Project Summary	
Title	John Jay Homestead Site and Building Enhancements
Engineer	HB / JMC
Company	CHA
Date	3/20/2024

Notes	400 Jay Street Katonah, Westchester County New York

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Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DA-1	1 year	1	0.329	12.140	3.71
DA-1	10 years	10	0.997	12.130	11.80
DA-1	100 years	100	2.393	12.120	27.88
DA-2	1 year	1	0.253	12.120	2.99
DA-2	10 years	10	0.766	12.110	9.40
DA-2	100 years	100	1.839	12.110	22.10
DA-3	1 year	1	0.139	12.110	1.74
DA-3	10 years	10	0.358	12.110	4.42
DA-3	100 years	100	0.784	12.100	9.29
DA-4	1 year	1	0.662	12.120	8.08
DA-4	10 years	10	1.826	12.110	22.39
DA-4	100 years	100	4.155	12.110	49.29
DA-5	1 year	1	0.135	12.120	1.66
DA-5	10 years	10	0.350	12.110	4.25
DA-5	100 years	100	0.766	12.100	8.95

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DP-1	1 year	1	0.856	12.130	10.00
DP-1	10 years	10	2.471	12.120	29.72
DP-1	100 years	100	5.782	12.120	67.98
DP-2	1 year	1	0.662	12.120	8.08
DP-2	10 years	10	1.826	12.110	22.39
DP-2	100 years	100	4.155	12.110	49.29
J-1	1 year	1	0.464	12.130	5.35
J-1	10 years	10	1.347	12.120	16.02
J-1	100 years	100	3.159	12.110	36.77
J-2	1 year	1	0.253	12.120	2.99
J-2	10 years	10	0.766	12.110	9.40
J-2	100 years	100	1.839	12.110	22.10

Time-Depth Curve: 1 year	
Label	1 year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.3	0.3	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.3	0.3	0.4
8.500	0.4	0.4	0.4	0.4	0.4
9.000	0.4	0.4	0.4	0.4	0.5
9.500	0.5	0.5	0.5	0.5	0.5
10.000	0.5	0.5	0.6	0.6	0.6
10.500	0.6	0.6	0.6	0.7	0.7
11.000	0.7	0.7	0.7	0.8	0.8
11.500	0.8	0.9	1.0	1.0	1.2
12.000	1.4	1.6	1.8	1.8	1.9
12.500	2.0	2.0	2.0	2.1	2.1
13.000	2.1	2.1	2.1	2.2	2.2
13.500	2.2	2.2	2.2	2.2	2.3
14.000	2.3	2.3	2.3	2.3	2.3
14.500	2.3	2.3	2.4	2.4	2.4
15.000	2.4	2.4	2.4	2.4	2.4
15.500	2.4	2.4	2.5	2.5	2.5
16.000	2.5	2.5	2.5	2.5	2.5
16.500	2.5	2.5	2.5	2.5	2.5
17.000	2.5	2.6	2.6	2.6	2.6

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	2.6	2.6	2.6	2.6	2.6
18.000	2.6	2.6	2.6	2.6	2.6
18.500	2.6	2.6	2.6	2.6	2.6
19.000	2.6	2.6	2.6	2.7	2.7
19.500	2.7	2.7	2.7	2.7	2.7
20.000	2.7	2.7	2.7	2.7	2.7
20.500	2.7	2.7	2.7	2.7	2.7
21.000	2.7	2.7	2.7	2.7	2.7
21.500	2.7	2.7	2.7	2.7	2.7
22.000	2.7	2.7	2.8	2.8	2.8
22.500	2.8	2.8	2.8	2.8	2.8
23.000	2.8	2.8	2.8	2.8	2.8
23.500	2.8	2.8	2.8	2.8	2.8
24.000	2.8	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Time-Depth Curve: 10 years - type 3	
Label	10 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.5
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.6	0.6
8.000	0.6	0.6	0.6	0.6	0.6
8.500	0.7	0.7	0.7	0.7	0.7
9.000	0.7	0.8	0.8	0.8	0.8
9.500	0.8	0.9	0.9	0.9	0.9
10.000	1.0	1.0	1.0	1.0	1.1
10.500	1.1	1.1	1.2	1.2	1.2
11.000	1.3	1.3	1.4	1.4	1.5
11.500	1.5	1.6	1.7	1.9	2.1
12.000	2.5	3.0	3.2	3.4	3.5
12.500	3.6	3.6	3.7	3.7	3.8
13.000	3.8	3.9	3.9	3.9	4.0
13.500	4.0	4.0	4.0	4.1	4.1
14.000	4.1	4.2	4.2	4.2	4.2
14.500	4.2	4.3	4.3	4.3	4.3
15.000	4.3	4.4	4.4	4.4	4.4
15.500	4.4	4.5	4.5	4.5	4.5
16.000	4.5	4.5	4.5	4.5	4.6
16.500	4.6	4.6	4.6	4.6	4.6
17.000	4.6	4.6	4.7	4.7	4.7

