.230	96	Gravel surface, HSG A
2.070	45	Weighted Average
2.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.4	128	0.0160	0.89		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
7.9	178	Total			

Summary for Subcatchment PDA-23:

Runoff = 0.03 cfs @ 12.57 hrs, Volume= 0.019 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.529	39	>75% Grass cover, Good, HSG A
0.288	96	Gravel surface, HSG A
1.817	48	Weighted Average
1.817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.8	82	0.0120	0.77		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.0400	3.22		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	10	0.2000	3.13		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
2.3	401	0.0390	2.96		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
9.8	568	Total			

Summary for Subcatchment PDA-8:

Runoff = 0.01 cfs @ 14.94 hrs, Volume= 0.005 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.707	39	>75% Grass cover, Good, HSG A
0.081	96	Gravel surface, HSG A
0.788	45	Weighted Average
0.788		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.6	150	0.0530	1.61		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.1560	5.92		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
7.4	278	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.04 cfs @ 12.57 hrs, Volume= 0.023 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.643	39	>75% Grass cover, Good, HSG A
0.363	61	>75% Grass cover, Good, HSG B
0.199	96	Gravel surface, HSG A
0.024	96	Gravel surface, HSG B
2.229	48	Weighted Average
2.229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	159	0.0280	1.17		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0360	3.05		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.2	24	0.1250	2.47		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
0.3	49	0.0410	3.04		**Shallow Concentrated Flow, Tc-6** Grassed Waterway Kv= 15.0 fps
10.3	343	Total			

Summary for Reach DP-1:

Inflow Area = 44.955 ac, 0.26% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2:

Inflow Area = 1.351 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1:

Inflow Area = 0.788 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2-Year event
Inflow = 0.01 cfs @ 14.94 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af, Atten= 0%, Lag= 6.1 min
Discarded = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.00' @ 15.04 hrs Surf.Area= 1,226 sf Storage= 3 cf

Plug-Flow detention time= 6.1 min calculated for 0.005 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (1,078.2 - 1,072.2)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	3,477 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,225	0	0
22.00	1,715	1,470	1,470
23.00	2,299	2,007	3,477

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	22.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.07 cfs @ 15.04 hrs HW=21.00' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2:

Inflow Area = 2.229 ac, 0.00% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.04 cfs @ 12.57 hrs, Volume= 0.023 af
Outflow = 0.04 cfs @ 13.75 hrs, Volume= 0.023 af, Atten= 2%, Lag= 70.6 min
Discarded = 0.04 cfs @ 13.75 hrs, Volume= 0.023 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.00' @ 13.75 hrs Surf.Area= 6,718 sf Storage= 14 cf

Plug-Flow detention time= 6.1 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (1,026.9 - 1,021.0)

Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	16,958 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	6,714	0	0
24.00	8,416	7,565	7,565
25.00	10,370	9,393	16,958

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.37 cfs @ 13.75 hrs HW=23.00' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=23.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3:

Inflow Area = 0.815 ac, 0.00% Impervious, Inflow Depth = 0.25" for 2-Year event
Inflow = 0.08 cfs @ 12.39 hrs, Volume= 0.017 af
Outflow = 0.07 cfs @ 12.49 hrs, Volume= 0.017 af, Atten= 9%, Lag= 5.8 min
Discarded = 0.07 cfs @ 12.49 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 29.02' @ 12.49 hrs Surf.Area= 1,537 sf Storage= 26 cf

Plug-Flow detention time= 5.9 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (968.1 - 962.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	4,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	1,522	0	0
30.00	2,397	1,960	1,960
31.00	3,356	2,877	4,836

Device	Routing	Invert	Outlet Devices
#1	Discarded	29.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	30.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.09 cfs @ 12.49 hrs HW=29.02' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=29.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 4:

Inflow Area = 10.137 ac, 0.80% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 1.51 cfs @ 12.61 hrs, Volume= 0.320 af
Outflow = 0.37 cfs @ 15.46 hrs, Volume= 0.320 af, Atten= 75%, Lag= 171.3 min
Discarded = 0.37 cfs @ 15.46 hrs, Volume= 0.320 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.76' @ 15.46 hrs Surf.Area= 6,715 sf Storage= 4,040 cf

Plug-Flow detention time= 126.2 min calculated for 0.320 af (100% of inflow)
Center-of-Mass det. time= 126.0 min (1,078.0 - 952.0)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	45,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	3,942	0	0
22.00	7,600	5,771	5,771
23.00	11,389	9,495	15,266
24.00	15,291	13,340	28,606
25.00	19,318	17,305	45,910

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3 Primary 22.50' **12.0" Round Culvert**
L= 25.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.37 cfs @ 15.46 hrs HW=21.76' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
3=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 11:

Inflow Area = 2.111 ac, 0.00% Impervious, Inflow Depth = 0.11" for 2-Year event
Inflow = 0.03 cfs @ 13.81 hrs, Volume= 0.019 af
Outflow = 0.03 cfs @ 13.96 hrs, Volume= 0.019 af, Atten= 1%, Lag= 9.1 min
Discarded = 0.03 cfs @ 13.96 hrs, Volume= 0.019 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 27.01' @ 13.96 hrs Surf.Area= 2,416 sf Storage= 16 cf

Plug-Flow detention time= 8.9 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 8.9 min (1,045.6 - 1,036.7)

Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	11,612 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	2,410	0	0
28.00	3,246	2,828	2,828
29.00	4,312	3,779	6,607
30.00	5,698	5,005	11,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	29.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.13 cfs @ 13.96 hrs HW=27.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12:

Inflow Area = 1.721 ac, 0.00% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.02 cfs @ 14.70 hrs, Volume= 0.012 af
Outflow = 0.02 cfs @ 14.84 hrs, Volume= 0.012 af, Atten= 0%, Lag= 8.4 min
Discarded = 0.02 cfs @ 14.84 hrs, Volume= 0.012 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 26.01' @ 14.84 hrs Surf.Area= 1,074 sf Storage= 10 cf

Plug-Flow detention time= 9.1 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 8.8 min (1,061.4 - 1,052.6)

Volume	Invert	Avail.Storage	Storage Description
#1	26.00'	8,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
26.00	1,064	0	0
27.00	2,045	1,555	1,555
28.00	3,224	2,635	4,189
29.00	4,674	3,949	8,138

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	28.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.06 cfs @ 14.84 hrs HW=26.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=26.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 13:

Inflow Area = 7.713 ac, 0.48% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.03 cfs @ 17.09 hrs, Volume= 0.018 af
Outflow = 0.03 cfs @ 17.27 hrs, Volume= 0.018 af, Atten= 0%, Lag= 10.6 min
Discarded = 0.03 cfs @ 17.27 hrs, Volume= 0.018 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 20.51' @ 17.27 hrs Surf.Area= 2,893 sf Storage= 16 cf

Plug-Flow detention time= 10.4 min calculated for 0.018 af (100% of inflow)
Center-of-Mass det. time= 10.4 min (1,174.6 - 1,164.2)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	16,267 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	2,888	0	0
21.00	3,361	1,562	1,562
22.00	4,309	3,835	5,397
23.00	5,422	4,866	10,263
24.00	6,586	6,004	16,267

Device	Routing	Invert	Outlet Devices
#1	Discarded	20.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.16 cfs @ 17.27 hrs HW=20.51' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=20.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14:

Inflow Area = 2.070 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2-Year event
Inflow = 0.02 cfs @ 14.95 hrs, Volume= 0.012 af
Outflow = 0.02 cfs @ 15.07 hrs, Volume= 0.012 af, Atten= 0%, Lag= 7.4 min
Discarded = 0.02 cfs @ 15.07 hrs, Volume= 0.012 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.51' @ 15.07 hrs Surf.Area= 969 sf Storage= 8 cf

Plug-Flow detention time= 7.4 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 7.4 min (1,080.1 - 1,072.7)

Volume	Invert	Avail.Storage	Storage Description
#1	21.50'	5,673 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.50	960	0	0
22.00	1,467	607	607
23.00	2,519	1,993	2,600
24.00	3,628	3,074	5,673

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.05 cfs @ 15.07 hrs HW=21.51' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 15:

Inflow Area = 1.817 ac, 0.00% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.03 cfs @ 12.57 hrs, Volume= 0.019 af
Outflow = 0.03 cfs @ 15.06 hrs, Volume= 0.019 af, Atten= 13%, Lag= 150.0 min
Discarded = 0.03 cfs @ 15.06 hrs, Volume= 0.019 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.08' @ 15.06 hrs Surf.Area= 523 sf Storage= 39 cf

Plug-Flow detention time= 13.2 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 13.2 min (1,033.7 - 1,020.5)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,009 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	470	0	0
22.00	1,154	812	812
23.00	2,038	1,596	2,408
24.00	3,164	2,601	5,009

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	22.50'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.03 cfs @ 15.06 hrs HW=21.08' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
3=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-1: Runoff Area=15.554 ac 0.00% Impervious Runoff Depth=0.03"
Flow Length=147' Tc=18.6 min CN=34 Runoff=0.06 cfs 0.043 af

Subcatchment PDA-10: Runoff Area=0.815 ac 0.00% Impervious Runoff Depth=0.73"
Flow Length=244' Tc=8.7 min CN=53 Runoff=0.43 cfs 0.049 af

Subcatchment PDA-11: Runoff Area=10.137 ac 0.80% Impervious Runoff Depth=0.95"
Flow Length=819' Tc=30.1 min CN=57 Runoff=5.22 cfs 0.801 af

Subcatchment PDA-18: Runoff Area=2.111 ac 0.00% Impervious Runoff Depth=0.44"
Flow Length=476' Tc=10.2 min CN=47 Runoff=0.41 cfs 0.077 af

Subcatchment PDA-19: Runoff Area=1.721 ac 0.00% Impervious Runoff Depth=0.39"
Flow Length=281' Tc=8.1 min CN=46 Runoff=0.29 cfs 0.056 af

Subcatchment PDA-2: Runoff Area=1.351 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=153' Tc=6.2 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-21: Runoff Area=7.713 ac 0.48% Impervious Runoff Depth=0.24"
Flow Length=846' Tc=18.3 min CN=42 Runoff=0.41 cfs 0.153 af

Subcatchment PDA-22: Runoff Area=2.070 ac 0.00% Impervious Runoff Depth=0.35"
Flow Length=178' Tc=7.9 min CN=45 Runoff=0.29 cfs 0.061 af

Subcatchment PDA-23: Runoff Area=1.817 ac 0.00% Impervious Runoff Depth=0.48"
Flow Length=568' Tc=9.8 min CN=48 Runoff=0.42 cfs 0.073 af

Subcatchment PDA-8: Runoff Area=0.788 ac 0.00% Impervious Runoff Depth=0.35"
Flow Length=278' Tc=7.4 min CN=45 Runoff=0.11 cfs 0.023 af

Subcatchment PDA-9: Runoff Area=2.229 ac 0.00% Impervious Runoff Depth=0.48"
Flow Length=343' Tc=10.3 min CN=48 Runoff=0.51 cfs 0.089 af

Reach DP-1: Inflow=0.41 cfs 0.156 af
Outflow=0.41 cfs 0.156 af

Reach DP-2: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1: Peak Elev=21.04' Storage=54 cf Inflow=0.11 cfs 0.023 af
Discarded=0.07 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.023 af

Pond 2: Peak Elev=23.03' Storage=225 cf Inflow=0.51 cfs 0.089 af
Discarded=0.38 cfs 0.089 af Primary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.089 af

Pond 3: Peak Elev=29.29' Storage=474 cf Inflow=0.43 cfs 0.049 af
Discarded=0.10 cfs 0.049 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.049 af

Pond 4: Peak Elev=22.86' Storage=13,699 cf Inflow=5.22 cfs 0.801 af
Discarded=0.61 cfs 0.688 af Primary=0.41 cfs 0.113 af Secondary=0.00 cfs 0.000 af Outflow=1.02 cfs 0.801 af

Pond 11: Peak Elev=27.19' Storage=473 cf Inflow=0.41 cfs 0.077 af
Discarded=0.14 cfs 0.077 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.077 af

Pond 12: Peak Elev=26.38' Storage=474 cf Inflow=0.29 cfs 0.056 af
Discarded=0.08 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.056 af

Pond 13: Peak Elev=20.88' Storage=1,173 cf Inflow=0.41 cfs 0.153 af
Discarded=0.18 cfs 0.153 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.153 af

Pond 14: Peak Elev=21.96' Storage=545 cf Inflow=0.29 cfs 0.061 af
Discarded=0.08 cfs 0.061 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.061 af

Pond 15: Peak Elev=22.21' Storage=1,080 cf Inflow=0.42 cfs 0.073 af
Discarded=0.07 cfs 0.073 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.073 af

Total Runoff Area = 46.306 ac Runoff Volume = 1.425 af Average Runoff Depth = 0.37"
99.75% Pervious = 46.188 ac 0.25% Impervious = 0.118 ac

Summary for Subcatchment PDA-1:

Runoff = 0.06 cfs @ 17.34 hrs, Volume= 0.043 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

	Area (ac)	CN	Description
	10.235	30	Woods, Good, HSG A
	0.411	55	Woods, Good, HSG B
	0.721	77	Woods, Good, HSG D
	2.976	30	Brush, Good, HSG A
	0.055	48	Brush, Good, HSG B
	0.039	65	Brush, Good, HSG C
	0.883	39	>75% Grass cover, Good, HSG A
	0.005	61	>75% Grass cover, Good, HSG B
	0.034	80	>75% Grass cover, Good, HSG D
*	0.093	96	Existing Gravel surface, HSG B
	0.102	96	Gravel surface, HSG A
	15.554	34	Weighted Average
	15.554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0100	0.05		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	97	0.0130	0.57		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
18.6	147	Total			

Summary for Subcatchment PDA-10:

Runoff = 0.43 cfs @ 12.17 hrs, Volume= 0.049 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

	Area (ac)	CN	Description
	0.001	55	Woods, Good, HSG B
	0.012	30	Brush, Good, HSG A
	0.049	48	Brush, Good, HSG B
	0.465	39	>75% Grass cover, Good, HSG A
	0.145	61	>75% Grass cover, Good, HSG B
	0.088	96	Gravel surface, HSG A
	0.035	96	Gravel surface, HSG B
*	0.020	96	Existing Gravel surface, HSG B
	0.815	53	Weighted Average
	0.815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.0	68	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.5	126	0.0870	4.42		**Shallow Concentrated Flow, Tc-3** Grassed Waterway Kv= 15.0 fps
8.7	244	Total			

Summary for Subcatchment PDA-11:

Runoff = 5.22 cfs @ 12.51 hrs, Volume= 0.801 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

	Area (ac)	CN	Description
	0.096	30	Woods, Good, HSG A
	0.644	55	Woods, Good, HSG B
	0.025	30	Brush, Good, HSG A
	0.329	48	Brush, Good, HSG B
	3.221	39	>75% Grass cover, Good, HSG A
	4.421	61	>75% Grass cover, Good, HSG B
	0.148	80	>75% Grass cover, Good, HSG D
	0.645	96	Gravel surface, HSG A
	0.177	96	Gravel surface, HSG B
	0.056	96	Gravel surface, HSG D
*	0.294	96	Existing Gravel surface, HSG B
	0.049	98	Roofs, HSG B
*	0.032	98	Equipment Pad Areas, HSG A
	10.137	57	Weighted Average
	10.056		99.20% Pervious Area
	0.081		0.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0050	0.09		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
13.3	394	0.0050	0.49		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.8	58	0.0520	1.14		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
1.2	70	0.0180	0.94		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	23	0.0050	1.14		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
4.5	134	0.0050	0.49		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow, Tc-7** Short Grass Pasture Kv= 7.0 fps
0.1	20	0.0500	3.60		**Shallow Concentrated Flow, Tc-8** Unpaved Kv= 16.1 fps
0.1	13	0.3100	3.90		**Shallow Concentrated Flow, Tc-9** Short Grass Pasture Kv= 7.0 fps
30.1	819	Total			

Summary for Subcatchment PDA-18:

Runoff = 0.41 cfs @ 12.36 hrs, Volume= 0.077 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.019	30	Brush, Good, HSG A
1.799	39	>75% Grass cover, Good, HSG A
0.293	96	Gravel surface, HSG A
2.111	47	Weighted Average
2.111		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
3.7	267	0.0300	1.21		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	35	0.0290	2.74		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	17	0.1180	2.40		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.7	107	0.0280	2.51		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
10.2	476	Total			

Summary for Subcatchment PDA-19:

Runoff = 0.29 cfs @ 12.35 hrs, Volume= 0.056 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.520	39	>75% Grass cover, Good, HSG A
0.201	96	Gravel surface, HSG A
1.721	46	Weighted Average
1.721		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.4	89	0.0220	1.04		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.9	86	0.0580	1.69		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.2	34	0.0290	2.74		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.1	22	0.1360	2.58		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
8.1	281	Total			

Summary for Subcatchment PDA-2:

Runoff = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.840	30	Woods, Good, HSG A
0.068	39	>75% Grass cover, Good, HSG A
0.443	30	Brush, Good, HSG A
1.351	30	Weighted Average
1.351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.6	53	0.0400	1.40		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.0	50	0.0300	0.87		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
6.2	153	Total			

Summary for Subcatchment PDA-21:

Runoff = 0.41 cfs @ 12.61 hrs, Volume= 0.153 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
7.254	39	>75% Grass cover, Good, HSG A
0.422	96	Gravel surface, HSG A
0.037	98	Equipment Pad Areas, HSG A
7.713	42	Weighted Average
7.676		99.52% Pervious Area
0.037		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
12.6	691	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.1	105	0.0490	1.55		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
18.3	846	Total			

Summary for Subcatchment PDA-22:

Runoff = 0.29 cfs @ 12.37 hrs, Volume= 0.061 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.840	39	>75% Grass cover, Good, HSG A
0.230	96	Gravel surface, HSG A
2.070	45	Weighted Average
2.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.4	128	0.0160	0.89		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
7.9	178	Total			

Summary for Subcatchment PDA-23:

Runoff = 0.42 cfs @ 12.32 hrs, Volume= 0.073 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.529	39	>75% Grass cover, Good, HSG A
0.288	96	Gravel surface, HSG A
1.817	48	Weighted Average
1.817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.8	82	0.0120	0.77		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.0400	3.22		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	10	0.2000	3.13		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
2.3	401	0.0390	2.96		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
9.8	568	Total			

Summary for Subcatchment PDA-8:

Runoff = 0.11 cfs @ 12.37 hrs, Volume= 0.023 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.707	39	>75% Grass cover, Good, HSG A
0.081	96	Gravel surface, HSG A
0.788	45	Weighted Average
0.788		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.6	150	0.0530	1.61		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.1560	5.92		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
7.4	278	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.51 cfs @ 12.33 hrs, Volume= 0.089 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.643	39	>75% Grass cover, Good, HSG A
0.363	61	>75% Grass cover, Good, HSG B
0.199	96	Gravel surface, HSG A
0.024	96	Gravel surface, HSG B
2.229	48	Weighted Average
2.229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	159	0.0280	1.17		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0360	3.05		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.2	24	0.1250	2.47		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
0.3	49	0.0410	3.04		**Shallow Concentrated Flow, Tc-6** Grassed Waterway Kv= 15.0 fps
10.3	343	Total			

Summary for Reach DP-1:

Inflow Area = 44.955 ac, 0.26% Impervious, Inflow Depth = 0.04" for 10-Year event
Inflow = 0.41 cfs @ 14.39 hrs, Volume= 0.156 af
Outflow = 0.41 cfs @ 14.39 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2:

Inflow Area = 1.351 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1:

Inflow Area = 0.788 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10-Year event
Inflow = 0.11 cfs @ 12.37 hrs, Volume= 0.023 af
Outflow = 0.07 cfs @ 12.59 hrs, Volume= 0.023 af, Atten= 36%, Lag= 13.2 min
Discarded = 0.07 cfs @ 12.59 hrs, Volume= 0.023 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.04' @ 12.59 hrs Surf.Area= 1,247 sf Storage= 54 cf

Plug-Flow detention time= 6.8 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (967.1 - 960.3)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	3,477 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,225	0	0
22.00	1,715	1,470	1,470
23.00	2,299	2,007	3,477

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	22.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.07 cfs @ 12.59 hrs HW=21.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2:

Inflow Area = 2.229 ac, 0.00% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 0.51 cfs @ 12.33 hrs, Volume= 0.089 af
Outflow = 0.38 cfs @ 12.54 hrs, Volume= 0.089 af, Atten= 26%, Lag= 12.7 min
Discarded = 0.38 cfs @ 12.54 hrs, Volume= 0.089 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.03' @ 12.54 hrs Surf.Area= 6,771 sf Storage= 225 cf

Plug-Flow detention time= 6.5 min calculated for 0.089 af (100% of inflow)
Center-of-Mass det. time= 6.4 min (946.2 - 939.8)

Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	16,958 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	6,714	0	0
24.00	8,416	7,565	7,565
25.00	10,370	9,393	16,958

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.38 cfs @ 12.54 hrs HW=23.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.38 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=23.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3:

Inflow Area = 0.815 ac, 0.00% Impervious, Inflow Depth = 0.73" for 10-Year event
Inflow = 0.43 cfs @ 12.17 hrs, Volume= 0.049 af
Outflow = 0.10 cfs @ 12.98 hrs, Volume= 0.049 af, Atten= 77%, Lag= 49.0 min
Discarded = 0.10 cfs @ 12.98 hrs, Volume= 0.049 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 29.29' @ 12.98 hrs Surf.Area= 1,774 sf Storage= 474 cf

Plug-Flow detention time= 40.0 min calculated for 0.049 af (100% of inflow)
Center-of-Mass det. time= 40.0 min (950.2 - 910.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	4,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	1,522	0	0
30.00	2,397	1,960	1,960
31.00	3,356	2,877	4,836

Device	Routing	Invert	Outlet Devices
#1	Discarded	29.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	30.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.10 cfs @ 12.98 hrs HW=29.29' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=29.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 4:

Inflow Area = 10.137 ac, 0.80% Impervious, Inflow Depth = 0.95" for 10-Year event
Inflow = 5.22 cfs @ 12.51 hrs, Volume= 0.801 af
Outflow = 1.02 cfs @ 14.38 hrs, Volume= 0.801 af, Atten= 81%, Lag= 112.5 min
Discarded = 0.61 cfs @ 14.38 hrs, Volume= 0.688 af
Primary = 0.41 cfs @ 14.38 hrs, Volume= 0.113 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 22.86' @ 14.38 hrs Surf.Area= 10,855 sf Storage= 13,699 cf

Plug-Flow detention time= 243.6 min calculated for 0.801 af (100% of inflow)
Center-of-Mass det. time= 243.3 min (1,156.5 - 913.2)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	45,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	3,942	0	0
22.00	7,600	5,771	5,771
23.00	11,389	9,495	15,266
24.00	15,291	13,340	28,606
25.00	19,318	17,305	45,910

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00

			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	22.50'	**12.0" Round Culvert**
			L= 25.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0200 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.61 cfs @ 14.38 hrs HW=22.86' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=0.41 cfs @ 14.38 hrs HW=22.86' (Free Discharge)
3=Culvert (Inlet Controls 0.41 cfs @ 1.61 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 11:

Inflow Area = 2.111 ac, 0.00% Impervious, Inflow Depth = 0.44" for 10-Year event
Inflow = 0.41 cfs @ 12.36 hrs, Volume= 0.077 af
Outflow = 0.14 cfs @ 13.17 hrs, Volume= 0.077 af, Atten= 65%, Lag= 48.6 min
Discarded = 0.14 cfs @ 13.17 hrs, Volume= 0.077 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 27.19' @ 13.17 hrs Surf.Area= 2,569 sf Storage= 473 cf

Plug-Flow detention time= 27.9 min calculated for 0.076 af (100% of inflow)
Center-of-Mass det. time= 27.9 min (974.7 - 946.8)

Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	11,612 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	2,410	0	0
28.00	3,246	2,828	2,828
29.00	4,312	3,779	6,607
30.00	5,698	5,005	11,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	29.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.14 cfs @ 13.17 hrs HW=27.19' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12:

Inflow Area = 1.721 ac, 0.00% Impervious, Inflow Depth = 0.39" for 10-Year event
Inflow = 0.29 cfs @ 12.35 hrs, Volume= 0.056 af
Outflow = 0.08 cfs @ 14.48 hrs, Volume= 0.056 af, Atten= 72%, Lag= 127.8 min
Discarded = 0.08 cfs @ 14.48 hrs, Volume= 0.056 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 26.38' @ 14.48 hrs Surf.Area= 1,436 sf Storage= 474 cf

Plug-Flow detention time= 61.0 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 60.8 min (1,013.3 - 952.5)

Volume	Invert	Avail.Storage	Storage Description
#1	26.00'	8,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
26.00	1,064	0	0
27.00	2,045	1,555	1,555
28.00	3,224	2,635	4,189
29.00	4,674	3,949	8,138

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	28.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.08 cfs @ 14.48 hrs HW=26.38' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=26.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 13:

Inflow Area = 7.713 ac, 0.48% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 0.41 cfs @ 12.61 hrs, Volume= 0.153 af
Outflow = 0.18 cfs @ 16.04 hrs, Volume= 0.153 af, Atten= 56%, Lag= 205.6 min
Discarded = 0.18 cfs @ 16.04 hrs, Volume= 0.153 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 20.88' @ 16.04 hrs Surf.Area= 3,250 sf Storage= 1,173 cf

Plug-Flow detention time= 65.3 min calculated for 0.153 af (100% of inflow)
Center-of-Mass det. time= 65.3 min (1,066.8 - 1,001.5)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	16,267 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	2,888	0	0
21.00	3,361	1,562	1,562
22.00	4,309	3,835	5,397
23.00	5,422	4,866	10,263
24.00	6,586	6,004	16,267

Device	Routing	Invert	Outlet Devices
#1	Discarded	20.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.18 cfs @ 16.04 hrs HW=20.88' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=20.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 14:

Inflow Area = 2.070 ac, 0.00% Impervious, Inflow Depth = 0.35" for 10-Year event
Inflow = 0.29 cfs @ 12.37 hrs, Volume= 0.061 af
Outflow = 0.08 cfs @ 15.10 hrs, Volume= 0.061 af, Atten= 72%, Lag= 163.3 min
Discarded = 0.08 cfs @ 15.10 hrs, Volume= 0.061 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.96' @ 15.10 hrs Surf.Area= 1,424 sf Storage= 545 cf

Plug-Flow detention time= 74.0 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 73.8 min (1,034.6 - 960.8)

Volume	Invert	Avail.Storage	Storage Description
#1	21.50'	5,673 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.50	960	0	0
22.00	1,467	607	607
23.00	2,519	1,993	2,600
24.00	3,628	3,074	5,673

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.08 cfs @ 15.10 hrs HW=21.96' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 15:

Inflow Area = 1.817 ac, 0.00% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 0.42 cfs @ 12.32 hrs, Volume= 0.073 af
Outflow = 0.07 cfs @ 15.71 hrs, Volume= 0.073 af, Atten= 82%, Lag= 203.6 min
Discarded = 0.07 cfs @ 15.71 hrs, Volume= 0.073 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 22.21' @ 15.71 hrs Surf.Area= 1,343 sf Storage= 1,080 cf

Plug-Flow detention time= 190.3 min calculated for 0.073 af (100% of inflow)
Center-of-Mass det. time= 190.3 min (1,129.6 - 939.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,009 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	470	0	0
22.00	1,154	812	812
23.00	2,038	1,596	2,408
24.00	3,164	2,601	5,009

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	22.50'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.07 cfs @ 15.71 hrs HW=22.21' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
3=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-1: Runoff Area=15.554 ac 0.00% Impervious Runoff Depth=0.43"
Flow Length=147' Tc=18.6 min CN=34 Runoff=1.90 cfs 0.559 af

Subcatchment PDA-10: Runoff Area=0.815 ac 0.00% Impervious Runoff Depth=1.94"
Flow Length=244' Tc=8.7 min CN=53 Runoff=1.51 cfs 0.132 af

Subcatchment PDA-11: Runoff Area=10.137 ac 0.80% Impervious Runoff Depth=2.31"
Flow Length=819' Tc=30.1 min CN=57 Runoff=14.70 cfs 1.954 af

Subcatchment PDA-18: Runoff Area=2.111 ac 0.00% Impervious Runoff Depth=1.41"
Flow Length=476' Tc=10.2 min CN=47 Runoff=2.40 cfs 0.247 af

Subcatchment PDA-19: Runoff Area=1.721 ac 0.00% Impervious Runoff Depth=1.32"
Flow Length=281' Tc=8.1 min CN=46 Runoff=1.89 cfs 0.189 af

Subcatchment PDA-2: Runoff Area=1.351 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=153' Tc=6.2 min CN=30 Runoff=0.04 cfs 0.024 af

Subcatchment PDA-21: Runoff Area=7.713 ac 0.48% Impervious Runoff Depth=1.00"
Flow Length=846' Tc=18.3 min CN=42 Runoff=4.14 cfs 0.640 af

Subcatchment PDA-22: Runoff Area=2.070 ac 0.00% Impervious Runoff Depth=1.24"
Flow Length=178' Tc=7.9 min CN=45 Runoff=2.07 cfs 0.213 af

Subcatchment PDA-23: Runoff Area=1.817 ac 0.00% Impervious Runoff Depth=1.49"
Flow Length=568' Tc=9.8 min CN=48 Runoff=2.29 cfs 0.226 af

Subcatchment PDA-8: Runoff Area=0.788 ac 0.00% Impervious Runoff Depth=1.24"
Flow Length=278' Tc=7.4 min CN=45 Runoff=0.80 cfs 0.081 af

Subcatchment PDA-9: Runoff Area=2.229 ac 0.00% Impervious Runoff Depth=1.49"
Flow Length=343' Tc=10.3 min CN=48 Runoff=2.76 cfs 0.277 af

Reach DP-1: Inflow=5.98 cfs 1.876 af
Outflow=5.98 cfs 1.876 af

Reach DP-2: Inflow=0.04 cfs 0.024 af
Outflow=0.04 cfs 0.024 af

Pond 1: Peak Elev=21.87' Storage=1,259 cf Inflow=0.80 cfs 0.081 af
Discarded=0.09 cfs 0.081 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.081 af

Pond 2: Peak Elev=23.52' Storage=3,697 cf Inflow=2.76 cfs 0.277 af
Discarded=0.42 cfs 0.277 af Primary=0.00 cfs 0.000 af Outflow=0.42 cfs 0.277 af

Pond 3: Peak Elev=30.03' Storage=2,033 cf Inflow=1.51 cfs 0.132 af
Discarded=0.14 cfs 0.121 af Primary=0.16 cfs 0.010 af Outflow=0.29 cfs 0.132 af

Pond 4: Peak Elev=24.10' Storage=30,154 cf Inflow=14.70 cfs 1.954 af
Discarded=0.88 cfs 0.874 af Primary=3.13 cfs 1.000 af Secondary=0.90 cfs 0.033 af Outflow=4.91 cfs 1.907 af

Pond 11: Peak Elev=28.55' Storage=4,791 cf Inflow=2.40 cfs 0.247 af
Discarded=0.21 cfs 0.247 af Primary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.247 af

Pond 12: Peak Elev=27.83' Storage=3,648 cf Inflow=1.89 cfs 0.189 af
Discarded=0.17 cfs 0.189 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.189 af

Pond 13: Peak Elev=23.08' Storage=10,696 cf Inflow=4.14 cfs 0.640 af
Discarded=0.31 cfs 0.421 af Primary=0.64 cfs 0.126 af Outflow=0.94 cfs 0.547 af

Pond 14: Peak Elev=23.06' Storage=2,751 cf Inflow=2.07 cfs 0.213 af
Discarded=0.14 cfs 0.168 af Primary=0.41 cfs 0.046 af Outflow=0.55 cfs 0.213 af

Pond 15: Peak Elev=23.01' Storage=2,436 cf Inflow=2.29 cfs 0.226 af
Discarded=0.11 cfs 0.122 af Primary=0.92 cfs 0.101 af Secondary=0.05 cfs 0.000 af Outflow=1.08 cfs 0.223 af

Total Runoff Area = 46.306 ac Runoff Volume = 4.542 af Average Runoff Depth = 1.18"
99.75% Pervious = 46.188 ac 0.25% Impervious = 0.118 ac

Summary for Subcatchment PDA-1:

Runoff = 1.90 cfs @ 12.57 hrs, Volume= 0.559 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	10.235	30	Woods, Good, HSG A
	0.411	55	Woods, Good, HSG B
	0.721	77	Woods, Good, HSG D
	2.976	30	Brush, Good, HSG A
	0.055	48	Brush, Good, HSG B
	0.039	65	Brush, Good, HSG C
	0.883	39	>75% Grass cover, Good, HSG A
	0.005	61	>75% Grass cover, Good, HSG B
	0.034	80	>75% Grass cover, Good, HSG D
*	0.093	96	Existing Gravel surface, HSG B
	0.102	96	Gravel surface, HSG A
	15.554	34	Weighted Average
	15.554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0100	0.05		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.8	97	0.0130	0.57		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
18.6	147	Total			

Summary for Subcatchment PDA-10:

Runoff = 1.51 cfs @ 12.14 hrs, Volume= 0.132 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.001	55	Woods, Good, HSG B
	0.012	30	Brush, Good, HSG A
	0.049	48	Brush, Good, HSG B
	0.465	39	>75% Grass cover, Good, HSG A
	0.145	61	>75% Grass cover, Good, HSG B
	0.088	96	Gravel surface, HSG A
	0.035	96	Gravel surface, HSG B
*	0.020	96	Existing Gravel surface, HSG B
	0.815	53	Weighted Average
	0.815		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.0	68	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.5	126	0.0870	4.42		**Shallow Concentrated Flow, Tc-3** Grassed Waterway Kv= 15.0 fps
8.7	244	Total			

Summary for Subcatchment PDA-11:

Runoff = 14.70 cfs @ 12.46 hrs, Volume= 1.954 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.096	30	Woods, Good, HSG A
	0.644	55	Woods, Good, HSG B
	0.025	30	Brush, Good, HSG A
	0.329	48	Brush, Good, HSG B
	3.221	39	>75% Grass cover, Good, HSG A
	4.421	61	>75% Grass cover, Good, HSG B
	0.148	80	>75% Grass cover, Good, HSG D
	0.645	96	Gravel surface, HSG A
	0.177	96	Gravel surface, HSG B
	0.056	96	Gravel surface, HSG D
*	0.294	96	Existing Gravel surface, HSG B
	0.049	98	Roofs, HSG B
*	0.032	98	Equipment Pad Areas, HSG A
	10.137	57	Weighted Average
	10.056		99.20% Pervious Area
	0.081		0.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0050	0.09		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
13.3	394	0.0050	0.49		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.8	58	0.0520	1.14		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
1.2	70	0.0180	0.94		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	23	0.0050	1.14		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
4.5	134	0.0050	0.49		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.3	57	0.1930	3.08		**Shallow Concentrated Flow, Tc-7** Short Grass Pasture Kv= 7.0 fps
0.1	20	0.0500	3.60		**Shallow Concentrated Flow, Tc-8** Unpaved Kv= 16.1 fps
0.1	13	0.3100	3.90		**Shallow Concentrated Flow, Tc-9** Short Grass Pasture Kv= 7.0 fps
30.1	819	Total			

Summary for Subcatchment PDA-18:

Runoff = 2.40 cfs @ 12.17 hrs, Volume= 0.247 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.019	30	Brush, Good, HSG A
1.799	39	>75% Grass cover, Good, HSG A
0.293	96	Gravel surface, HSG A
2.111	47	Weighted Average
2.111		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
3.7	267	0.0300	1.21		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	35	0.0290	2.74		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	17	0.1180	2.40		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.7	107	0.0280	2.51		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
10.2	476	Total			

Summary for Subcatchment PDA-19:

Runoff = 1.89 cfs @ 12.15 hrs, Volume= 0.189 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.520	39	>75% Grass cover, Good, HSG A
0.201	96	Gravel surface, HSG A
1.721	46	Weighted Average
1.721		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.4	89	0.0220	1.04		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.9	86	0.0580	1.69		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.2	34	0.0290	2.74		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.1	22	0.1360	2.58		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
8.1	281	Total			

Summary for Subcatchment PDA-2:

Runoff = 0.04 cfs @ 13.77 hrs, Volume= 0.024 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.840	30	Woods, Good, HSG A
0.068	39	>75% Grass cover, Good, HSG A
0.443	30	Brush, Good, HSG A
1.351	30	Weighted Average
1.351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.6	53	0.0400	1.40		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.0	50	0.0300	0.87		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
6.2	153	Total			

Summary for Subcatchment PDA-21:

Runoff = 4.14 cfs @ 12.37 hrs, Volume= 0.640 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
7.254	39	>75% Grass cover, Good, HSG A
0.422	96	Gravel surface, HSG A
0.037	98	Equipment Pad Areas, HSG A
7.713	42	Weighted Average
7.676		99.52% Pervious Area
0.037		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0300	0.18		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
12.6	691	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
1.1	105	0.0490	1.55		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
18.3	846	Total			

Summary for Subcatchment PDA-22:

Runoff = 2.07 cfs @ 12.15 hrs, Volume= 0.213 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.840	39	>75% Grass cover, Good, HSG A
0.230	96	Gravel surface, HSG A
2.070	45	Weighted Average
2.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.4	128	0.0160	0.89		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
7.9	178	Total			

Summary for Subcatchment PDA-23:

Runoff = 2.29 cfs @ 12.16 hrs, Volume= 0.226 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.529	39	>75% Grass cover, Good, HSG A
0.288	96	Gravel surface, HSG A
1.817	48	Weighted Average
1.817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.8	82	0.0120	0.77		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	25	0.0400	3.22		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	10	0.2000	3.13		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
2.3	401	0.0390	2.96		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
9.8	568	Total			

Summary for Subcatchment PDA-8:

Runoff = 0.80 cfs @ 12.14 hrs, Volume= 0.081 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.707	39	>75% Grass cover, Good, HSG A
0.081	96	Gravel surface, HSG A
0.788	45	Weighted Average
0.788		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
1.6	150	0.0530	1.61		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.1	32	0.1560	5.92		**Shallow Concentrated Flow, Tc-5** Grassed Waterway Kv= 15.0 fps
7.4	278	Total			

Summary for Subcatchment PDA-9:

Runoff = 2.76 cfs @ 12.17 hrs, Volume= 0.277 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.643	39	>75% Grass cover, Good, HSG A
0.363	61	>75% Grass cover, Good, HSG B
0.199	96	Gravel surface, HSG A
0.024	96	Gravel surface, HSG B
2.229	48	Weighted Average
2.229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	159	0.0280	1.17		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0360	3.05		**Shallow Concentrated Flow, Tc-4** Unpaved Kv= 16.1 fps
0.2	24	0.1250	2.47		**Shallow Concentrated Flow, Tc-5** Short Grass Pasture Kv= 7.0 fps
0.3	49	0.0410	3.04		**Shallow Concentrated Flow, Tc-6** Grassed Waterway Kv= 15.0 fps
10.3	343	Total			

Summary for Reach DP-1:

Inflow Area = 44.955 ac, 0.26% Impervious, Inflow Depth = 0.50" for 100-Year event
Inflow = 5.98 cfs @ 13.06 hrs, Volume= 1.876 af
Outflow = 5.98 cfs @ 13.06 hrs, Volume= 1.876 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2:

Inflow Area = 1.351 ac, 0.00% Impervious, Inflow Depth = 0.21" for 100-Year event
Inflow = 0.04 cfs @ 13.77 hrs, Volume= 0.024 af
Outflow = 0.04 cfs @ 13.77 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1:

Inflow Area = 0.788 ac, 0.00% Impervious, Inflow Depth = 1.24" for 100-Year event
Inflow = 0.80 cfs @ 12.14 hrs, Volume= 0.081 af
Outflow = 0.09 cfs @ 14.66 hrs, Volume= 0.081 af, Atten= 88%, Lag= 151.5 min
Discarded = 0.09 cfs @ 14.66 hrs, Volume= 0.081 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 21.87' @ 14.66 hrs Surf.Area= 1,654 sf Storage= 1,259 cf

Plug-Flow detention time= 154.4 min calculated for 0.081 af (100% of inflow)
Center-of-Mass det. time= 154.1 min (1,054.5 - 900.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	3,477 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,225	0	0
22.00	1,715	1,470	1,470
23.00	2,299	2,007	3,477

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	22.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.09 cfs @ 14.66 hrs HW=21.87' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=21.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2:

Inflow Area = 2.229 ac, 0.00% Impervious, Inflow Depth = 1.49" for 100-Year event
Inflow = 2.76 cfs @ 12.17 hrs, Volume= 0.277 af
Outflow = 0.42 cfs @ 13.43 hrs, Volume= 0.277 af, Atten= 85%, Lag= 75.9 min
Discarded = 0.42 cfs @ 13.43 hrs, Volume= 0.277 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.52' @ 13.43 hrs Surf.Area= 7,594 sf Storage= 3,697 cf

Plug-Flow detention time= 83.9 min calculated for 0.276 af (100% of inflow)
Center-of-Mass det. time= 83.7 min (975.3 - 891.5)

Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	16,958 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	6,714	0	0
24.00	8,416	7,565	7,565
25.00	10,370	9,393	16,958

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.42 cfs @ 13.43 hrs HW=23.52' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.42 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=23.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3:

Inflow Area = 0.815 ac, 0.00% Impervious, Inflow Depth = 1.94" for 100-Year event
Inflow = 1.51 cfs @ 12.14 hrs, Volume= 0.132 af
Outflow = 0.29 cfs @ 12.77 hrs, Volume= 0.132 af, Atten= 81%, Lag= 37.6 min
Discarded = 0.14 cfs @ 12.77 hrs, Volume= 0.121 af
Primary = 0.16 cfs @ 12.77 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 30.03' @ 12.77 hrs Surf.Area= 2,426 sf Storage= 2,033 cf

Plug-Flow detention time= 158.8 min calculated for 0.131 af (100% of inflow)
Center-of-Mass det. time= 158.5 min (1,032.7 - 874.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	4,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
29.00	1,522	0	0
30.00	2,397	1,960	1,960
31.00	3,356	2,877	4,836

Device	Routing	Invert	Outlet Devices
#1	Discarded	29.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	30.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.14 cfs @ 12.77 hrs HW=30.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.15 cfs @ 12.77 hrs HW=30.03' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.49 fps)

Summary for Pond 4:

Inflow Area = 10.137 ac, 0.80% Impervious, Inflow Depth = 2.31" for 100-Year event
Inflow = 14.70 cfs @ 12.46 hrs, Volume= 1.954 af
Outflow = 4.91 cfs @ 13.12 hrs, Volume= 1.907 af, Atten= 67%, Lag= 40.1 min
Discarded = 0.88 cfs @ 13.12 hrs, Volume= 0.874 af
Primary = 3.13 cfs @ 13.12 hrs, Volume= 1.000 af
Secondary = 0.90 cfs @ 13.12 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 24.10' @ 13.12 hrs Surf.Area= 15,694 sf Storage= 30,154 cf

Plug-Flow detention time= 160.4 min calculated for 1.904 af (97% of inflow)
Center-of-Mass det. time= 147.5 min (1,030.7 - 883.3)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	45,910 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	3,942	0	0
22.00	7,600	5,771	5,771
23.00	11,389	9,495	15,266
24.00	15,291	13,340	28,606
25.00	19,318	17,305	45,910

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	24.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3 Primary 22.50' **12.0" Round Culvert**
L= 25.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.88 cfs @ 13.12 hrs HW=24.10' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.88 cfs)

Primary OutFlow Max=3.13 cfs @ 13.12 hrs HW=24.10' (Free Discharge)
3=Culvert (Inlet Controls 3.13 cfs @ 3.99 fps)

Secondary OutFlow Max=0.88 cfs @ 13.12 hrs HW=24.10' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.88 cfs @ 0.88 fps)

Summary for Pond 11:

Inflow Area = 2.111 ac, 0.00% Impervious, Inflow Depth = 1.41" for 100-Year event
Inflow = 2.40 cfs @ 12.17 hrs, Volume= 0.247 af
Outflow = 0.21 cfs @ 15.60 hrs, Volume= 0.247 af, Atten= 91%, Lag= 205.6 min
Discarded = 0.21 cfs @ 15.60 hrs, Volume= 0.247 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 28.55' @ 15.60 hrs Surf.Area= 3,837 sf Storage= 4,791 cf

Plug-Flow detention time= 274.1 min calculated for 0.247 af (100% of inflow)
Center-of-Mass det. time= 274.1 min (1,169.1 - 895.1)

Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	11,612 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	2,410	0	0
28.00	3,246	2,828	2,828
29.00	4,312	3,779	6,607
30.00	5,698	5,005	11,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	29.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.21 cfs @ 15.60 hrs HW=28.55' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 12:

Inflow Area = 1.721 ac, 0.00% Impervious, Inflow Depth = 1.32" for 100-Year event
Inflow = 1.89 cfs @ 12.15 hrs, Volume= 0.189 af
Outflow = 0.17 cfs @ 15.55 hrs, Volume= 0.189 af, Atten= 91%, Lag= 203.9 min
Discarded = 0.17 cfs @ 15.55 hrs, Volume= 0.189 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 27.83' @ 15.55 hrs Surf.Area= 3,020 sf Storage= 3,648 cf

Plug-Flow detention time= 281.1 min calculated for 0.189 af (100% of inflow)
Center-of-Mass det. time= 281.2 min (1,178.2 - 897.0)

Volume	Invert	Avail.Storage	Storage Description
#1	26.00'	8,138 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
26.00	1,064	0	0
27.00	2,045	1,555	1,555
28.00	3,224	2,635	4,189
29.00	4,674	3,949	8,138

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	28.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.17 cfs @ 15.55 hrs HW=27.83' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=26.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 13:

Inflow Area = 7.713 ac, 0.48% Impervious, Inflow Depth = 1.00" for 100-Year event
Inflow = 4.14 cfs @ 12.37 hrs, Volume= 0.640 af
Outflow = 0.94 cfs @ 13.99 hrs, Volume= 0.547 af, Atten= 77%, Lag= 97.6 min
Discarded = 0.31 cfs @ 13.99 hrs, Volume= 0.421 af
Primary = 0.64 cfs @ 13.99 hrs, Volume= 0.126 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.08' @ 13.99 hrs Surf.Area= 5,514 sf Storage= 10,696 cf

Plug-Flow detention time= 312.2 min calculated for 0.547 af (85% of inflow)
Center-of-Mass det. time= 246.9 min (1,171.4 - 924.6)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	16,267 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	2,888	0	0
21.00	3,361	1,562	1,562
22.00	4,309	3,835	5,397
23.00	5,422	4,866	10,263
24.00	6,586	6,004	16,267

Device	Routing	Invert	Outlet Devices
#1	Discarded	20.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.31 cfs @ 13.99 hrs HW=23.08' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.62 cfs @ 13.99 hrs HW=23.08' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.62 cfs @ 0.79 fps)

Summary for Pond 14:

Inflow Area = 2.070 ac, 0.00% Impervious, Inflow Depth = 1.24" for 100-Year event
Inflow = 2.07 cfs @ 12.15 hrs, Volume= 0.213 af
Outflow = 0.55 cfs @ 12.68 hrs, Volume= 0.213 af, Atten= 73%, Lag= 31.7 min
Discarded = 0.14 cfs @ 12.68 hrs, Volume= 0.168 af
Primary = 0.41 cfs @ 12.68 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.06' @ 12.68 hrs Surf.Area= 2,585 sf Storage= 2,751 cf

Plug-Flow detention time= 200.6 min calculated for 0.213 af (100% of inflow)
Center-of-Mass det. time= 200.6 min (1,101.5 - 900.9)

Volume	Invert	Avail.Storage	Storage Description
#1	21.50'	5,673 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.50	960	0	0
22.00	1,467	607	607
23.00	2,519	1,993	2,600
24.00	3,628	3,074	5,673

Device	Routing	Invert	Outlet Devices
#1	Discarded	21.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00

Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.14 cfs @ 12.68 hrs HW=23.06' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.40 cfs @ 12.68 hrs HW=23.06' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.40 cfs @ 0.68 fps)

Summary for Pond 15:

Inflow Area = 1.817 ac, 0.00% Impervious, Inflow Depth = 1.49" for 100-Year event
Inflow = 2.29 cfs @ 12.16 hrs, Volume= 0.226 af
Outflow = 1.08 cfs @ 12.51 hrs, Volume= 0.223 af, Atten= 53%, Lag= 20.9 min
Discarded = 0.11 cfs @ 12.51 hrs, Volume= 0.122 af
Primary = 0.92 cfs @ 12.51 hrs, Volume= 0.101 af
Secondary = 0.05 cfs @ 12.51 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.01' @ 12.51 hrs Surf.Area= 2,053 sf Storage= 2,436 cf

Plug-Flow detention time= 142.6 min calculated for 0.223 af (99% of inflow)
Center-of-Mass det. time= 136.9 min (1,028.0 - 891.0)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,009 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	470	0	0
22.00	1,154	812	812
23.00	2,038	1,596	2,408
24.00	3,164	2,601	5,009

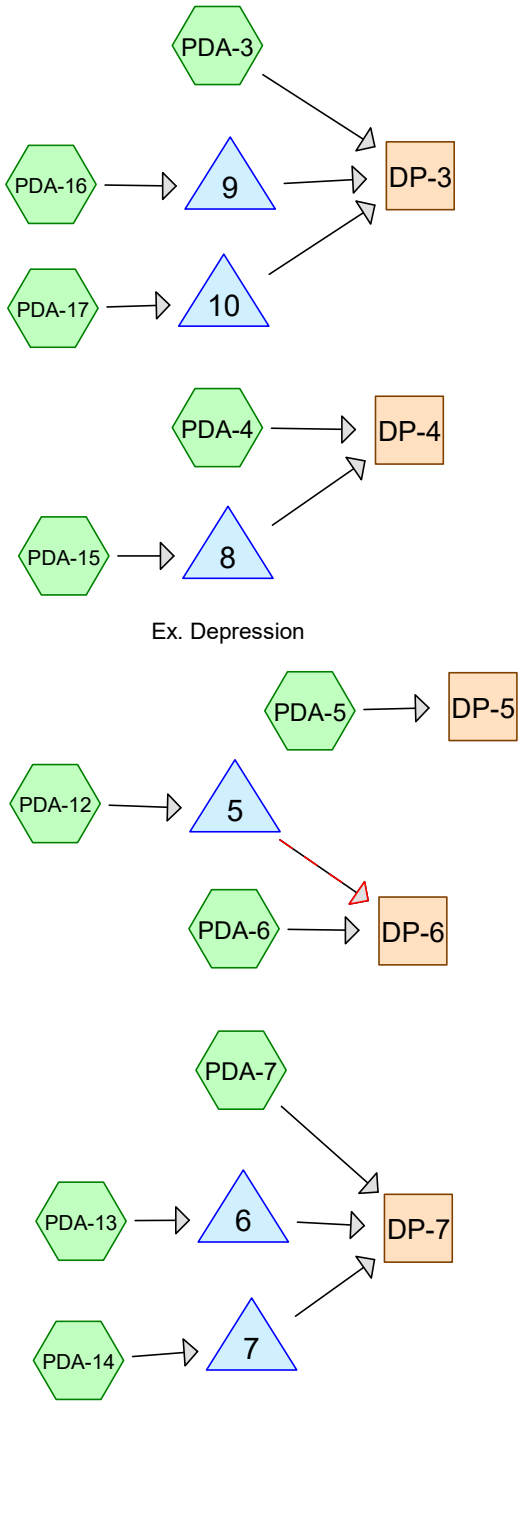
Device	Routing	Invert	Outlet Devices
#1	Discarded	21.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	23.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	22.50'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 22.50' / 22.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=0.11 cfs @ 12.51 hrs HW=23.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.91 cfs @ 12.51 hrs HW=23.01' (Free Discharge)
3=Culvert (Inlet Controls 0.91 cfs @ 1.92 fps)

Secondary OutFlow Max=0.04 cfs @ 12.51 hrs HW=23.01' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.04 cfs @ 0.31 fps)

Post-Development
Conditions Hydrology



Subcat Reach Pond Link

Routing Diagram for 1833109HC003C
Prepared by Beals and Thomas, Inc., Printed 10/15/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
11.885	39	>75% Grass cover, Good, HSG A (PDA-12, PDA-13, PDA-14, PDA-15, PDA-16, PDA-17, PDA-3, PDA-4, PDA-5, PDA-6, PDA-7)
0.016	61	>75% Grass cover, Good, HSG B (PDA-7)
0.872	30	Brush, Good, HSG A (PDA-12, PDA-13, PDA-17, PDA-3, PDA-4, PDA-5, PDA-6, PDA-7)
0.004	98	Equipment Pad Areas, HSG A (PDA-16)
0.004	98	Existing Roofs, HSG B (PDA-7)
1.408	96	Gravel surface, HSG A (PDA-12, PDA-13, PDA-14, PDA-15, PDA-16, PDA-17)
0.024	98	Impervious, HSG A (PDA-15)
10.555	30	Woods, Good, HSG A (PDA-12, PDA-15, PDA-3, PDA-4, PDA-5, PDA-6, PDA-7)
24.768	**38**	**TOTAL AREA**

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-12: Runoff Area=9.014 ac 0.00% Impervious Runoff Depth=0.03"
Flow Length=607' Tc=16.2 min CN=42 Runoff=0.03 cfs 0.021 af

Subcatchment PDA-13: Runoff Area=1.883 ac 0.00% Impervious Runoff Depth=0.03"
Flow Length=342' Tc=10.0 min CN=42 Runoff=0.01 cfs 0.004 af

Subcatchment PDA-14: Runoff Area=0.672 ac 0.00% Impervious Runoff Depth=0.22"
Flow Length=132' Tc=7.7 min CN=52 Runoff=0.05 cfs 0.013 af

Subcatchment PDA-15: Runoff Area=1.312 ac 1.83% Impervious Runoff Depth=0.13"
Flow Length=351' Tc=7.8 min CN=48 Runoff=0.02 cfs 0.014 af

Subcatchment PDA-16: Runoff Area=0.860 ac 0.47% Impervious Runoff Depth=0.28"
Tc=6.0 min CN=54 Runoff=0.10 cfs 0.020 af

Subcatchment PDA-17: Runoff Area=0.416 ac 0.00% Impervious Runoff Depth=0.22"
Flow Length=307' Tc=7.3 min CN=52 Runoff=0.03 cfs 0.008 af

Subcatchment PDA-3: Runoff Area=1.900 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=131' Tc=10.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-4: Runoff Area=3.660 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=336' Tc=12.9 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-5: Runoff Area=2.167 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=132' Tc=13.8 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-6: Runoff Area=2.243 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=181' Tc=11.1 min CN=31 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-7: Runoff Area=0.641 ac 0.62% Impervious Runoff Depth=0.00"
Flow Length=68' Tc=13.7 min CN=33 Runoff=0.00 cfs 0.000 af

Reach DP-3: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-4: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-5: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-6: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-7: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 5: Peak Elev=27.50' Storage=13 cf Inflow=0.03 cfs 0.021 af
Discarded=0.03 cfs 0.021 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.021 af

Pond 6: Peak Elev=38.00' Storage=2 cf Inflow=0.01 cfs 0.004 af
Discarded=0.01 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

Pond 7: Peak Elev=33.01' Storage=17 cf Inflow=0.05 cfs 0.013 af
Discarded=0.05 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.013 af

Pond 8: Ex. Depression Peak Elev=22.08' Storage=25 cf Inflow=0.02 cfs 0.014 af
Discarded=0.02 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.014 af

Pond 9: Peak Elev=33.02' Storage=35 cf Inflow=0.10 cfs 0.020 af
Discarded=0.09 cfs 0.020 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.020 af

Pond 10: Peak Elev=36.01' Storage=10 cf Inflow=0.03 cfs 0.008 af
Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

Total Runoff Area = 24.768 ac Runoff Volume = 0.080 af Average Runoff Depth = 0.04"
99.87% Pervious = 24.736 ac 0.13% Impervious = 0.032 ac

Summary for Subcatchment PDA-12:

Runoff = 0.03 cfs @ 17.08 hrs, Volume= 0.021 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.536	30	Woods, Good, HSG A
0.144	30	Brush, Good, HSG A
7.814	39	>75% Grass cover, Good, HSG A
0.520	96	Gravel surface, HSG A
9.014	42	Weighted Average
9.014		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
6.6	362	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
2.3	179	0.0340	1.29		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
16.2	607	Total			

Summary for Subcatchment PDA-13:

Runoff = 0.01 cfs @ 16.96 hrs, Volume= 0.004 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.011	30	Brush, Good, HSG A
1.755	39	>75% Grass cover, Good, HSG A
0.117	96	Gravel surface, HSG A
1.883	42	Weighted Average
1.883		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
4.0	205	0.0150	0.86		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0200	2.28		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.3	62	0.0480	3.29		**Shallow Concentrated Flow, Tc-4** Grassed Waterway Kv= 15.0 fps
10.0	342	Total			

Summary for Subcatchment PDA-14:

Runoff = 0.05 cfs @ 12.40 hrs, Volume= 0.013 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.521	39	>75% Grass cover, Good, HSG A
0.151	96	Gravel surface, HSG A
0.672	52	Weighted Average
0.672		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.3	36	0.0830	2.02		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0480	3.53		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	25	0.2800	3.70		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
7.7	132	Total			

Summary for Subcatchment PDA-15:

Runoff = 0.02 cfs @ 12.53 hrs, Volume= 0.014 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.671	30	Woods, Good, HSG A
* 0.024	98	Impervious, HSG A
0.329	39	>75% Grass cover, Good, HSG A
0.288	96	Gravel surface, HSG A
1.312	48	Weighted Average
1.288		98.17% Pervious Area
0.024		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.7	51	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.3	77	0.0520	3.67		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.9	84	0.0460	1.50		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	36	0.0200	2.28		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
0.0	7	0.1200	2.42		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.6	46	0.0640	1.26		**Shallow Concentrated Flow, Tc-7** Woodland Kv= 5.0 fps
7.8	351	Total			

Summary for Subcatchment PDA-16:

Runoff = 0.10 cfs @ 12.32 hrs, Volume= 0.020 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.631	39	>75% Grass cover, Good, HSG A
0.225	96	Gravel surface, HSG A
0.004	98	Equipment Pad Areas, HSG A
0.860	54	Weighted Average
0.856		99.53% Pervious Area
0.004		0.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Min.**

Summary for Subcatchment PDA-17:

Runoff = 0.03 cfs @ 12.39 hrs, Volume= 0.008 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.069	30	Brush, Good, HSG A
0.240	39	>75% Grass cover, Good, HSG A
0.107	96	Gravel surface, HSG A
0.416	52	Weighted Average
0.416		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	257	0.0150	1.84		**Shallow Concentrated Flow, Tc-2** Grassed Waterway Kv= 15.0 fps
7.3	307	Total			

Summary for Subcatchment PDA-3:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.697	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.079	39	>75% Grass cover, Good, HSG A
1.900	30	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	81	0.0860	1.47		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
10.0	131	Total			

Summary for Subcatchment PDA-4:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
3.402	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.134	39	>75% Grass cover, Good, HSG A
3.660	30	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	68	0.0440	1.05		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
2.7	218	0.0730	1.35		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
12.9	336	Total			

Summary for Subcatchment PDA-5:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.917	30	Woods, Good, HSG A
0.151	30	Brush, Good, HSG A
0.099	39	>75% Grass cover, Good, HSG A
2.167	30	Weighted Average
2.167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	82	0.0240	0.77		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.8	132	Total			

Summary for Subcatchment PDA-6:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.843	30	Woods, Good, HSG A
0.187	39	>75% Grass cover, Good, HSG A
0.213	30	Brush, Good, HSG A
2.243	31	Weighted Average
2.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.0	131	0.0460	1.07		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
11.1	181	Total			

Summary for Subcatchment PDA-7:

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	0.489	30	Woods, Good, HSG A
	0.096	39	>75% Grass cover, Good, HSG A
	0.016	61	>75% Grass cover, Good, HSG B
*	0.004	98	Existing Roofs, HSG B
	0.036	30	Brush, Good, HSG A
	0.641	33	Weighted Average
	0.637		99.38% Pervious Area
	0.004		0.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	50	0.0150	0.06		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.3	18	0.0420	1.02		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.7	68	Total			

Summary for Reach DP-3:

Inflow Area = 3.176 ac, 0.13% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4:

Inflow Area = 4.972 ac, 0.48% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5:

Inflow Area = 2.167 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6:

Inflow Area = 11.257 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7:

Inflow Area = 3.196 ac, 0.13% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 5:

Inflow Area = 9.014 ac, 0.00% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.03 cfs @ 17.08 hrs, Volume= 0.021 af
Outflow = 0.03 cfs @ 17.19 hrs, Volume= 0.021 af, Atten= 0%, Lag= 6.1 min
Discarded = 0.03 cfs @ 17.19 hrs, Volume= 0.021 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 27.50' @ 17.19 hrs Surf.Area= 4,179 sf Storage= 13 cf

Plug-Flow detention time= 7.4 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 7.4 min (1,169.7 - 1,162.3)

Volume	Invert	Avail.Storage	Storage Description
#1	27.50'	21,697 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.50	4,168	0	0
28.00	5,929	2,524	2,524
29.00	9,548	7,739	10,263
30.00	13,320	11,434	21,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	29.25'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	29.00'	**6.0" Round Culvert X 2.00** L= 17.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.00' / 28.76' S= 0.0141 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.23 cfs @ 17.19 hrs HW=27.50' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.50' (Free Discharge)
↑—**3=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6:

Inflow Area = 1.883 ac, 0.00% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.01 cfs @ 16.96 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 17.07 hrs, Volume= 0.004 af, Atten= 0%, Lag= 6.6 min
Discarded = 0.01 cfs @ 17.07 hrs, Volume= 0.004 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.00' @ 17.07 hrs Surf.Area= 2,413 sf Storage= 2 cf

Plug-Flow detention time= 5.9 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (1,162.5 - 1,156.5)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	7,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	2,412	0	0
39.00	3,533	2,973	2,973
40.00	4,688	4,111	7,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	39.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.13 cfs @ 17.07 hrs HW=38.00' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=38.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7:

Inflow Area = 0.672 ac, 0.00% Impervious, Inflow Depth = 0.22" for 2-Year event
Inflow = 0.05 cfs @ 12.40 hrs, Volume= 0.013 af
Outflow = 0.05 cfs @ 12.49 hrs, Volume= 0.013 af, Atten= 10%, Lag= 5.8 min
Discarded = 0.05 cfs @ 12.49 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 33.01' @ 12.49 hrs Surf.Area= 1,392 sf Storage= 17 cf

Plug-Flow detention time= 6.0 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (976.4 - 970.5)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,371	0	0
34.00	3,067	2,219	2,219
35.00	4,864	3,966	6,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.08 cfs @ 12.49 hrs HW=33.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=33.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8: Ex. Depression

Inflow Area = 1.312 ac, 1.83% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.02 cfs @ 12.53 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 14.49 hrs, Volume= 0.014 af, Atten= 11%, Lag= 117.8 min
Discarded = 0.02 cfs @ 14.49 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 22.08' @ 14.49 hrs Surf.Area= 397 sf Storage= 25 cf

Plug-Flow detention time= 11.2 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 11.1 min (1,029.7 - 1,018.6)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	4,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	221	0	0
23.00	2,433	1,327	1,327
24.00	4,736	3,585	4,912

Device	Routing	Invert	Outlet Devices
#1	Primary	23.99'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	22.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 14.49 hrs HW=22.08' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=22.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 9:

Inflow Area = 0.860 ac, 0.47% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 0.10 cfs @ 12.32 hrs, Volume= 0.020 af
Outflow = 0.09 cfs @ 12.45 hrs, Volume= 0.020 af, Atten= 14%, Lag= 7.7 min
Discarded = 0.09 cfs @ 12.45 hrs, Volume= 0.020 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 33.02' @ 12.45 hrs Surf.Area= 1,595 sf Storage= 35 cf

Plug-Flow detention time= 5.9 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (957.1 - 951.2)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,365 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,552	0	0
33.50	2,513	1,016	1,016
34.00	3,207	1,430	2,446
35.00	4,630	3,919	6,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.09 cfs @ 12.45 hrs HW=33.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=33.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 10:

Inflow Area = 0.416 ac, 0.00% Impervious, Inflow Depth = 0.22" for 2-Year event
Inflow = 0.03 cfs @ 12.39 hrs, Volume= 0.008 af
Outflow = 0.03 cfs @ 12.49 hrs, Volume= 0.008 af, Atten= 10%, Lag= 5.8 min
Discarded = 0.03 cfs @ 12.49 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.01' @ 12.49 hrs Surf.Area= 949 sf Storage= 10 cf

Plug-Flow detention time= 6.0 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (976.0 - 970.1)

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	4,552 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	935	0	0
37.00	2,173	1,554	1,554
38.00	3,823	2,998	4,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	37.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.05 cfs @ 12.49 hrs HW=36.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=36.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-12: Runoff Area=9.014 ac 0.00% Impervious Runoff Depth=0.24"
Flow Length=607' Tc=16.2 min CN=42 Runoff=0.50 cfs 0.179 af

Subcatchment PDA-13: Runoff Area=1.883 ac 0.00% Impervious Runoff Depth=0.24"
Flow Length=342' Tc=10.0 min CN=42 Runoff=0.12 cfs 0.037 af

Subcatchment PDA-14: Runoff Area=0.672 ac 0.00% Impervious Runoff Depth=0.67"
Flow Length=132' Tc=7.7 min CN=52 Runoff=0.32 cfs 0.038 af

Subcatchment PDA-15: Runoff Area=1.312 ac 1.83% Impervious Runoff Depth=0.48"
Flow Length=351' Tc=7.8 min CN=48 Runoff=0.31 cfs 0.052 af

Subcatchment PDA-16: Runoff Area=0.860 ac 0.47% Impervious Runoff Depth=0.78"
Tc=6.0 min CN=54 Runoff=0.56 cfs 0.056 af

Subcatchment PDA-17: Runoff Area=0.416 ac 0.00% Impervious Runoff Depth=0.67"
Flow Length=307' Tc=7.3 min CN=52 Runoff=0.20 cfs 0.023 af

Subcatchment PDA-3: Runoff Area=1.900 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=131' Tc=10.0 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-4: Runoff Area=3.660 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=336' Tc=12.9 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-5: Runoff Area=2.167 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=132' Tc=13.8 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment PDA-6: Runoff Area=2.243 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=181' Tc=11.1 min CN=31 Runoff=0.00 cfs 0.001 af

Subcatchment PDA-7: Runoff Area=0.641 ac 0.62% Impervious Runoff Depth=0.02"
Flow Length=68' Tc=13.7 min CN=33 Runoff=0.00 cfs 0.001 af

Reach DP-3: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-4: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-5: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-6: Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach DP-7: Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond 5: Peak Elev=27.67' Storage=751 cf Inflow=0.50 cfs 0.179 af
Discarded=0.27 cfs 0.179 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.179 af

Pond 6: Peak Elev=38.02' Storage=36 cf Inflow=0.12 cfs 0.037 af
Discarded=0.10 cfs 0.037 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.037 af

Pond 7: Peak Elev=33.19' Storage=296 cf Inflow=0.32 cfs 0.038 af
Discarded=0.09 cfs 0.038 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.038 af

Pond 8: Ex. Depression Peak Elev=22.57' Storage=489 cf Inflow=0.31 cfs 0.052 af
Discarded=0.08 cfs 0.052 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.052 af

Pond 9: Peak Elev=33.30' Storage=557 cf Inflow=0.56 cfs 0.056 af
Discarded=0.12 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.056 af

Pond 10: Peak Elev=36.17' Storage=173 cf Inflow=0.20 cfs 0.023 af
Discarded=0.06 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.023 af

Total Runoff Area = 24.768 ac Runoff Volume = 0.388 af Average Runoff Depth = 0.19"
99.87% Pervious = 24.736 ac 0.13% Impervious = 0.032 ac

Summary for Subcatchment PDA-12:

Runoff = 0.50 cfs @ 12.58 hrs, Volume= 0.179 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.536	30	Woods, Good, HSG A
0.144	30	Brush, Good, HSG A
7.814	39	>75% Grass cover, Good, HSG A
0.520	96	Gravel surface, HSG A
9.014	42	Weighted Average
9.014		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
6.6	362	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
2.3	179	0.0340	1.29		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
16.2	607	Total			

Summary for Subcatchment PDA-13:

Runoff = 0.12 cfs @ 12.49 hrs, Volume= 0.037 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.011	30	Brush, Good, HSG A
1.755	39	>75% Grass cover, Good, HSG A
0.117	96	Gravel surface, HSG A
1.883	42	Weighted Average
1.883		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
4.0	205	0.0150	0.86		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0200	2.28		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.3	62	0.0480	3.29		**Shallow Concentrated Flow, Tc-4** Grassed Waterway Kv= 15.0 fps
10.0	342	Total			