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	4.7	4.7	4.7	4.7	4.7
18.000	4.7	4.7	4.7	4.7	4.8
18.500	4.8	4.8	4.8	4.8	4.8
19.000	4.8	4.8	4.8	4.8	4.8
19.500	4.8	4.8	4.9	4.9	4.9
20.000	4.9	4.9	4.9	4.9	4.9
20.500	4.9	4.9	4.9	4.9	4.9
21.000	4.9	4.9	4.9	5.0	5.0
21.500	5.0	5.0	5.0	5.0	5.0
22.000	5.0	5.0	5.0	5.0	5.0
22.500	5.0	5.0	5.0	5.0	5.0
23.000	5.0	5.0	5.1	5.1	5.1
23.500	5.1	5.1	5.1	5.1	5.1
24.000	5.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Time-Depth Curve: 100 years - type 3	
Label	100 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.2	0.2	0.2
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.3	0.3
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.4	0.4	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.5	0.5	0.5	0.5	0.5
5.000	0.5	0.5	0.5	0.6	0.6
5.500	0.6	0.6	0.6	0.6	0.6
6.000	0.7	0.7	0.7	0.7	0.7
6.500	0.7	0.8	0.8	0.8	0.8
7.000	0.8	0.8	0.9	0.9	0.9
7.500	0.9	0.9	1.0	1.0	1.0
8.000	1.0	1.1	1.1	1.1	1.1
8.500	1.2	1.2	1.2	1.3	1.3
9.000	1.3	1.4	1.4	1.4	1.5
9.500	1.5	1.6	1.6	1.6	1.7
10.000	1.7	1.8	1.8	1.9	1.9
10.500	2.0	2.0	2.1	2.1	2.2
11.000	2.3	2.3	2.4	2.5	2.6
11.500	2.7	2.9	3.1	3.4	3.8
12.000	4.6	5.3	5.7	6.0	6.2
12.500	6.4	6.5	6.6	6.7	6.8
13.000	6.8	6.9	7.0	7.0	7.1
13.500	7.1	7.2	7.2	7.3	7.3
14.000	7.4	7.4	7.5	7.5	7.6
14.500	7.6	7.6	7.7	7.7	7.7
15.000	7.8	7.8	7.8	7.9	7.9
15.500	7.9	8.0	8.0	8.0	8.0
16.000	8.1	8.1	8.1	8.1	8.2
16.500	8.2	8.2	8.2	8.2	8.3
17.000	8.3	8.3	8.3	8.3	8.4