Summary for Subcatchment PDA-14:

Runoff = 0.32 cfs @ 12.16 hrs, Volume= 0.038 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.521	39	>75% Grass cover, Good, HSG A
0.151	96	Gravel surface, HSG A
0.672	52	Weighted Average
0.672		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.3	36	0.0830	2.02		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0480	3.53		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	25	0.2800	3.70		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
7.7	132	Total			

Summary for Subcatchment PDA-15:

Runoff = 0.31 cfs @ 12.28 hrs, Volume= 0.052 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

	Area (ac)	CN	Description
	0.671	30	Woods, Good, HSG A
*	0.024	98	Impervious, HSG A
	0.329	39	>75% Grass cover, Good, HSG A
	0.288	96	Gravel surface, HSG A
	1.312	48	Weighted Average
	1.288		98.17% Pervious Area
	0.024		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.7	51	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.3	77	0.0520	3.67		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.9	84	0.0460	1.50		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	36	0.0200	2.28		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
0.0	7	0.1200	2.42		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.6	46	0.0640	1.26		**Shallow Concentrated Flow, Tc-7** Woodland Kv= 5.0 fps
7.8	351	Total			

Summary for Subcatchment PDA-16:

Runoff = 0.56 cfs @ 12.12 hrs, Volume= 0.056 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.631	39	>75% Grass cover, Good, HSG A
0.225	96	Gravel surface, HSG A
0.004	98	Equipment Pad Areas, HSG A
0.860	54	Weighted Average
0.856		99.53% Pervious Area
0.004		0.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Min.**

Summary for Subcatchment PDA-17:

Runoff = 0.20 cfs @ 12.15 hrs, Volume= 0.023 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
0.069	30	Brush, Good, HSG A
0.240	39	>75% Grass cover, Good, HSG A
0.107	96	Gravel surface, HSG A
0.416	52	Weighted Average
0.416		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	257	0.0150	1.84		**Shallow Concentrated Flow, Tc-2** Grassed Waterway Kv= 15.0 fps
7.3	307	Total			

Summary for Subcatchment PDA-3:

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.697	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.079	39	>75% Grass cover, Good, HSG A
1.900	30	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	81	0.0860	1.47		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
10.0	131	Total			

Summary for Subcatchment PDA-4:

Runoff = 0.00 cfs @ 24.05 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
3.402	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.134	39	>75% Grass cover, Good, HSG A
3.660	30	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	68	0.0440	1.05		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
2.7	218	0.0730	1.35		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
12.9	336	Total			

Summary for Subcatchment PDA-5:

Runoff = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.917	30	Woods, Good, HSG A
0.151	30	Brush, Good, HSG A
0.099	39	>75% Grass cover, Good, HSG A
2.167	30	Weighted Average
2.167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	82	0.0240	0.77		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.8	132	Total			

Summary for Subcatchment PDA-6:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

Area (ac)	CN	Description
1.843	30	Woods, Good, HSG A
0.187	39	>75% Grass cover, Good, HSG A
0.213	30	Brush, Good, HSG A
2.243	31	Weighted Average
2.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.0	131	0.0460	1.07		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
11.1	181	Total			

Summary for Subcatchment PDA-7:

Runoff = 0.00 cfs @ 21.66 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.70"

	Area (ac)	CN	Description
	0.489	30	Woods, Good, HSG A
	0.096	39	>75% Grass cover, Good, HSG A
	0.016	61	>75% Grass cover, Good, HSG B
*	0.004	98	Existing Roofs, HSG B
	0.036	30	Brush, Good, HSG A
	0.641	33	Weighted Average
	0.637		99.38% Pervious Area
	0.004		0.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	50	0.0150	0.06		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.3	18	0.0420	1.02		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.7	68	Total			

Summary for Reach DP-3:

Inflow Area = 3.176 ac, 0.13% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4:

Inflow Area = 4.972 ac, 0.48% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 24.05 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.05 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5:

Inflow Area = 2.167 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6:

Inflow Area = 11.257 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7:

Inflow Area = 3.196 ac, 0.13% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 21.66 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.66 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 5:

Inflow Area = 9.014 ac, 0.00% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 0.50 cfs @ 12.58 hrs, Volume= 0.179 af
Outflow = 0.27 cfs @ 15.01 hrs, Volume= 0.179 af, Atten= 46%, Lag= 145.8 min
Discarded = 0.27 cfs @ 15.01 hrs, Volume= 0.179 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 27.67' @ 15.01 hrs Surf.Area= 4,760 sf Storage= 751 cf

Plug-Flow detention time= 26.1 min calculated for 0.179 af (100% of inflow)
Center-of-Mass det. time= 25.9 min (1,025.5 - 999.6)

Volume	Invert	Avail.Storage	Storage Description
#1	27.50'	21,697 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.50	4,168	0	0
28.00	5,929	2,524	2,524
29.00	9,548	7,739	10,263
30.00	13,320	11,434	21,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	29.25'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	29.00'	**6.0" Round Culvert X 2.00** L= 17.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.00' / 28.76' S= 0.0141 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.27 cfs @ 15.01 hrs HW=27.67' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.50' (Free Discharge)
↑—**3=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6:

Inflow Area = 1.883 ac, 0.00% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 0.12 cfs @ 12.49 hrs, Volume= 0.037 af
Outflow = 0.10 cfs @ 12.59 hrs, Volume= 0.037 af, Atten= 12%, Lag= 6.0 min
Discarded = 0.10 cfs @ 12.59 hrs, Volume= 0.037 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.02' @ 12.59 hrs Surf.Area= 2,429 sf Storage= 36 cf

Plug-Flow detention time= 5.9 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (999.8 - 993.8)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	7,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	2,412	0	0
39.00	3,533	2,973	2,973
40.00	4,688	4,111	7,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	39.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.14 cfs @ 12.59 hrs HW=38.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=38.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7:

Inflow Area = 0.672 ac, 0.00% Impervious, Inflow Depth = 0.67" for 10-Year event
Inflow = 0.32 cfs @ 12.16 hrs, Volume= 0.038 af
Outflow = 0.09 cfs @ 12.71 hrs, Volume= 0.038 af, Atten= 70%, Lag= 32.9 min
Discarded = 0.09 cfs @ 12.71 hrs, Volume= 0.038 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 33.19' @ 12.71 hrs Surf.Area= 1,698 sf Storage= 296 cf

Plug-Flow detention time= 23.1 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 23.1 min (937.3 - 914.2)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,371	0	0
34.00	3,067	2,219	2,219
35.00	4,864	3,966	6,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.09 cfs @ 12.71 hrs HW=33.19' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=33.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8: Ex. Depression

Inflow Area = 1.312 ac, 1.83% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 0.31 cfs @ 12.28 hrs, Volume= 0.052 af
Outflow = 0.08 cfs @ 13.82 hrs, Volume= 0.052 af, Atten= 73%, Lag= 92.1 min
Discarded = 0.08 cfs @ 13.82 hrs, Volume= 0.052 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 22.57' @ 13.82 hrs Surf.Area= 1,487 sf Storage= 489 cf

Plug-Flow detention time= 70.8 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 70.7 min (1,008.2 - 937.5)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	4,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	221	0	0
23.00	2,433	1,327	1,327
24.00	4,736	3,585	4,912

Device	Routing	Invert	Outlet Devices
#1	Primary	23.99'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	22.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 13.82 hrs HW=22.57' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=22.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 9:

Inflow Area = 0.860 ac, 0.47% Impervious, Inflow Depth = 0.78" for 10-Year event
Inflow = 0.56 cfs @ 12.12 hrs, Volume= 0.056 af
Outflow = 0.12 cfs @ 12.86 hrs, Volume= 0.056 af, Atten= 79%, Lag= 44.5 min
Discarded = 0.12 cfs @ 12.86 hrs, Volume= 0.056 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 33.30' @ 12.86 hrs Surf.Area= 2,133 sf Storage= 557 cf

Plug-Flow detention time= 40.0 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 40.0 min (943.1 - 903.1)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,365 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,552	0	0
33.50	2,513	1,016	1,016
34.00	3,207	1,430	2,446
35.00	4,630	3,919	6,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.12 cfs @ 12.86 hrs HW=33.30' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=33.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 10:

Inflow Area = 0.416 ac, 0.00% Impervious, Inflow Depth = 0.67" for 10-Year event
Inflow = 0.20 cfs @ 12.15 hrs, Volume= 0.023 af
Outflow = 0.06 cfs @ 12.64 hrs, Volume= 0.023 af, Atten= 68%, Lag= 29.5 min
Discarded = 0.06 cfs @ 12.64 hrs, Volume= 0.023 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.17' @ 12.64 hrs Surf.Area= 1,141 sf Storage= 173 cf

Plug-Flow detention time= 19.2 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 19.2 min (933.0 - 913.8)

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	4,552 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	935	0	0
37.00	2,173	1,554	1,554
38.00	3,823	2,998	4,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	37.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.06 cfs @ 12.64 hrs HW=36.17' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=36.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 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 PDA-12: Runoff Area=9.014 ac 0.00% Impervious Runoff Depth=1.00"
Flow Length=607' Tc=16.2 min CN=42 Runoff=5.02 cfs 0.748 af

Subcatchment PDA-13: Runoff Area=1.883 ac 0.00% Impervious Runoff Depth=1.00"
Flow Length=342' Tc=10.0 min CN=42 Runoff=1.20 cfs 0.156 af

Subcatchment PDA-14: Runoff Area=0.672 ac 0.00% Impervious Runoff Depth=1.85"
Flow Length=132' Tc=7.7 min CN=52 Runoff=1.21 cfs 0.103 af

Subcatchment PDA-15: Runoff Area=1.312 ac 1.83% Impervious Runoff Depth=1.49"
Flow Length=351' Tc=7.8 min CN=48 Runoff=1.74 cfs 0.163 af

Subcatchment PDA-16: Runoff Area=0.860 ac 0.47% Impervious Runoff Depth=2.03"
Tc=6.0 min CN=54 Runoff=1.86 cfs 0.146 af

Subcatchment PDA-17: Runoff Area=0.416 ac 0.00% Impervious Runoff Depth=1.85"
Flow Length=307' Tc=7.3 min CN=52 Runoff=0.76 cfs 0.064 af

Subcatchment PDA-3: Runoff Area=1.900 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=131' Tc=10.0 min CN=30 Runoff=0.05 cfs 0.034 af

Subcatchment PDA-4: Runoff Area=3.660 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=336' Tc=12.9 min CN=30 Runoff=0.11 cfs 0.065 af

Subcatchment PDA-5: Runoff Area=2.167 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=132' Tc=13.8 min CN=30 Runoff=0.06 cfs 0.038 af

Subcatchment PDA-6: Runoff Area=2.243 ac 0.00% Impervious Runoff Depth=0.26"
Flow Length=181' Tc=11.1 min CN=31 Runoff=0.08 cfs 0.049 af

Subcatchment PDA-7: Runoff Area=0.641 ac 0.62% Impervious Runoff Depth=0.37"
Flow Length=68' Tc=13.7 min CN=33 Runoff=0.06 cfs 0.020 af

Reach DP-3: Inflow=0.08 cfs 0.035 af
Outflow=0.08 cfs 0.035 af

Reach DP-4: Inflow=0.11 cfs 0.065 af
Outflow=0.11 cfs 0.065 af

Reach DP-5: Inflow=0.06 cfs 0.038 af
Outflow=0.06 cfs 0.038 af

Reach DP-6: Inflow=0.33 cfs 0.114 af
Outflow=0.33 cfs 0.114 af

Reach DP-7: Inflow=0.06 cfs 0.020 af
Outflow=0.06 cfs 0.020 af

Pond 5: Peak Elev=29.24' Storage=12,698 cf Inflow=5.02 cfs 0.748 af
Discarded=0.58 cfs 0.682 af Primary=0.25 cfs 0.065 af Secondary=0.00 cfs 0.000 af Outflow=0.84 cfs 0.748 af

Pond 6: Peak Elev=38.77' Storage=2,189 cf Inflow=1.20 cfs 0.156 af
Discarded=0.18 cfs 0.156 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.156 af

Pond 7: Peak Elev=33.78' Storage=1,597 cf Inflow=1.21 cfs 0.103 af
Discarded=0.15 cfs 0.103 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.103 af

Pond 8: Ex. Depression Peak Elev=23.47' Storage=2,720 cf Inflow=1.74 cfs 0.163 af
Discarded=0.20 cfs 0.163 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.163 af

Pond 9: Peak Elev=34.01' Storage=2,465 cf Inflow=1.86 cfs 0.146 af
Discarded=0.18 cfs 0.144 af Primary=0.02 cfs 0.001 af Outflow=0.20 cfs 0.146 af

Pond 10: Peak Elev=36.70' Storage=953 cf Inflow=0.76 cfs 0.064 af
Discarded=0.10 cfs 0.064 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.064 af

Total Runoff Area = 24.768 ac Runoff Volume = 1.585 af Average Runoff Depth = 0.77"
99.87% Pervious = 24.736 ac 0.13% Impervious = 0.032 ac

Summary for Subcatchment PDA-12:

Runoff = 5.02 cfs @ 12.32 hrs, Volume= 0.748 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.536	30	Woods, Good, HSG A
0.144	30	Brush, Good, HSG A
7.814	39	>75% Grass cover, Good, HSG A
0.520	96	Gravel surface, HSG A
9.014	42	Weighted Average
9.014		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
6.6	362	0.0170	0.91		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
2.3	179	0.0340	1.29		**Shallow Concentrated Flow, Tc-3** Short Grass Pasture Kv= 7.0 fps
0.1	16	0.1250	2.47		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
16.2	607	Total			

Summary for Subcatchment PDA-13:

Runoff = 1.20 cfs @ 12.20 hrs, Volume= 0.156 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.011	30	Brush, Good, HSG A
1.755	39	>75% Grass cover, Good, HSG A
0.117	96	Gravel surface, HSG A
1.883	42	Weighted Average
1.883		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0200	0.15		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
4.0	205	0.0150	0.86		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0200	2.28		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.3	62	0.0480	3.29		**Shallow Concentrated Flow, Tc-4** Grassed Waterway Kv= 15.0 fps
10.0	342	Total			

Summary for Subcatchment PDA-14:

Runoff = 1.21 cfs @ 12.12 hrs, Volume= 0.103 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.521	39	>75% Grass cover, Good, HSG A
0.151	96	Gravel surface, HSG A
0.672	52	Weighted Average
0.672		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.3	36	0.0830	2.02		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.1	21	0.0480	3.53		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.1	25	0.2800	3.70		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
7.7	132	Total			

Summary for Subcatchment PDA-15:

Runoff = 1.74 cfs @ 12.14 hrs, Volume= 0.163 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.671	30	Woods, Good, HSG A
*	0.024	98	Impervious, HSG A
	0.329	39	>75% Grass cover, Good, HSG A
	0.288	96	Gravel surface, HSG A
	1.312	48	Weighted Average
	1.288		98.17% Pervious Area
	0.024		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
0.7	51	0.0290	1.19		**Shallow Concentrated Flow, Tc-2** Short Grass Pasture Kv= 7.0 fps
0.3	77	0.0520	3.67		**Shallow Concentrated Flow, Tc-3** Unpaved Kv= 16.1 fps
0.9	84	0.0460	1.50		**Shallow Concentrated Flow, Tc-4** Short Grass Pasture Kv= 7.0 fps
0.3	36	0.0200	2.28		**Shallow Concentrated Flow, Tc-5** Unpaved Kv= 16.1 fps
0.0	7	0.1200	2.42		**Shallow Concentrated Flow, Tc-6** Short Grass Pasture Kv= 7.0 fps
0.6	46	0.0640	1.26		**Shallow Concentrated Flow, Tc-7** Woodland Kv= 5.0 fps
7.8	351	Total			

Summary for Subcatchment PDA-16:

Runoff = 1.86 cfs @ 12.10 hrs, Volume= 0.146 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.631	39	>75% Grass cover, Good, HSG A
0.225	96	Gravel surface, HSG A
0.004	98	Equipment Pad Areas, HSG A
0.860	54	Weighted Average
0.856		99.53% Pervious Area
0.004		0.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, 6 Min.**

Summary for Subcatchment PDA-17:

Runoff = 0.76 cfs @ 12.12 hrs, Volume= 0.064 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
0.069	30	Brush, Good, HSG A
0.240	39	>75% Grass cover, Good, HSG A
0.107	96	Gravel surface, HSG A
0.416	52	Weighted Average
0.416		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0250	0.17		**Sheet Flow, Tc-1** Grass: Short n= 0.150 P2= 3.40"
2.3	257	0.0150	1.84		**Shallow Concentrated Flow, Tc-2** Grassed Waterway Kv= 15.0 fps
7.3	307	Total			

Summary for Subcatchment PDA-3:

Runoff = 0.05 cfs @ 13.83 hrs, Volume= 0.034 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.697	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.079	39	>75% Grass cover, Good, HSG A
1.900	30	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	81	0.0860	1.47		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
10.0	131	Total			

Summary for Subcatchment PDA-4:

Runoff = 0.11 cfs @ 13.88 hrs, Volume= 0.065 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
3.402	30	Woods, Good, HSG A
0.124	30	Brush, Good, HSG A
0.134	39	>75% Grass cover, Good, HSG A
3.660	30	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.1	68	0.0440	1.05		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
2.7	218	0.0730	1.35		**Shallow Concentrated Flow, Tc-3** Woodland Kv= 5.0 fps
12.9	336	Total			

Summary for Subcatchment PDA-5:

Runoff = 0.06 cfs @ 13.89 hrs, Volume= 0.038 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.917	30	Woods, Good, HSG A
0.151	30	Brush, Good, HSG A
0.099	39	>75% Grass cover, Good, HSG A
2.167	30	Weighted Average
2.167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0200	0.07		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
1.8	82	0.0240	0.77		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.8	132	Total			

Summary for Subcatchment PDA-6:

Runoff = 0.08 cfs @ 12.59 hrs, Volume= 0.049 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (ac)	CN	Description
1.843	30	Woods, Good, HSG A
0.187	39	>75% Grass cover, Good, HSG A
0.213	30	Brush, Good, HSG A
2.243	31	Weighted Average
2.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	50	0.0400	0.09		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
2.0	131	0.0460	1.07		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
11.1	181	Total			

Summary for Subcatchment PDA-7:

Runoff = 0.06 cfs @ 12.53 hrs, Volume= 0.020 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

	Area (ac)	CN	Description
	0.489	30	Woods, Good, HSG A
	0.096	39	>75% Grass cover, Good, HSG A
	0.016	61	>75% Grass cover, Good, HSG B
*	0.004	98	Existing Roofs, HSG B
	0.036	30	Brush, Good, HSG A
	0.641	33	Weighted Average
	0.637		99.38% Pervious Area
	0.004		0.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	50	0.0150	0.06		**Sheet Flow, Tc-1** Woods: Light underbrush n= 0.400 P2= 3.40"
0.3	18	0.0420	1.02		**Shallow Concentrated Flow, Tc-2** Woodland Kv= 5.0 fps
13.7	68	Total			

Summary for Reach DP-3:

Inflow Area = 3.176 ac, 0.13% Impervious, Inflow Depth = 0.13" for 100-Year event
Inflow = 0.08 cfs @ 13.48 hrs, Volume= 0.035 af
Outflow = 0.08 cfs @ 13.48 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4:

Inflow Area = 4.972 ac, 0.48% Impervious, Inflow Depth = 0.16" for 100-Year event
Inflow = 0.11 cfs @ 13.88 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 13.88 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5:

Inflow Area = 2.167 ac, 0.00% Impervious, Inflow Depth = 0.21" for 100-Year event
Inflow = 0.06 cfs @ 13.89 hrs, Volume= 0.038 af
Outflow = 0.06 cfs @ 13.89 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6:

Inflow Area = 11.257 ac, 0.00% Impervious, Inflow Depth = 0.12" for 100-Year event
Inflow = 0.33 cfs @ 15.07 hrs, Volume= 0.114 af
Outflow = 0.33 cfs @ 15.07 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7:

Inflow Area = 3.196 ac, 0.13% Impervious, Inflow Depth = 0.07" for 100-Year event
Inflow = 0.06 cfs @ 12.53 hrs, Volume= 0.020 af
Outflow = 0.06 cfs @ 12.53 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 5:

Inflow Area = 9.014 ac, 0.00% Impervious, Inflow Depth = 1.00" for 100-Year event
Inflow = 5.02 cfs @ 12.32 hrs, Volume= 0.748 af
Outflow = 0.84 cfs @ 15.15 hrs, Volume= 0.748 af, Atten= 83%, Lag= 169.9 min
Discarded = 0.58 cfs @ 15.15 hrs, Volume= 0.682 af
Primary = 0.25 cfs @ 15.15 hrs, Volume= 0.065 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 29.24' @ 15.15 hrs Surf.Area= 10,466 sf Storage= 12,698 cf

Plug-Flow detention time= 254.3 min calculated for 0.746 af (100% of inflow)
Center-of-Mass det. time= 254.4 min (1,177.0 - 922.6)

Volume	Invert	Avail.Storage	Storage Description
#1	27.50'	21,697 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.50	4,168	0	0
28.00	5,929	2,524	2,524
29.00	9,548	7,739	10,263
30.00	13,320	11,434	21,697

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Secondary	29.25'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Primary	29.00'	**6.0" Round Culvert X 2.00** L= 17.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 29.00' / 28.76' S= 0.0141 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.58 cfs @ 15.15 hrs HW=29.24' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=0.25 cfs @ 15.15 hrs HW=29.24' (Free Discharge)
↑—**3=Culvert** (Inlet Controls 0.25 cfs @ 1.33 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6:

Inflow Area = 1.883 ac, 0.00% Impervious, Inflow Depth = 1.00" for 100-Year event
Inflow = 1.20 cfs @ 12.20 hrs, Volume= 0.156 af
Outflow = 0.18 cfs @ 14.86 hrs, Volume= 0.156 af, Atten= 85%, Lag= 159.3 min
Discarded = 0.18 cfs @ 14.86 hrs, Volume= 0.156 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.77' @ 14.86 hrs Surf.Area= 3,275 sf Storage= 2,189 cf

Plug-Flow detention time= 134.8 min calculated for 0.156 af (100% of inflow)
Center-of-Mass det. time= 134.6 min (1,051.4 - 916.9)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	7,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	2,412	0	0
39.00	3,533	2,973	2,973
40.00	4,688	4,111	7,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	39.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.18 cfs @ 14.86 hrs HW=38.77' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=38.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7:

Inflow Area = 0.672 ac, 0.00% Impervious, Inflow Depth = 1.85" for 100-Year event
Inflow = 1.21 cfs @ 12.12 hrs, Volume= 0.103 af
Outflow = 0.15 cfs @ 13.39 hrs, Volume= 0.103 af, Atten= 88%, Lag= 75.7 min
Discarded = 0.15 cfs @ 13.39 hrs, Volume= 0.103 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 33.78' @ 13.39 hrs Surf.Area= 2,701 sf Storage= 1,597 cf