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	8.4	8.4	8.4	8.4	8.4
18.000	8.5	8.5	8.5	8.5	8.5
18.500	8.5	8.5	8.6	8.6	8.6
19.000	8.6	8.6	8.6	8.6	8.6
19.500	8.7	8.7	8.7	8.7	8.7
20.000	8.7	8.7	8.7	8.8	8.8
20.500	8.8	8.8	8.8	8.8	8.8
21.000	8.8	8.8	8.9	8.9	8.9
21.500	8.9	8.9	8.9	8.9	8.9
22.000	8.9	8.9	9.0	9.0	9.0
22.500	9.0	9.0	9.0	9.0	9.0
23.000	9.0	9.0	9.0	9.1	9.1
23.500	9.1	9.1	9.1	9.1	9.1
24.000	9.1	(N/A)	(N/A)	(N/A)	(N/A)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.120 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.25 ft/s
Segment Time of Concentration	0.113 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	120.00 ft
Is Paved?	False
Slope	0.058 ft/ft
Average Velocity	3.89 ft/s
Segment Time of Concentration	0.009 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	266.00 ft
Is Paved?	False
Slope	0.109 ft/ft
Average Velocity	5.33 ft/s
Segment Time of Concentration	0.014 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.135 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.085 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.18 ft/s
Segment Time of Concentration	0.071 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.011
Slope	0.038 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.009 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	361.00 ft
Is Paved?	False
Slope	0.061 ft/ft
Average Velocity	3.98 ft/s
Segment Time of Concentration	0.025 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.105 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	15.00 ft
Manning's n	0.011
Slope	0.067 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.57 ft/s
Segment Time of Concentration	0.003 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	85.00 ft
Manning's n	0.150
Slope	0.106 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.33 ft/s
Segment Time of Concentration	0.071 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	108.00 ft
Is Paved?	False
Slope	0.056 ft/ft
Average Velocity	3.82 ft/s
Segment Time of Concentration	0.008 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	229.00 ft
Is Paved?	False
Slope	0.039 ft/ft
Average Velocity	3.19 ft/s
Segment Time of Concentration	0.020 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.102 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-5
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.070 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.096 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	112.00 ft
Is Paved?	True
Slope	0.054 ft/ft
Average Velocity	4.72 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.103 hours

Subsection: Time of Concentration Calculations
Label: DA-5
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Runoff CN-Area
Label: DA-1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	4.540	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	0.090	0.0	0.0	70.000
Impervious	98.000	0.120	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4.750	(N/A)	(N/A)	74.531

Subsection: Runoff CN-Area
Label: DA-2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	3.470	0.0	0.0	74.000
Impervious	98.000	0.180	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	3.650	(N/A)	(N/A)	75.184

Subsection: Runoff CN-Area
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.890	0.0	0.0	74.000
Impervious	98.000	0.470	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.360	(N/A)	(N/A)	82.294

Subsection: Runoff CN-Area
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	4.240	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	1.620	0.0	0.0	70.000
Impervious	98.000	1.760	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	7.620	(N/A)	(N/A)	78.693

Subsection: Runoff CN-Area
Label: DA-5
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.860	0.0	0.0	74.000
Impervious	98.000	0.470	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.330	(N/A)	(N/A)	82.481

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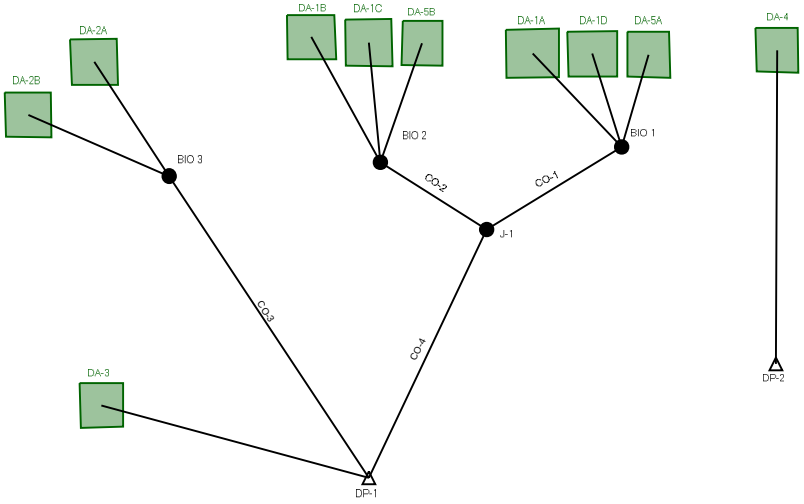
APPENDIX E

Proposed Condition PondPack Outputs

Scenario: 1 year



Project Summary	
Title	John Jay Homestead Site and Building Enhancements
Engineer	HB / JMC
Company	CHA
Date	3/20/2024