Plug-Flow detention time= 115.9 min calculated for 0.103 af (100% of inflow)
Center-of-Mass det. time= 115.7 min (991.9 - 876.2)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,185 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,371	0	0
34.00	3,067	2,219	2,219
35.00	4,864	3,966	6,185

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.15 cfs @ 13.39 hrs HW=33.78' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=33.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 8: Ex. Depression

Inflow Area = 1.312 ac, 1.83% Impervious, Inflow Depth = 1.49" for 100-Year event
Inflow = 1.74 cfs @ 12.14 hrs, Volume= 0.163 af
Outflow = 0.20 cfs @ 14.12 hrs, Volume= 0.163 af, Atten= 89%, Lag= 119.3 min
Discarded = 0.20 cfs @ 14.12 hrs, Volume= 0.163 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 23.47' @ 14.12 hrs Surf.Area= 3,512 sf Storage= 2,720 cf

Plug-Flow detention time= 181.2 min calculated for 0.163 af (100% of inflow)
Center-of-Mass det. time= 181.2 min (1,070.4 - 889.2)

Volume	Invert	Avail.Storage	Storage Description
#1	22.00'	4,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.00	221	0	0
23.00	2,433	1,327	1,327
24.00	4,736	3,585	4,912

Device	Routing	Invert	Outlet Devices
#1	Primary	23.99'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	22.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.20 cfs @ 14.12 hrs HW=23.47' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=22.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 9:

Inflow Area = 0.860 ac, 0.47% Impervious, Inflow Depth = 2.03" for 100-Year event
Inflow = 1.86 cfs @ 12.10 hrs, Volume= 0.146 af
Outflow = 0.20 cfs @ 13.44 hrs, Volume= 0.146 af, Atten= 89%, Lag= 80.1 min
Discarded = 0.18 cfs @ 13.44 hrs, Volume= 0.144 af
Primary = 0.02 cfs @ 13.44 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 34.01' @ 13.44 hrs Surf.Area= 3,215 sf Storage= 2,465 cf

Plug-Flow detention time= 154.1 min calculated for 0.145 af (100% of inflow)
Center-of-Mass det. time= 153.8 min (1,022.7 - 868.9)

Volume	Invert	Avail.Storage	Storage Description
#1	33.00'	6,365 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.00	1,552	0	0
33.50	2,513	1,016	1,016
34.00	3,207	1,430	2,446
35.00	4,630	3,919	6,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	33.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	34.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.18 cfs @ 13.44 hrs HW=34.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.01 cfs @ 13.44 hrs HW=34.01' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.21 fps)

Summary for Pond 10:

Inflow Area = 0.416 ac, 0.00% Impervious, Inflow Depth = 1.85" for 100-Year event
Inflow = 0.76 cfs @ 12.12 hrs, Volume= 0.064 af
Outflow = 0.10 cfs @ 13.15 hrs, Volume= 0.064 af, Atten= 87%, Lag= 61.6 min
Discarded = 0.10 cfs @ 13.15 hrs, Volume= 0.064 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.70' @ 13.15 hrs Surf.Area= 1,799 sf Storage= 953 cf

Plug-Flow detention time= 100.8 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 100.6 min (976.4 - 875.8)

Volume	Invert	Avail.Storage	Storage Description
#1	36.00'	4,552 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.00	935	0	0
37.00	2,173	1,554	1,554
38.00	3,823	2,998	4,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	37.00'	**10.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.10 cfs @ 13.15 hrs HW=36.70' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=36.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

SITE USE PLAN SUBMISSION

27 CHARGE POND ROAD

27 CHARGE POND ROAD, WAREHAM, MA 02571

SOLAR PHOTOVOLTAIC AND ENERGY STORAGE ELECTRIC SYSTEM

GENERAL NOTES

1. AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE BORREGO SOLAR SYSTEMS, INC AND "SUBCONTRACTOR" IS BORREGO'S INSTALLATION SUBCONTRACTOR.
2. THESE NOTES SET MINIMUM STANDARDS FOR CONSTRUCTION. THE DRAWINGS GOVERN OVER THESE NOTES TO THE EXTENT SHOWN.
3. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING: LOCAL BUILDING CODE, LOCAL ELECTRICAL CODE, ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK AND THOSE CODES AND STANDARDS LISTED IN THESE DRAWINGS AND IN THE SUBCONTRACTOR AGREEMENT.
4. EXCEPTIONS TO THE CONTRACT DOCUMENTS ARE PERMITTED ONLY WITH THE APPROVAL OF BORREGO.
5. COORDINATE THESE DRAWINGS WITH SPECIFICATIONS AND MANUFACTURER INSTALLATION AND OPERATION MANUALS AND NOTIFY BORREGO OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.
6. DRAWINGS HAVE BEEN DETAILED IN COMPLIANCE WITH U.L. LISTING REQUIREMENTS AND THE BUILDING CODE FOR THE MATERIALS SPECIFIED. IF AN ALTERNATE OR SUBSTITUTED MATERIAL IS ACCEPTED AS AN EQUAL BY BORREGO, THE SUBCONTRACTOR WILL ASSUME THE RESPONSIBILITY FOR WHATEVER CONSTRUCTION MODIFICATION AND/OR ADDITIONAL COST THAT IS REQUIRED BY REASON OF THIS ACCEPTANCE.
7. PRIOR TO THE COMMENCEMENT OF ANY WORK, EACH TRADE SHALL VERIFY EXISTING CONDITIONS AND NOTIFY BORREGO OF ANY DISCREPANCIES TO THAT WHICH IS SHOWN IN THESE DRAWINGS, INCLUDING BUT NOT LIMITED TO DIMENSIONS OF THE WORK AREA, STRUCTURE, EXISTING ELECTRICAL SERVICE, CONDUIT PATHS, OBSTRUCTIONS, ACCESSIBILITY ISSUES, AND WORKING CLEARANCES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE SUBCONTRACTOR AT HIS OWN EXPENSE.
8. SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO BORREGO FOR APPROVAL PRIOR TO MAKING ANY CHANGES. APPROVED CHANGES REQUIRE A DRAWING REVISION TO MAINTAIN CONTROL OVER THE APPROVED DESIGN. DEVIATION FROM THESE PLANS PRIOR TO BORREGO APPROVAL PLACES ALL LIABILITY ON THE SUBCONTRACTOR.
9. UNLESS INDICATED AS EXISTING (E), ALL PROPOSED MATERIALS AND EQUIPMENT ARE NEW.
10. ALL ITEMS TO BE REMOVED AND RELOCATED OR REPLACED SHALL BE HANDLED WITH PROPER CARE AND STORED IN A SAFE PLACE TO PREVENT DAMAGE; OR BE REPLACED AT THE SUBCONTRACTOR'S EXPENSE.
11. ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN. WHERE DETAILS ARE NOT PROVIDED, THE SUBCONTRACTOR SHALL USE DILIGENT EFFORTS TO MOUNT EQUIPMENT SUCH THAT IT WILL BE CLEAN, LEVEL AND SOLID.
12. ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.
13. ANY METAL SHAVINGS RESULTING FROM SITE WORK SHALL BE CLEANED FROM ROOF SURFACES, ENCLOSURES AND ANY ADDITIONAL AREAS WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS OR OTHER DAMAGE.
14. NO STRUCTURAL MEMBER SHALL BE DRILLED UNLESS SPECIFICALLY AUTHORIZED BY BORREGO.
15. SUBCONTRACTOR ACKNOWLEDGES THAT THE SYSTEM AS INDICATED ON THE PLANS REQUIRES ALL COMPONENTS TO BE INSTALLED TO PROPERLY RESIST WIND LOADS, SUCH AS BALLAST, WIND DEFLECTORS, ETC. IT IS THE RESPONSIBILITY OF THE SUBCONTRACTOR TO PROVIDE TEMPORARY MEANS TO RESIST WIND LOADS FOR ALL COMPONENTS NOT YET INSTALLED DURING AND AFTER REGULAR WORKING HOURS. THIS MAY INCLUDE TEMPORARY TIE DOWNS, COVERING, BALLAST OR ANY OTHER MEANS. DAMAGE TO ANY INSTALLED SYSTEM COMPONENT OR THE EXISTING FACILITY AS A RESULT OF THE UNFINISHED CONDITION NOT ADEQUATELY RESISTING WIND SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR TO REPAIR OR REPLACE AT THE SUBCONTRACTOR'S COST.
16. TREES MAY GROW DURING THE LIFE OF THE SYSTEM AND IMPACT THE PRODUCTION.

V.7

PROJECT SCOPE

THIS PROJECT CONSISTS OF THE INSTALLATION OF SOLAR MODULES PER THE SYSTEM DESCRIPTION, BELOW. THE MODULES WILL BE INSTALLED ON A GROUND MOUNTED RACKING SYSTEM. THE MODULES WILL BE WIRED IN SERIES STRINGS AND CONNECTED IN PARALLEL TO THE INVERTERS, WHICH CONVERT THE PHOTOVOLTAIC OUTPUT POWER FROM DC TO AC. THE SOLAR ELECTRIC SYSTEM WILL BE INTERCONNECTED WITH THE EXISTING SITE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE APPLICABLE ELECTRIC CODE AND EVERSOURCE REQUIREMENTS.

THIS PROJECT CONSISTS OF THE INSTALLATION OF ENERGY STORAGE EQUIPMENT, PER THE SYSTEM DESCRIPTION, BELOW. THE LITHIUM-ION ENERGY STORAGE MODULES WILL BE INSTALLED IN A PURPOSE BUILT CONTAINER WITH INTEGRATED BATTERY MANAGEMENT SYSTEM, HEATING, VENTILATION, AIR-CONDITIONING UNIT(S), AND FIRE SUPPRESSION SYSTEMS. THE ENERGY STORAGE MODULES WILL BE WIRED IN SERIES STRINGS AND CONNECTED TO THE POWER CONVERSION SYSTEM, WHICH WILL CONVERT DC TO AC WHILE THE BATTERIES ARE DISCHARGING AND WILL CONVERT AC TO DC WHILE THE BATTERIES ARE CHARGING.

PV SYSTEM DESCRIPTION

APPROXIMATE SYSTEM SIZE (DC)	11,591.1 KW	SYSTEM SIZE (AC)	5,000 KW
MODULES	(28,620) LG405N2T-J5	INVERTER(S)	POWER ELECTRONICS (1) HEMK FS2125K / (1) HEMK FS3190 (FACTORY LIMITED TO 2000 / 2990)
STC RATING	405	CEC EFFICIENCY	98.5%
RACKING	TERRASMART TGP 2X12 / 2x10	AZIMUTH	180° (SOUTH = 180°)
TILT ANGLE	25°		

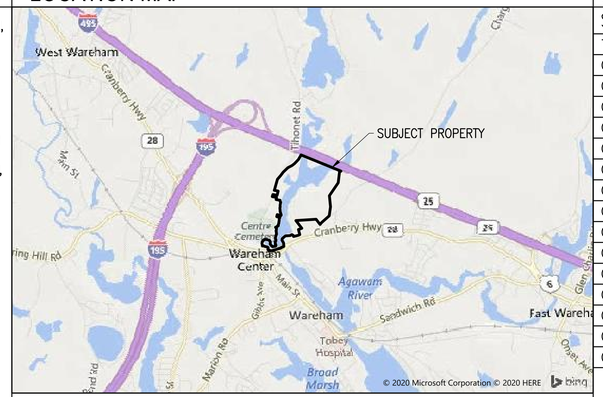
ENERGY STORAGE SYSTEM DESCRIPTION

SYSTEM POWER CAPACITY	5000kW
USABLE ENERGY CAPACITY	20000kWH
POWER CONVERSION SYSTEM	SAME AS ABOVE
DC/DC CONVERTER	POWER ELECTRONICS FREEMAQ FD0500 DC/DC CONVERTER 500kW

TOTAL SYSTEM DESCRIPTION

TOTAL PV+STORAGE POWER CAPACITY	5,000kWAC
MAXIMUM EXPORT TO UTILITY	5,000kWAC
STORAGE CHARGING MODE	SOLAR ONLY

LOCATION MAP



AERIAL VIEW

DRAWING LIST

SHEET NUMBER	SHEET TITLE
T-1	TITLE PAGE
CIVIL	
C-1.0	EXISTING CONDITIONS PLAN
C-2.0	TREE CLEARING PLAN
C-3.0	LAYOUT AND MATERIALS PLAN
C-3.1	LAYOUT AND MATERIALS PLAN – SOUTHWEST
C-3.2	LAYOUT AND MATERIALS PLAN – NORTHEAST
C-4.0	GRADING AND EROSION CONTROL PLAN
C-4.1	GRADING AND EROSION CONTROL PLAN – SOUTHWEST
C-4.2	GRADING AND EROSION CONTROL PLAN – NORTHEAST
C-4.3	GRADING AND EROSION CONTROL PLAN – BASINS 9 – 16
C-4.4	GRADING AND EROSION CONTROL PLAN – BASINS 1, 2, 3, 4
C-4.5	GRADING AND EROSION CONTROL PLAN – BASINS 9, 7, 6
C-5.0	CIVIL DETAILS
C-5.1	CIVIL DETAILS
C-6.0	SITE ACCESS AND INTERCONNECTION PLAN

APPLICABLE CODES AND STANDARDS

2017 MASSACHUSETTS ELECTRICAL CODE 527 CMR12.00
MASSACHUSETTS BUILDING CODE 9TH EDITION
UL-1703 – SOLAR MODULES
UL-1741 – INVERTERS, COMBINER BOXES
UL-2703 – RACKING MOUNTING SYSTEMS AND CLAMPING DEVICES FOR PV MODULES

PROJECT DIRECTORY

SYSTEM / PROJECT OWNER
TBD

LAND OWNER / HOST
A.D. MAKEPEACE COMPANY
158 TIHONET ROAD
WAREHAM, MA 02571

AUTHORITY HAVING JURISDICTION
TOWN OF WAREHAM
54 MARION ROAD
WAREHAM, MA 02571

UTILITY
EVERSOURCE

CIVIL ENGINEER
FIRM: BEALS AND THOMAS, INC.
CONTACT: JEFFREY R. MURPHY, P.E.
PHONE: (508)-366-0560

FIRM: BORREGO SOLAR SYSTEM, INC.
CONTACT: DEAN SMITH. P.E.
PHONE: (978)-221-3103

STRUCTURAL ENGINEER
FIRM: BORREGO SOLAR SYSTEMS, INC.
CONTACT: DAVID DUTIL, P.E.
PHONE: (978)-513-2623

ELECTRICAL ENGINEER
FIRM: BORREGO SOLAR SYSTEMS, INC.
CONTACT: AHARON WRIGHT, P.E.
PHONE: (978)-221-3081

DESIGN ENGINEER
FIRM: BORREGO SOLAR SYSTEMS, INC.
CONTACT: JOHN LAGASSE
PHONE: (978)-973-5022

GENERAL ABBREVIATIONS

(E)	EXISTING
AHJ	AUTHORITY HAVING JURISDICTION
AL	ALUMINUM
APPROX	APPROXIMATE
ARY	ARRAY
BLDG	BUILDING
BSS	BORREGO SOLAR SYSTEM
CL	CENTERLINE
DAS	DATA ACQUISITION SYSTEM
DIA	DIAMETER
DO	DITTO
EW	EAST-WEST
FBO	FURNISHED BY OTHERS
FF	FORWARD FACING
GALV	GALVANIZED
HDG	HOT DIP GALVANIZED
HVAC	HEATING VENTILATION AND AIR CONDITIONING
ID	INSIDE DIAMETER
MFR	MANUFACTURER
MOD	SOLAR MODULE
NS	NORTH-SOUTH
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PV	PHOTOVOLTAIC
PVC	POLY VINYL CHLORIDE
SCH	SCHEDULE
SS	STAINLESS STEEL
SSS	SOLAR SUPPORT STRUCTURE
STC	STANDARD TEST CONDITIONS
TBD	TO BE DETERMINED
TP	TAMPER PROOF
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
WP	WEATHER PROOF

REV 1.0

BORREGO SOLAR
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FAX: (888) 843-6778
WWW.BORREGOSOLAR.COM

NOT FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
JEFFREY R MURPHY
CIVIL
No. 51800
REGISTERED PROFESSIONAL ENGINEER
10/16/2020

27 CHARGE POND RD
27 CHARGE POND ROAD, WAREHAM, MA 02571

PROJECT NUMBER: 905-2712

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5	09/16/20	WS	JM	REVISIONS PER PEER REVIEW COMMENTS
6	10/16/20	WS	JM	REVISIONS TO ENTRANCE AND INTX

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

T-1
TITLE PAGE

NOTE:

1. ALL FLAGS BEGINNING WITH "BF" ARE BANK FLAGS. ALL OTHERS ARE WETLAND FLAGS.
2. THIS PLAN IS PREPARED BASED ON THE LIMITED ALTA/NSPS LAND TITLE SURVEY PREPARED BY NORTHEAST SURVEY CONSULTANTS AND STAMPED MAY 7, 2020. WITH FIELD WORK COMPLETED ON MARCH 20, 2020.
3. SOME SUPPLEMENTAL INFORMATION HAS BEEN ADDED TO THE PLAN.
4. WETLAND RESOURCE AREAS WERE DELINEATED BY BEALS AND THOMAS, INC. IN JUNE 2019 AND FEBRUARY 2020, WITH INVESTIGATIONS OF POTENTIAL VERNAL POOLS OCCURING ON MARCH 31 AND APRIL 17, 2020.

EXISTING CONDITIONS PLAN

SCALE: 1" = 150'

0 150' 300'

THIS DOCUMENT IS PROVIDED BY BORREGO SOLAR SYSTEMS, INC. TO FACILITATE THE SALE AND INSTALLATION OF A SOLAR POWER SYSTEM FROM BORREGO SOLAR SYSTEMS, INC. REPRODUCTION, RELEASE OR UTILIZATION FOR ANY OTHER PURPOSE, WITHOUT PRIOR WRITTEN CONSENT IS STRICTLY PROHIBITED.

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NOT FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
CHARLES D. SMITH
CIVIL
No. 52136
REGISTERED PROFESSIONAL ENGINEER

Charles D. Smith
10/16/20

27 CHARGE POND ROAD
27 CHARGE POND ROAD, WAREHAM, MA 02571

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C-1.0
EXISTING CONDITIONS PLAN

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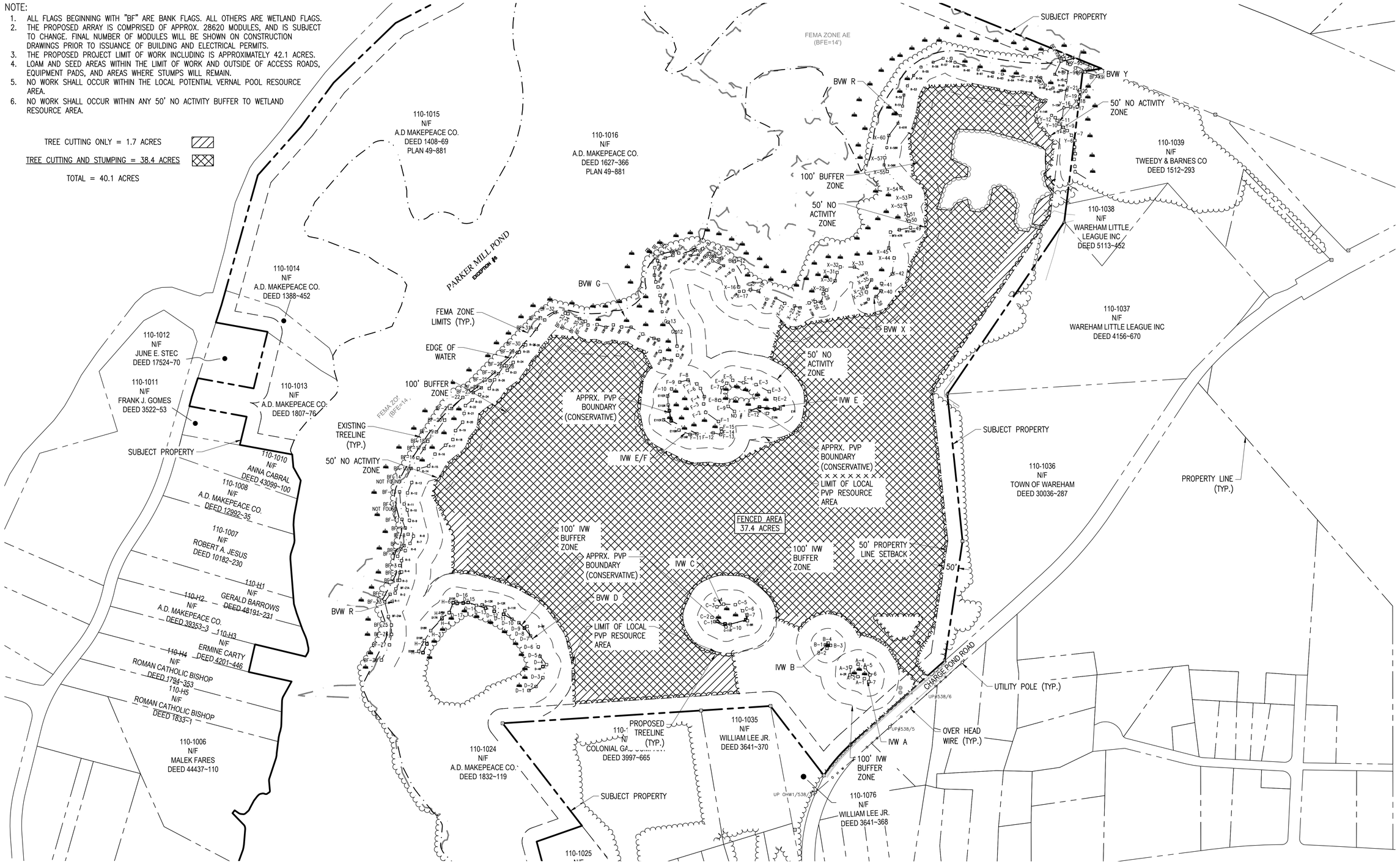
TREE CUTTING ONLY = 1.7 ACRES

TREE CUTTING AND STUMPING = 38.4 ACRES

TOTAL = 40.1 ACRES



TREE CLEARING PLAN

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CIVIL
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10/16/2020

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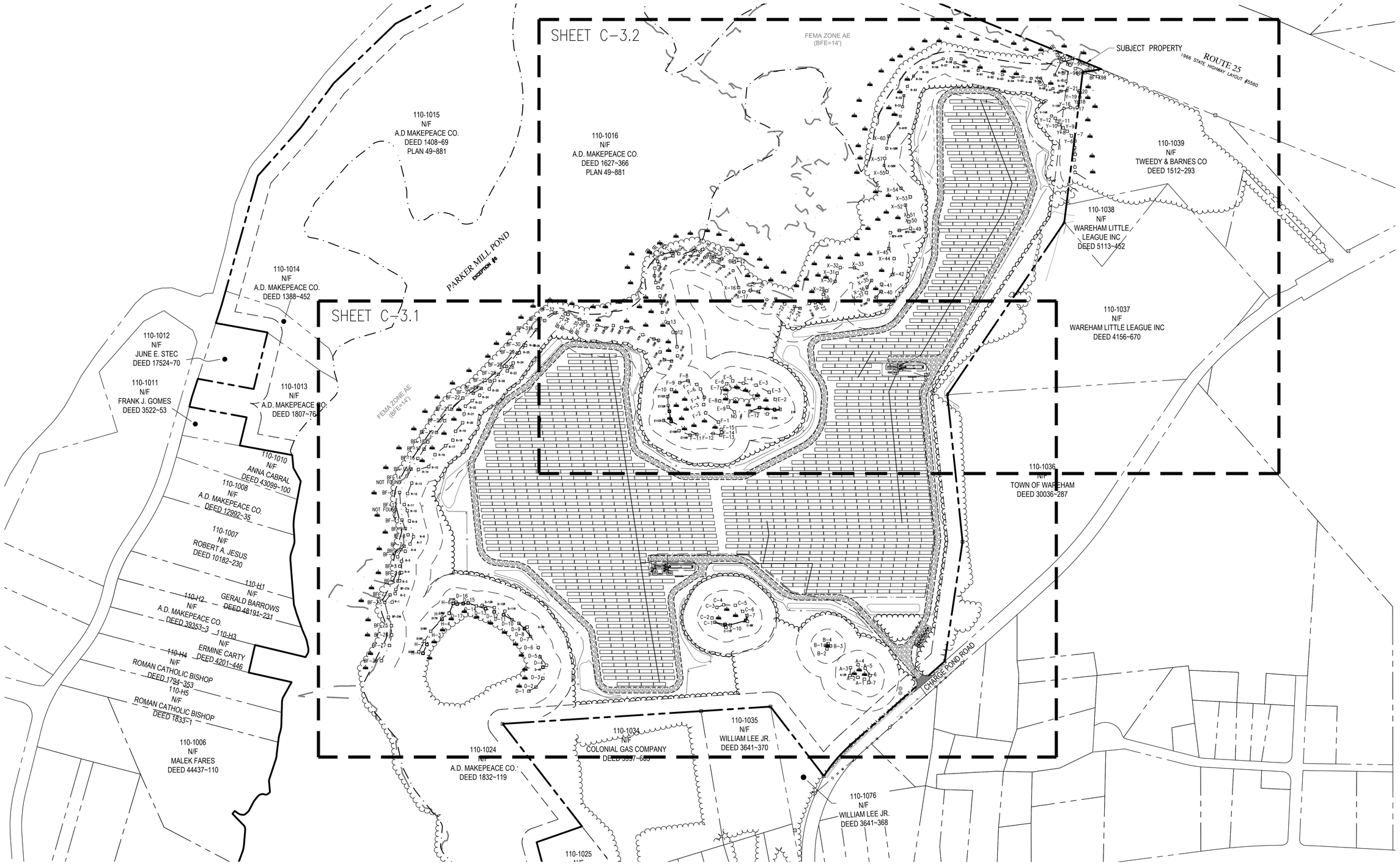
C-2.0
TREE CLEARING PLAN



LAYOUT AND MATERIALS PLAN

SCALE: 1" = 150'

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C-3.0
LAYOUT AND MATERIALS PLAN

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6. NO WORK SHALL OCCUR WITHIN ANY 50' NO ACTIVITY BUFFER TO WETLAND RESOURCE AREA.

ZONING TABLE	
ZONING DISTRICT – RESIDENTIAL R-60 DISTRICT	
	NON RESIDENTIAL USE REQUIREMENTS
MINIMUM LOT AREA	130,680 SF
MINIMUM FRONTAGE	180 FT
MINIMUM FRONT SETBACK	50 FT
MINIMUM SIDE SETBACK	50 FT
MINIMUM REAR SETBACK	50 FT
MAXIMUM HEIGHT	35 FT
MAXIMUM BUILDING COVERAGE	–
MAXIMUM IMPERVIOUS SURFACE	–

LAYOUT AND MATERIALS PLAN - SOUTHWEST

SCALE: 1" = 80'

0 80' 160'

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C-3.1
LAYOUT AND MATERIALS PLAN - SOUTHWEST

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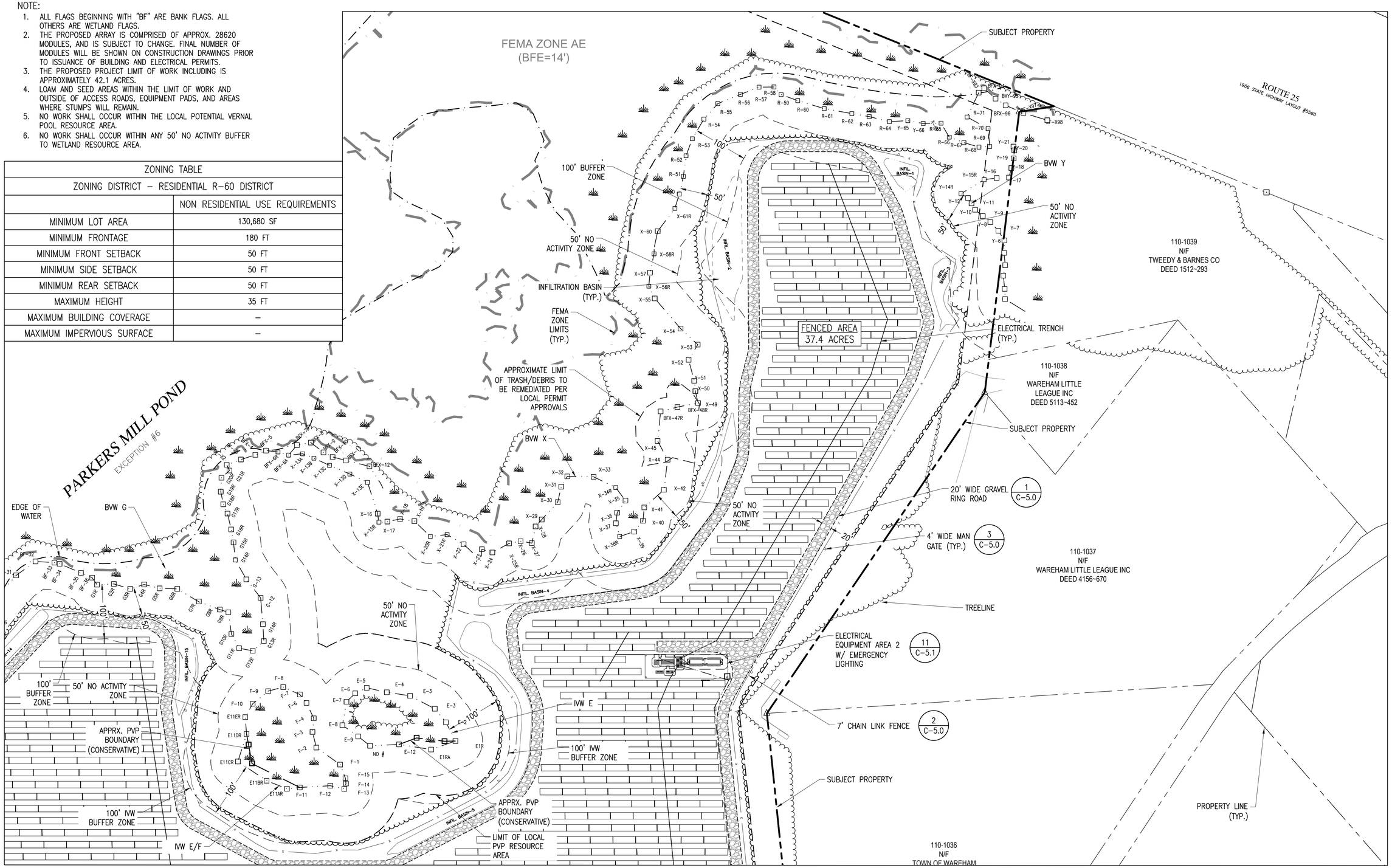

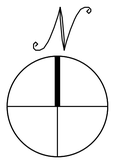

LAYOUT AND MATERIALS PLAN - NORTHEAST

SCALE: 1" = 80'

0 80' 160'

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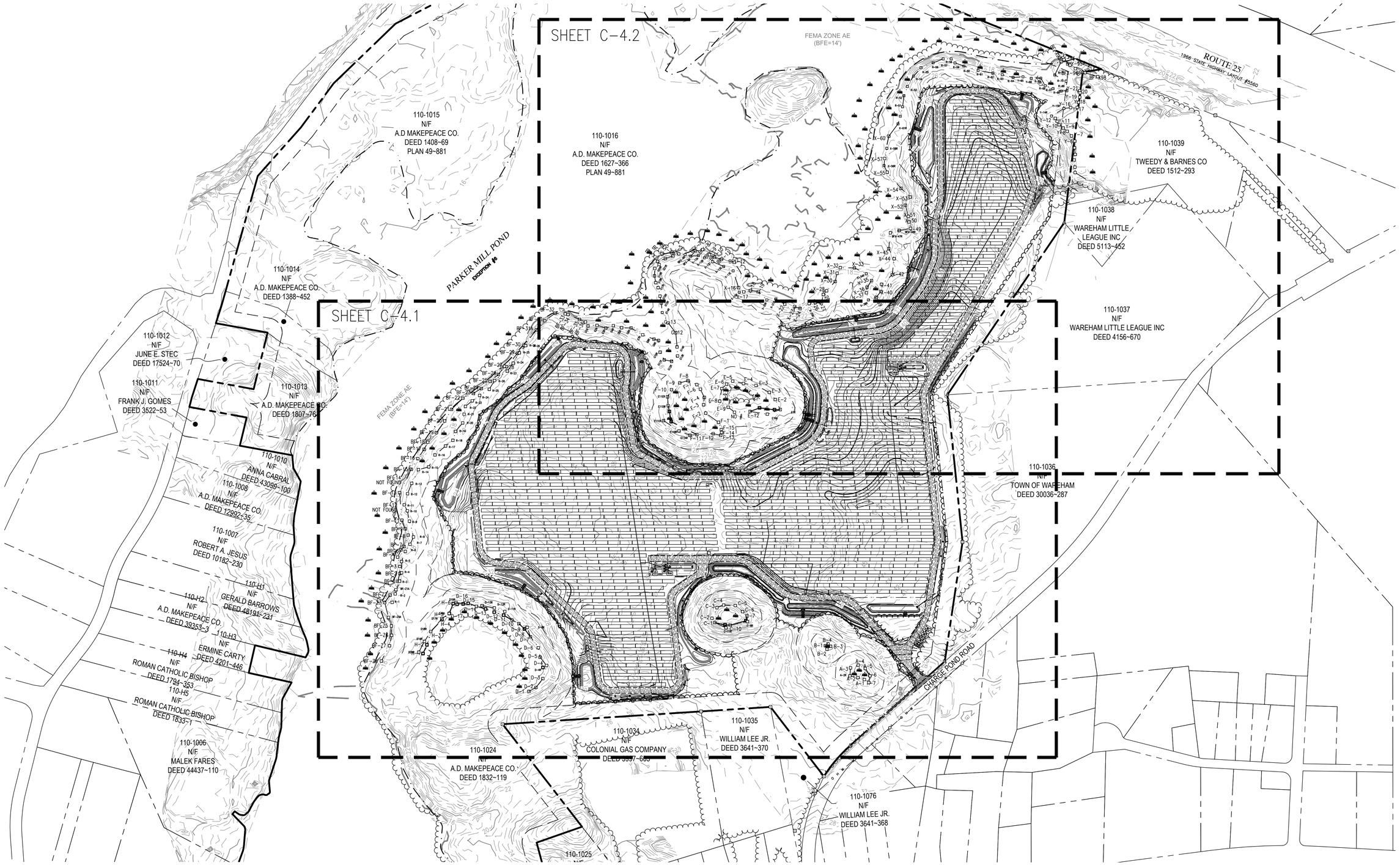
C-3.2
LAYOUT AND MATERIALS PLAN - NORTHEAST



GRADING AND EROSION CONTROL PLAN

SCALE: 1" = 150'

0 150' 300'

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C-4.0
GRADING AND EROSION CONTROL PLAN

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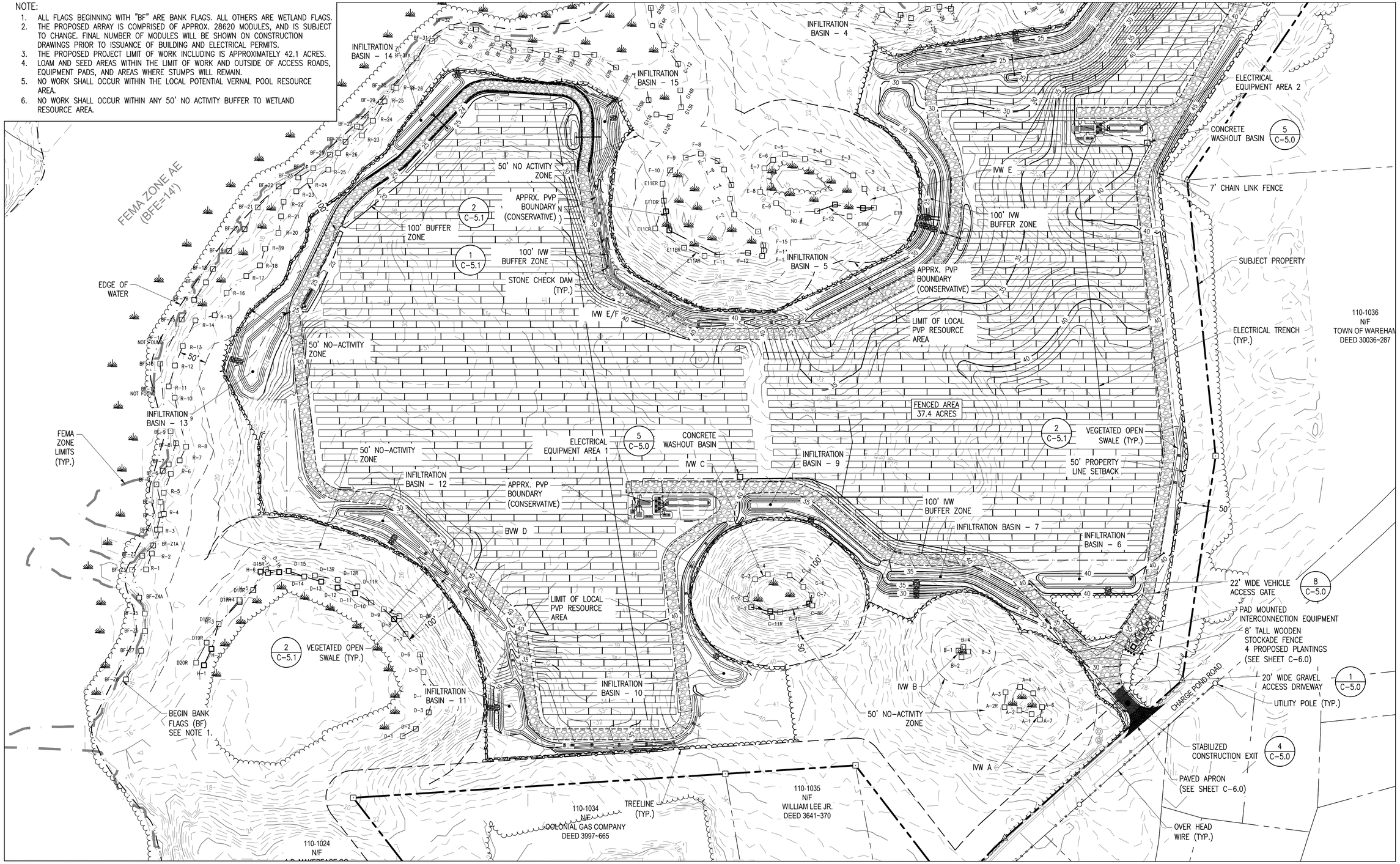

GRADING AND EROSION CONTROL PLAN - SOUTHWEST

SCALE: 1" = 80'

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GRADING AND EROSION CONTROL PLAN - SOUTHWEST

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FEMA ZONE AE
(BFE=14')

SUBJECT PROPERTY

ROUTE 25
1966 STATE HIGHWAY LAYOUT #5560

110-1016
N/F
A.D. MAKEPEACE CO.
DEED 1627-366
PLAN 49-881

PARKERS MILL POND
EXCEPTION #6

FEMA ZONE LIMITS (TYP.)

INFILTRATION BASIN – 2

50' NO ACTIVITY ZONE

VEGETATED OPEN SWALE (TYP.) — 2 / C-5.1

RIP-RAP CHECK DAMS SPACED 50' O.C. (TYP)

APPROXIMATE LIMIT OF TRASH/DEBRIS TO BE REMEDIATED PER LOCAL PERMIT APPROVALS

FENCED AREA
37.4 ACRES

INFILTRATION BASIN – 1

SILT SOCK (TYP.) — 1 / C-5.1

BVW Y

50' NO ACTIVITY ZONE

INFILTRATION BASIN – 3

110-1039
N/F
TWEEDY & BARNES CO
DEED 1512-293

110-1038
N/F
WAREHAM LITTLE LEAGUE INC
DEED 5113-452

RIP-RAP CHECK DAMS SPACED 50' O.C. (TYP) — 1 / C-5.1

20' WIDE GRAVEL RING ROAD — 1 / C-5.0

BVW X

50' NO ACTIVITY ZONE

EDGE OF WATER

BVW G

INFILTRATION BASIN – 14

INFILTRATION BASIN – 4

50' NO ACTIVITY ZONE

INFILTRATION BASIN – 15

110-1037
N/F
WAREHAM LITTLE LEAGUE INC
DEED 4156-670

SUBJECT PROPERTY

ELECTRICAL EQUIPMENT AREA 2

CONCRETE WASHOUT BASIN — 5 / C-5.0

7' CHAIN LINK FENCE — 2 / C-5.0

100' BUFFER ZONE

50' NO ACTIVITY ZONE

APPRX. PVP BOUNDARY (CONSERVATIVE)

IVW E

100' IVW BUFFER ZONE

SUBJECT PROPERTY

PROPERTY LINE (TYP.)

RIP-RAP CHECK DAMS SPACED 50' O.C. (TYP) — 1 / C-5.1

VEGETATED OPEN SWALE (TYP.) — 2 / C-5.1

IVW E/F

INFILTRATION BASIN – 5

APPRX. PVP BOUNDARY (CONSERVATIVE)

LIMIT OF LOCAL PVP RESOURCE AREA

110-1036
N/F
TOWN OF WAREHAM
DEED 30036-287

GRADING AND EROSION CONTROL PLAN - NORTHEAST

SCALE: 1" = 80'

0 80' 160'

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6	10/16/20	WS	JM	REVISIONS TO ENTRANCE AND INTX

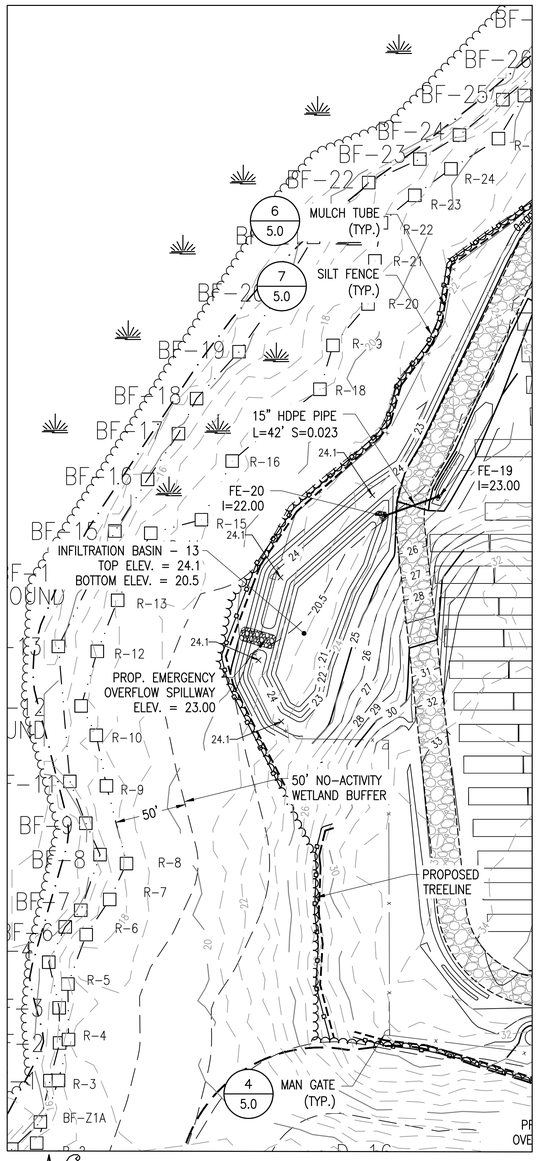
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-4.2

GRADING AND EROSION CONTROL PLAN - NORTHEAST

NOTE:

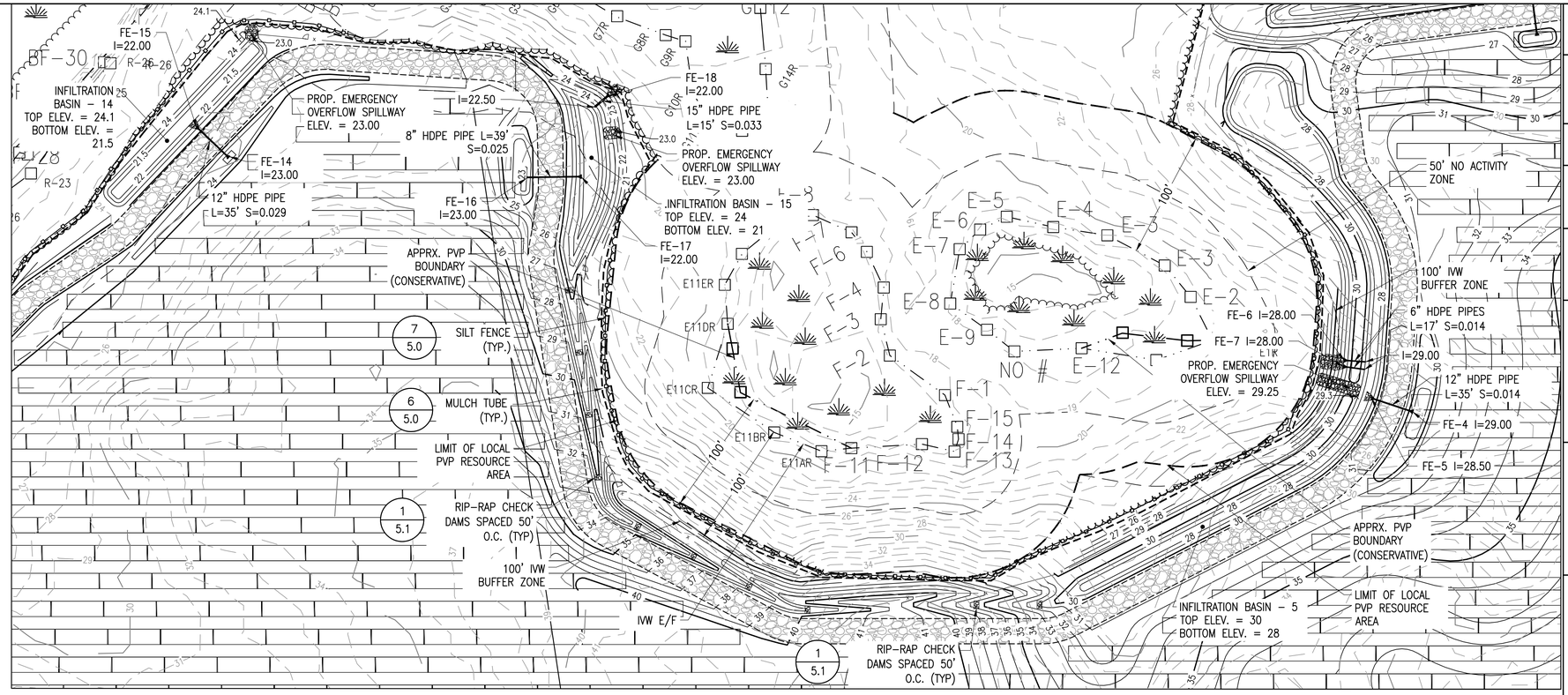
1. ALL FLAGS BEGINNING WITH "BF" ARE BANK FLAGS. ALL OTHERS ARE WETLAND FLAGS.
2. THE PROPOSED ARRAY IS COMPRISED OF APPROX. 28620 MODULES, AND IS SUBJECT TO CHANGE. FINAL NUMBER OF MODULES WILL BE SHOWN ON CONSTRUCTION DRAWINGS PRIOR TO ISSUANCE OF BUILDING AND ELECTRICAL PERMITS.
3. THE PROPOSED PROJECT LIMIT OF WORK INCLUDING IS APPROXIMATELY 42.1 ACRES.
4. LOAM AND SEED AREAS WITHIN THE LIMIT OF WORK AND OUTSIDE OF ACCESS ROADS, EQUIPMENT PADS, AND AREAS WHERE STUMPS WILL REMAIN.
5. NO WORK SHALL OCCUR WITHIN THE LOCAL POTENTIAL VERNAL POOL RESOURCE AREA.
6. NO WORK SHALL OCCUR WITHIN ANY 50' NO ACTIVITY BUFFER TO WETLAND RESOURCE AREA.



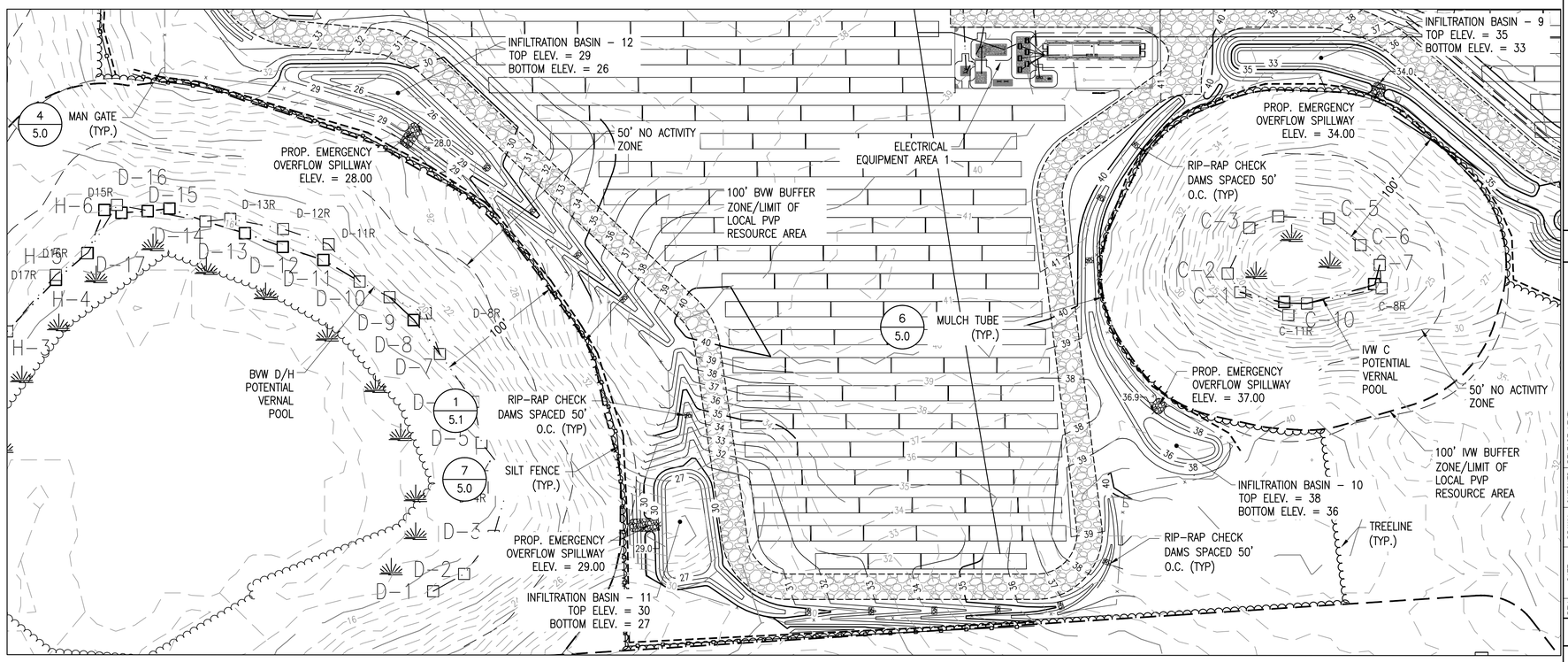
BASINS - 13

SCALE: 1" = 50'

0 50' 100'



BASINS - 14, 15



BASINS - 12, 11, 10, 9

BORREGO SOLAR
55 TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
PHONE: (888) 898-6273
FAX: (888) 843-6778
WWW.BORREGOSOLAR.COM

NOT FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
JEFFREY R MURPHY
CIVIL
No. 51800
REGISTERED PROFESSIONAL ENGINEER
10/16/2020

27 CHARGE POND ROAD
27 CHARGE POND RD, WAREHAM, MA 02571

PROJECT NUMBER: 905-2712

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
1	04/27/20	WS	CDS	PLAN SET CREATION
2	04/28/20	JPL	CDS	UPDATED TITLE PAGE
3	05/22/20	WS	CDS	UPDATED TO MATCH DESIGN CHANGES
4	05/28/20	WS	CDS	ISSUED FOR LOCAL PERMITTING
5	09/16/20	WS	JM	REVISIONS PER PEER REVIEW COMMENTS
6	10/16/20	WS	JM	REVISIONS TO ENTRANCE AND INTX

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-4.3

GRADING AND EROSION CONTROL PLAN - BASINS 9 - 16

NOTE:

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3. THE PROPOSED PROJECT LIMIT OF WORK INCLUDING IS APPROXIMATELY 42.1 ACRES.
4. LOAM AND SEED AREAS WITHIN THE LIMIT OF WORK AND OUTSIDE OF ACCESS ROADS, EQUIPMENT PADS, AND AREAS WHERE STUMPS WILL REMAIN.
5. NO WORK SHALL OCCUR WITHIN THE LOCAL POTENTIAL VERNAL POOL RESOURCE AREA.
6. NO WORK SHALL OCCUR WITHIN ANY 50' NO ACTIVITY BUFFER TO WETLAND RESOURCE AREA.

PROP. EMERGENCY OVERFLOW SPILLWAY ELEV. = 22.00

INFILTRATION BASIN – 1
TOP ELEV. = 23
BOTTOM ELEV. = 20

50' NO ACTIVITY ZONE

PROP. EMERGENCY OVERFLOW SPILLWAY ELEV. = 24.00

6 C-5.0 MULCH TUBE (TYP.)

1 C-5.1 RIP-RAP CHECK DAMS SPACED 50' O.C. (TYP)

INFILTRATION BASIN – 2
TOP ELEV. = 25
BOTTOM ELEV. = 23

BVW Y

50' NO ACTIVITY ZONE

INFILTRATION BASIN – 3
TOP ELEV. = 31
BOTTOM ELEV. = 29

7 C-5.0 SILT FENCE (TYP.)

PROP. EMERGENCY OVERFLOW SPILLWAY ELEV. = 30.00

FEMA ZONE LIMITS (TYP.)

APPROXIMATE LIMIT OF TRASH/DEBRIS TO BE REMEDIATED PER LOCAL PERMIT APPROVALS

FE-1 I=21.50

12" HDPE PIPE L=25' S=0.020

I=22.00

20' WIDE GRAVEL RING ROAD

1 C-5.0

GRAVEL

110-1038
N/F
WAREHAM LITTLE LEAGUE INC
DEED 5113~452

110-1037
N/F
WAREHAM LITTLE LEAGUE
DEED 4156~670

INFILTRATION BASIN – 4
TOP ELEV. = 25
BOTTOM ELEV. = 21

PROP. EMERGENCY OVERFLOW SPILLWAY ELEV. = 24.00

8" HDPE PIPE L=40' S=0.038

FE-3 I=22.00

FE-2 I=23.50

SUBJECT PROPERTY

GRADING AND EROSION CONTROL PLAN - BASINS 1, 2, 3, 4

SCALE: 1" = 50'

0 50' 100'

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JEFFREY R MURPHY
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REGISTERED PROFESSIONAL ENGINEER
10/16/2020

27 CHARGE POND RD
27 CHARGE POND ROAD, WAREHAM, MA 02571

PROJECT NUMBER: 905-2712

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
1	04/27/20	WS	CDS	PLAN SET CREATION
2	04/28/20	JPL	CDS	UPDATED TITLE PAGE
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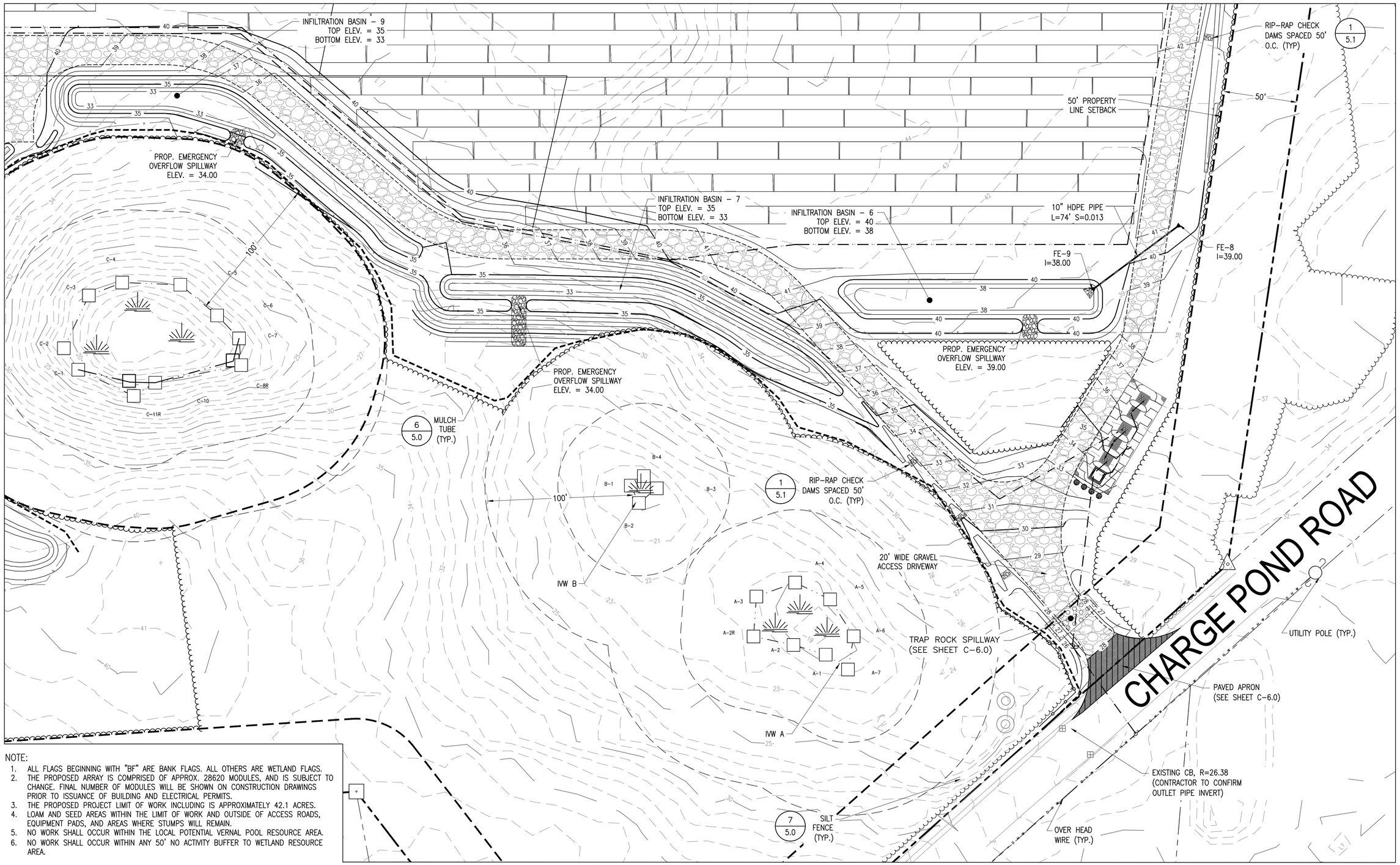
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-4.4

GRADING AND EROSION CONTROL PLAN - BASINS 1, 2, 3, 4



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6. NO WORK SHALL OCCUR WITHIN ANY 50' NO ACTIVITY BUFFER TO WETLAND RESOURCE AREA.

GRADING AND EROSION CONTROL PLAN - BASINS 9, 7, 6

SCALE: 1" = 30'

0 30' 60'

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No. 51800
REGISTERED PROFESSIONAL ENGINEER
10/16/2020

27 CHARGE POND RD
27 CHARGE POND ROAD, WAREHAM, MA 02571

PROJECT NUMBER:
905-2712

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
1	04/27/20	WS	CDS	PLAN SET CREATION
2	04/28/20	JPL	CDS	UPDATED TITLE PAGE
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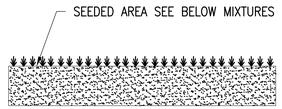
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-4.5

GRADING AND EROSION CONTROL PLAN - BASINS 9, 7, 6



ADM SANDY MIXTURE

CONTAINS	PURE SEED	GERM	ORIGIN
HARD FESCUE*	24.64%	85.00%	OREGON
PENNLAWN CREEPING RED FESCUE	24.61%	85.00%	OREGON
BOREAL CREEPING RED FESCUE	24.51%	85.00%	CANADA
AZURE SHEEPS FESCUE	24.50%	85.00%	OREGON
OTHER CROP SEEDS:	0.16%		
INERT MATTER:	1.49%		
WEED SEEDS:	0.09%		

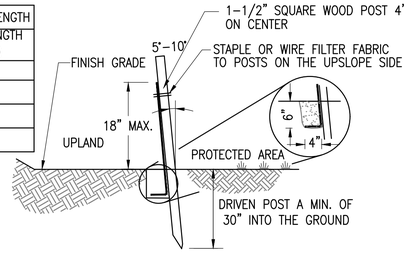
NOXIOUS WEED SEEDS NONE FOUND
* VARIETY NOT STATED

PROVIDED BY: VALLEY GREEN, 14 COPPERBEECH DR., KINGSTON, MA 02364

10 SEED DETAIL

SCALE: NTS

MAX ALLOWABLE SLOPE LENGTH	
STEEPNESS	MAX LENGTH (FT.)
2:1	25
3:1	50
4:1	75
5+:1	100



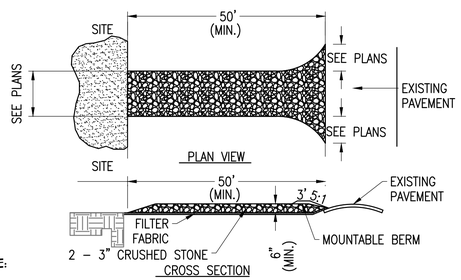
NOTES:

1. MAX DRAINAGE AREA FOR OVERLAND FLOW SHALL NOT EXCEED 1/4 ACRE-FOOT PER 100 FEET OF FENCE.
2. FILTER FABRIC TO BE FASTENED SECURELY TO FENCE POST WITH WIRE TIES OR STAPLES. POST SHALL BE STEEL EITHER "T" OR "U" SHAPED OR HARDWOOD.
3. FILTER CLOTH SHALL BE FASTENED SECURELY WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED. FILTER CLOTH SHALL BE FILTER X, MIRAFI 100X, STABILENKA T140N, OR APPROVED EQUAL.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE.

7 SILT FENCE

SCALE: NTS

XD_CIVIL_EROSION_SILT FENCE_P 2014-10-17



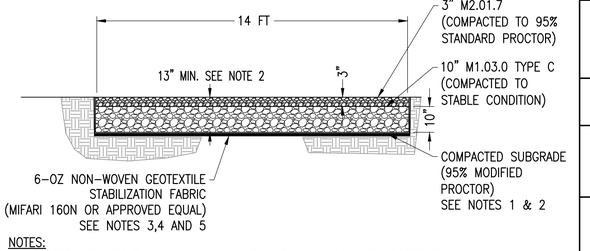
NOTE:

1. ENTRANCE WIDTH SHALL BE A TWENTY-FOUR (24) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.

4 STABILIZED CONSTRUCTION EXIT

SCALE: NTS

XD_CIVIL_TEMPORARY CONSTRUCTION_STABILIZED CONSTRUCTION EXIT 06-10-2016



NOTES:

1. SUBCONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL FOR SUBGRADE.
2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD. REFER TO GEOTECHNICAL REPORT FOR SUBGRADE PREPERATION CRITERIA.
3. SUBCONTRACTOR SHALL FOLLOW MANUFACTURER INSTALLATION PROCEDURES.
4. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".
5. SUBCONTRACTOR SHALL REMOVE TEMPORARY CONSTRUCTION ACCESS ROADS, AND RESTORE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE CEOR AND THE GOVERNING AGENCIES.
6. SUBCONTRACTOR SHALL INSTALL CONDUITS FOR ALL ELECTRICAL CONDUIT CROSSINGS PRIOR TO INSTALLATION OF THE GEOGRID MATERIAL. THE GEOGRID SHALL NOT BE HORIZONTALLY CUT ONCE INSTALLED.

1 GRAVEL ACCESS ROAD

SCALE: NTS

XD_CIVIL_GRAVEL_ROAD_MA 09-28-2020

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55 TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
PHONE: (888) 898-6273
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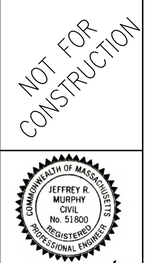
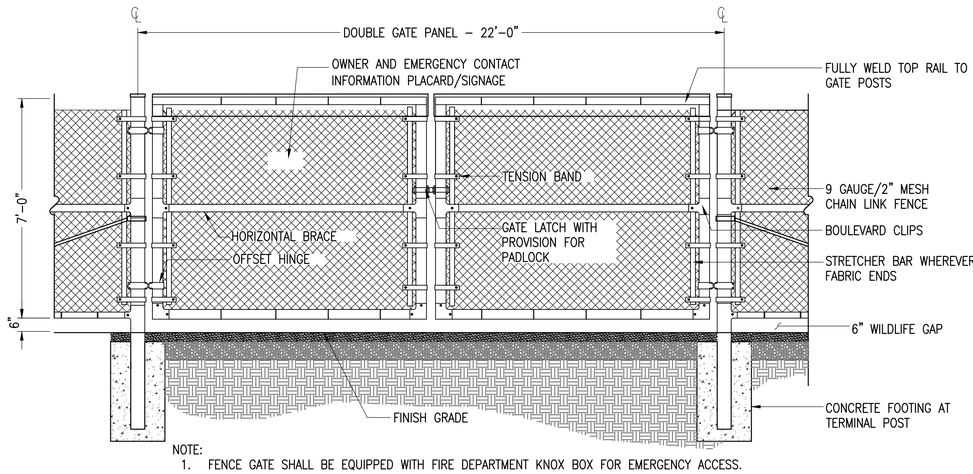
WWW.BORREGOSOLAR.COM

NOT FOR CONSTRUCTION



27 CHARGE POND RD
27 CHARGE POND ROAD, WAREHAM, MA 02571



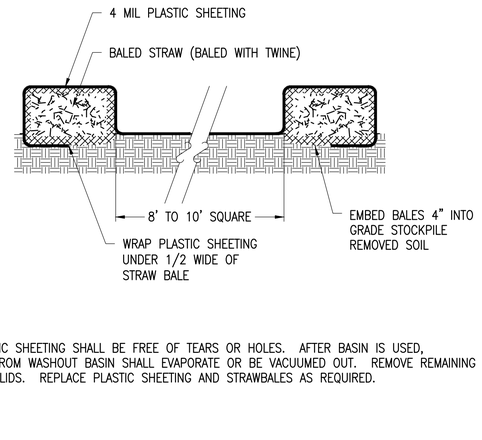
NOTE:

1. FENCE GATE SHALL BE EQUIPPED WITH FIRE DEPARTMENT KNOX BOX FOR EMERGENCY ACCESS.

8 VEHICLE GATE - WILDLIFE GAP

SCALE: NTS

XD_CIVIL_FENCE_VEHICLE GATE_3' 10-23-2018

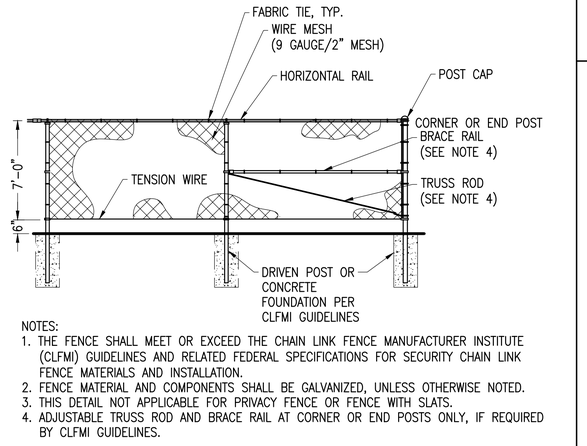


NOTE: PLASTIC SHEETING SHALL BE FREE OF TEARS OR HOLES. AFTER BASIN IS USED, WASHWATER FROM WASHOUT BASIN SHALL EVAPORATE OR BE VACUUMED OUT. REMOVE REMAINING HARDENED SOLIDS. REPLACE PLASTIC SHEETING AND STRAWBALES AS REQUIRED.

5 CONCRETE WASHOUT BASINS

SCALE: NTS

XD_CIVIL_CONCRETE WASHOUT BASINS 07-24-2017



NOTES:

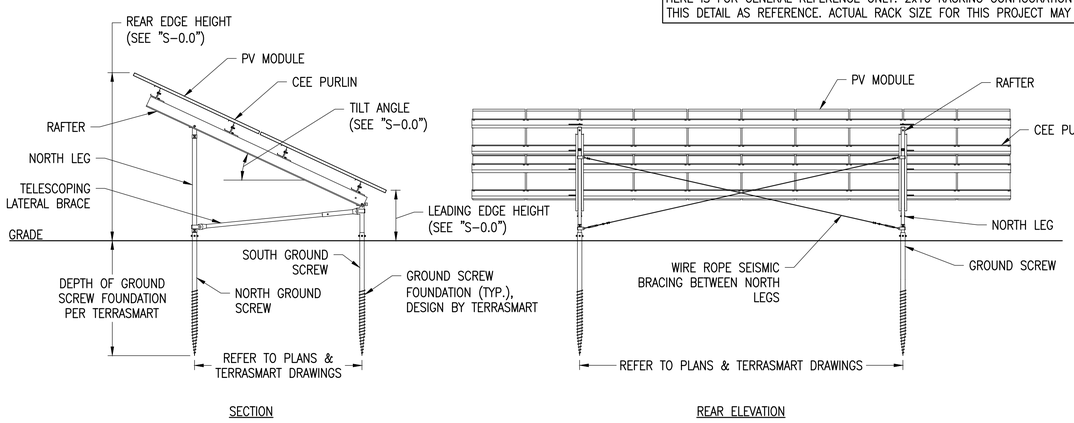
1. THE FENCE SHALL MEET OR EXCEED THE CHAIN LINK FENCE MANUFACTURER INSTITUTE (CLFMI) GUIDELINES AND RELATED FEDERAL SPECIFICATIONS FOR SECURITY CHAIN LINK FENCE MATERIALS AND INSTALLATION.
2. FENCE MATERIAL AND COMPONENTS SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. THIS DETAIL NOT APPLICABLE FOR PRIVACY FENCE OR FENCE WITH SLATS.
4. ADJUSTABLE TRUSS ROD AND BRACE RAIL AT CORNER OR END POSTS ONLY, IF REQUIRED BY CLFMI GUIDELINES.

2 CHAIN LINK FENCE - WILDLIFE GAP

SCALE: NTS

XD_CIVIL_FENCE_7'_CHAIN_LINK_WILDLIFE_GAP 06-27-2016

NOTE: THE "TERRAFARM" RACKING AND GROUND SCREW FOUNDATIONS ARE DESIGNED BY TERRASMART AND WILL BE A SUBMITTAL TO BORREGO. THE INFORMATION SHOWN HERE IS FOR GENERAL REFERENCE ONLY. 2x10 RACKING CONFIGURATION SHOWN IN THIS DETAIL AS REFERENCE. ACTUAL RACK SIZE FOR THIS PROJECT MAY VARY.

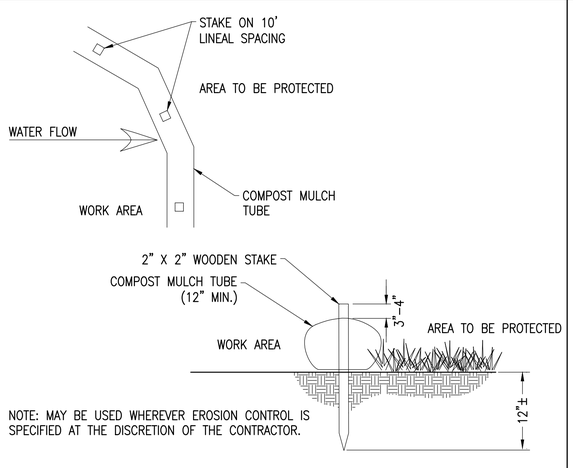


9 TYPICAL RACK SECTION & REAR ELEVATION

TERRASMART TF2P

SCALE: NTS

XD_STRUC_TERRASMART_TF2P_RACK SECT & REAR ELEV 2017-12-04

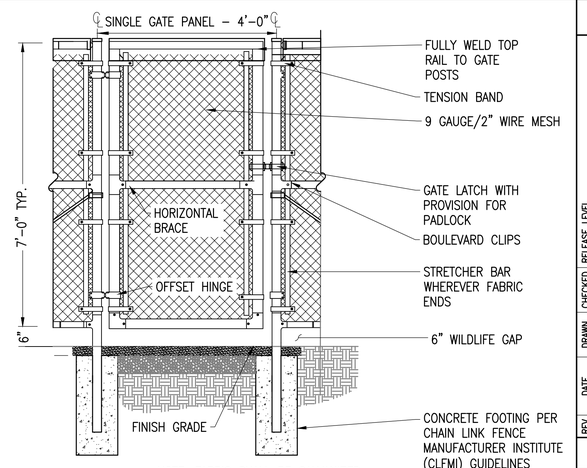


NOTE: MAY BE USED WHEREVER EROSION CONTROL IS SPECIFIED AT THE DISCRETION OF THE CONTRACTOR.

6 MULCH TUBE

SCALE: NTS

XD_CIVIL_FILTREXX_FILTER_SOCK 03-29-2016



NOTE: FABRIC SHALL BE GALVANIZED

3 4' MAN GATE - WILDLIFE GAP

SCALE: NTS

XD_CIVIL_SITE CONSTRUCTION_4' WALK THROUGH GATE 07-25-2017

PROJECT NUMBER: 905-2712

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
1	04/27/20	WS	CDS	PLAN SET CREATION
2	04/28/20	JPL	CDS	UPDATED TITLE PAGE
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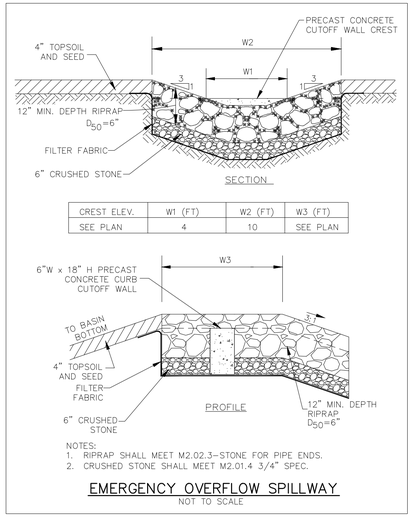
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.0
CIVIL DETAILS



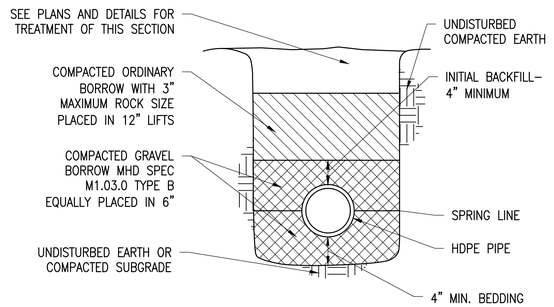
CREST ELEV.	W1 (FT)	W2 (FT)	W3 (FT)
SEE PLAN	4	10	SEE PLAN

NOTES:
1. RIPRAP SHALL MEET M2.02.3–STONE FOR PIPE ENDS.
2. CRUSHED STONE SHALL MEET M2.01.4 3/4" SPEC.

EMERGENCY OVERFLOW SPILLWAY

NOT TO SCALE

10

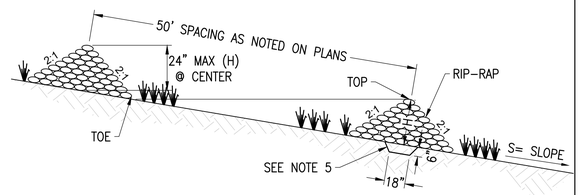


NOTES:
1. TRENCH EXCAVATION WIDTH TO ALLOW FOR FREE TRAVEL OF COMPACTION EQUIPMENT.
2. ALL COMPACTION TO A MINIMUM 95 PERCENT DRY DENSITY DETERMINED BY ASTM D1557 SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5 HDPE DRAIN PIPE BEDDING

SCALE: NTS

XD_CIVIL_D_HDPE DRAIN PIPE BEDDING 06-28-2016

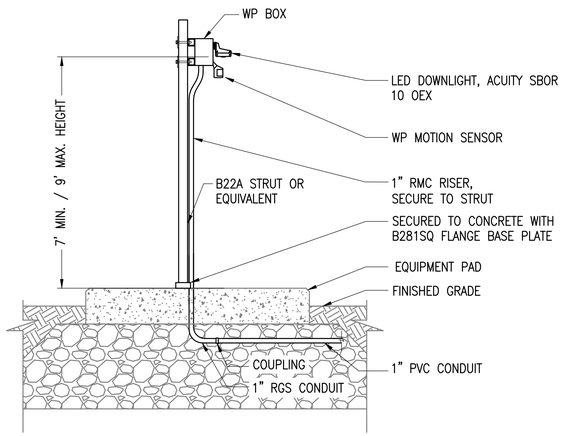


NOTES:
1. MAXIMUM DRAINAGE AREA ≤ 2 ACRES
2. USE 6" RIP-RAP
3. H=24" MAX @ CENTER
4. RIP-RAP SHALL BE PLACED ON A FILTER FABRIC FOUNDATION
5. INSTALL 6" DEEP CUT-OFF TRENCH BELOW
6. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM

1 RIP-RAP CHECK DAM

SCALE: N.T.S.

XD_CIVIL_CHECK DAM 08-15-2016

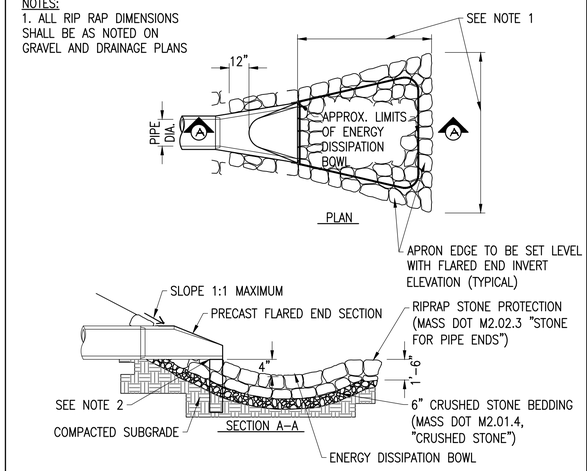


11 LIGHTING MOUNTING - DOWNLIGHT

SCALE: NTS

XD_ELEC_ LIGHT MOUNTING-DOWNLIGHT 2018-06-22 JPL

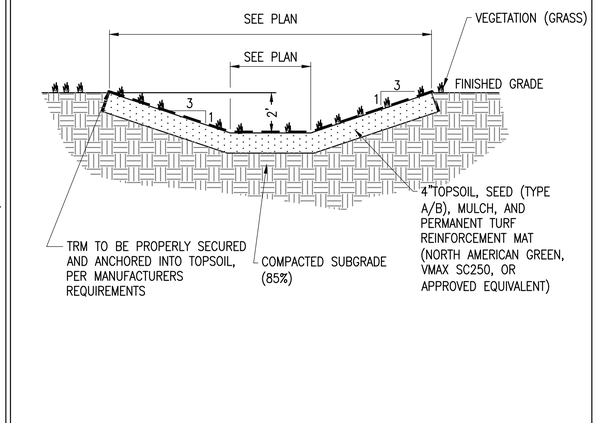
NOTES:
1. ALL RIP RAP DIMENSIONS SHALL BE AS NOTED ON GRAVEL AND DRAINAGE PLANS



4 FLARED END SECTION/RIP-RAP APRON

SCALE: NTS

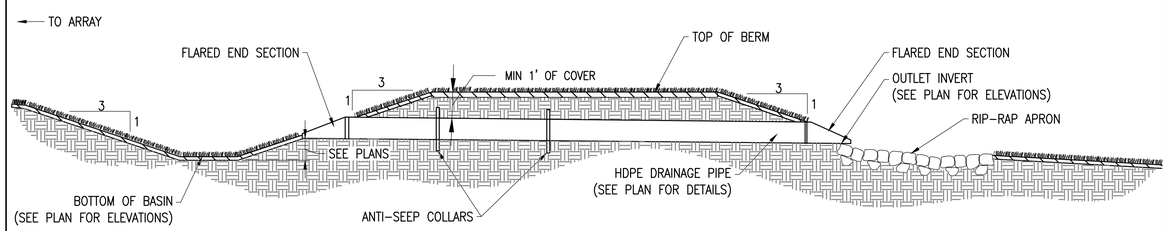
XD_CIVIL_DRAINAGE_FLARED END SECTION RIP-RAP APRON 2016-08-15



2 VEGETATED OPEN SWALE

SCALE: NTS

XD_CIVIL_DRAINAGE_ROCK-LINED_SWALE 06-27-2016



3 INFILTRATION BASIN AND POCKET POND OUTLET

SCALE: NTS

XD_CIVIL_DRAINAGE_DETENTION BASIN WITH RISER 08-16-2018

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NOT FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
JEFFREY R MURPHY
CIVIL
No. 51800
REGISTERED PROFESSIONAL ENGINEER
10/16/2020

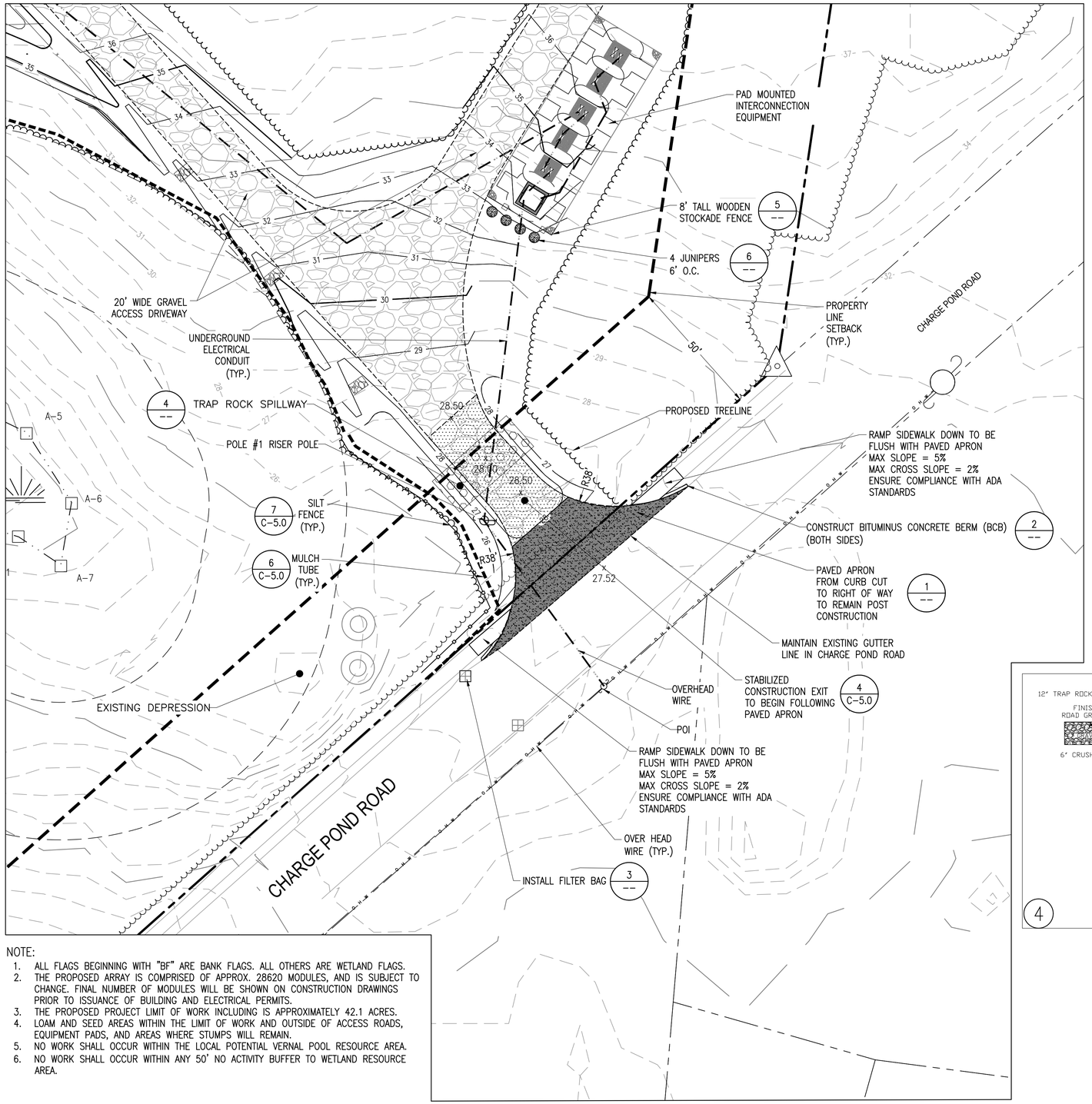
27 CHARGE POND RD
27 CHARGE POND ROAD, WAREHAM, MA 02571

PROJECT NUMBER: 905-2712

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
1	04/27/20	WS	CDS	PLAN SET CREATION
2	04/28/20	JPL	CDS	UPDATED TITLE PAGE
3	05/22/20	WS	CDS	UPDATED TO MATCH DESIGN CHANGES
4	05/28/20	WS	CDS	ISSUED FOR LOCAL PERMITTING
5	09/16/20	WS	JM	REVISIONS PER PEER REVIEW COMMENTS
6	10/16/20	WS	JM	REVISIONS TO ENTRANCE AND INTX

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.1
CIVIL DETAILS



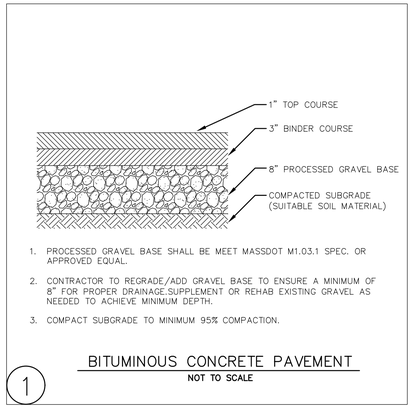
NOTE:

1. ALL FLAGS BEGINNING WITH "BF" ARE BANK FLAGS. ALL OTHERS ARE WETLAND FLAGS.
2. THE PROPOSED ARRAY IS COMPRISED OF APPROX. 28620 MODULES, AND IS SUBJECT TO CHANGE. FINAL NUMBER OF MODULES WILL BE SHOWN ON CONSTRUCTION DRAWINGS PRIOR TO ISSUANCE OF BUILDING AND ELECTRICAL PERMITS.
3. THE PROPOSED PROJECT LIMIT OF WORK INCLUDING IS APPROXIMATELY 42.1 ACRES.
4. LOAM AND SEED AREAS WITHIN THE LIMIT OF WORK AND OUTSIDE OF ACCESS ROADS, EQUIPMENT PADS, AND AREAS WHERE STUMPS WILL REMAIN.
5. NO WORK SHALL OCCUR WITHIN THE LOCAL POTENTIAL VERNAL POOL RESOURCE AREA.
6. NO WORK SHALL OCCUR WITHIN ANY 50' NO ACTIVITY BUFFER TO WETLAND RESOURCE AREA.

SITE ACCESS AND INTERCONNECTION PLAN

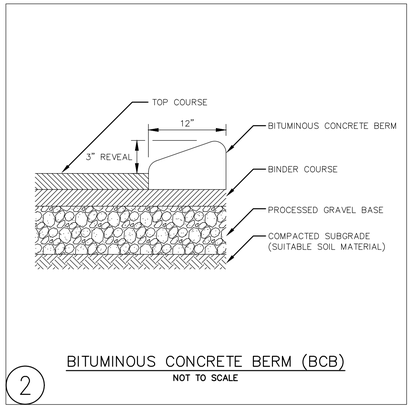
SCALE: 1" = 20'

0 20' 40'

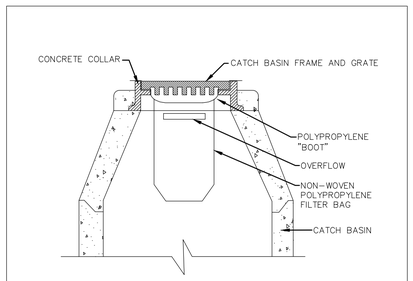


1. PROCESSED GRAVEL BASE SHALL BE MEET MASSDOT M1.03.1 SPEC. OR APPROVED EQUAL.
2. CONTRACTOR TO REGRADE/ADD GRAVEL BASE TO ENSURE A MINIMUM OF 8" FOR PROPER DRAINAGE.SUPPLEMENT OR REHAB EXISTING GRAVEL AS NEEDED TO ACHIEVE MINIMUM DEPTH.
3. COMPACT SUBGRADE TO MINIMUM 95% COMPACTION.

1 BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE

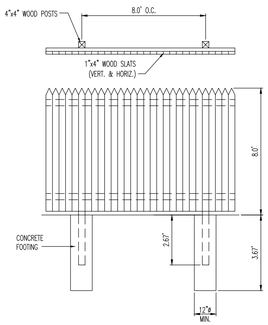


2 BITUMINOUS CONCRETE BERM (BCB)
NOT TO SCALE



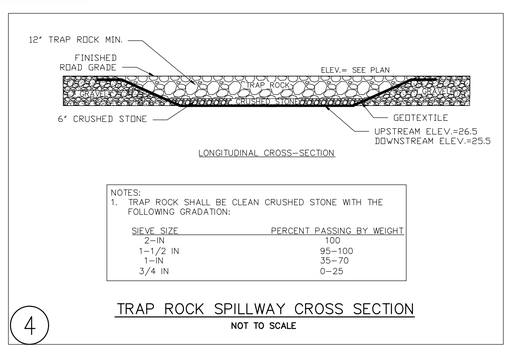
NOTES:
1. TO BE INSTALLED IN CATCH BASINS IN TRAFFIC AREAS UNTIL COMPLETION OF CONSTRUCTION.
2. BOOT ADAPTER MAY BE TRIMMED TO SIZE.
3. CONTRACTOR SHALL CLEAN ACCUMULATED SEDIMENT AND DEBRIS FROM EXISTING CATCH BASIN AND DISPOSE OF LEGALLY OFF-SITE.

3 FILTER BAG
NOT TO SCALE



NOTE: ALL WOOD TO BE PRESSURE TREATED LUMBER.

5 WOODEN STOCKADE FENCE DETAIL
SCALE: NTS

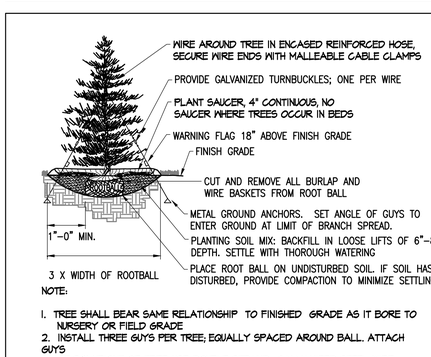


LONGITUDINAL CROSS-SECTION

NOTES:
1. TRAP ROCK SHALL BE CLEAN CRUSHED STONE WITH THE FOLLOWING GRADATION:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
2-IN	100
1-1/2 IN	95-100
1-IN	35-70
3/4 IN	0-25

4 TRAP ROCK SPILLWAY CROSS SECTION
NOT TO SCALE



NOTE:
1. TREE SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO NURSERY OR FIELD GRADE
2. INSTALL THREE GUYS PER TREE; EQUALLY SPACED AROUND BALL. ATTACH GUYS AT 2/3 HEIGHT OF TREE; USE DOUBLE STRAND GALVANIZED STEEL WIRE

6 JUNIPER PLANTING(S)
SCALE: N.T.S.
XD_CIVIL_LANDSCAPING_EVERGREEN TREE PLANTING 2016-07-05

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C-6.0
SITE ACCESS AND INTERCONNECTION PLAN