Notes	400 Jay Street Katonah, Westchester County New York

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Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DA-1A	1 year	1	0.195	12.110	2.45
DA-1A	10 years	10	0.503	12.110	6.20
DA-1A	100 years	100	1.101	12.100	13.04
DA-1C	1 year	1	0.101	12.130	1.15
DA-1C	10 years	10	0.298	12.130	3.52
DA-1C	100 years	100	0.704	12.120	8.19
DA-1D	1 year	1	0.099	12.120	1.18
DA-1D	10 years	10	0.306	12.110	3.83
DA-1D	100 years	100	0.745	12.100	9.09
DA-2A	1 year	1	0.186	12.120	2.24
DA-2A	10 years	10	0.550	12.110	6.78
DA-2A	100 years	100	1.301	12.110	15.64
DA-2B	1 year	1	0.054	12.110	0.68
DA-2B	10 years	10	0.139	12.110	1.72
DA-2B	100 years	100	0.305	12.100	3.62
DA-3	1 year	1	0.159	12.110	2.00
DA-3	10 years	10	0.394	12.100	4.82
DA-3	100 years	100	0.841	12.100	9.86
DA-4	1 year	1	0.591	12.120	7.11
DA-4	10 years	10	1.707	12.110	20.93
DA-4	100 years	100	3.987	12.110	47.58
DA-5A	1 year	1	0.078	12.110	0.96
DA-5A	10 years	10	0.203	12.110	2.46
DA-5A	100 years	100	0.444	12.110	5.18
DA-5B	1 year	1	0.052	12.110	0.66
DA-5B	10 years	10	0.141	12.110	1.75
DA-5B	100 years	100	0.317	12.100	3.79
DA-1B	1 year	1	0.058	12.110	0.73
DA-1B	10 years	10	0.153	12.110	1.90
DA-1B	100 years	100	0.340	12.100	4.04

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
BIO 1	1 year	1	0.371	12.110	4.59
BIO 1	10 years	10	1.011	12.110	12.49
BIO 1	100 years	100	2.290	12.100	27.31
BIO 3	1 year	1	0.240	12.120	2.91
BIO 3	10 years	10	0.689	12.110	8.50
BIO 3	100 years	100	1.607	12.110	19.25
DP-1	1 year	1	0.981	12.130	11.93
DP-1	10 years	10	2.685	12.120	32.81
DP-1	100 years	100	6.097	12.120	72.17

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DP-2	1 year	1	0.591	12.120	7.11
DP-2	10 years	10	1.707	12.110	20.93
DP-2	100 years	100	3.987	12.110	47.58
BIO 2	1 year	1	0.211	12.120	2.51
BIO 2	10 years	10	0.592	12.110	7.15
BIO 2	100 years	100	1.361	12.110	15.99
J-1	1 year	1	0.582	12.120	7.10
J-1	10 years	10	1.603	12.120	19.64
J-1	100 years	100	3.650	12.120	43.27

Time-Depth Curve: 1 year	
Label	1 year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.3	0.3	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.3	0.3	0.4
8.500	0.4	0.4	0.4	0.4	0.4
9.000	0.4	0.4	0.4	0.4	0.5
9.500	0.5	0.5	0.5	0.5	0.5
10.000	0.5	0.5	0.6	0.6	0.6
10.500	0.6	0.6	0.6	0.7	0.7
11.000	0.7	0.7	0.7	0.8	0.8
11.500	0.8	0.9	1.0	1.0	1.2
12.000	1.4	1.6	1.8	1.8	1.9
12.500	2.0	2.0	2.0	2.1	2.1
13.000	2.1	2.1	2.1	2.2	2.2
13.500	2.2	2.2	2.2	2.2	2.3
14.000	2.3	2.3	2.3	2.3	2.3
14.500	2.3	2.3	2.4	2.4	2.4
15.000	2.4	2.4	2.4	2.4	2.4
15.500	2.4	2.4	2.5	2.5	2.5
16.000	2.5	2.5	2.5	2.5	2.5
16.500	2.5	2.5	2.5	2.5	2.5
17.000	2.5	2.6	2.6	2.6	2.6

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	2.6	2.6	2.6	2.6	2.6
18.000	2.6	2.6	2.6	2.6	2.6
18.500	2.6	2.6	2.6	2.6	2.6
19.000	2.6	2.6	2.6	2.7	2.7
19.500	2.7	2.7	2.7	2.7	2.7
20.000	2.7	2.7	2.7	2.7	2.7
20.500	2.7	2.7	2.7	2.7	2.7
21.000	2.7	2.7	2.7	2.7	2.7
21.500	2.7	2.7	2.7	2.7	2.7
22.000	2.7	2.7	2.8	2.8	2.8
22.500	2.8	2.8	2.8	2.8	2.8
23.000	2.8	2.8	2.8	2.8	2.8
23.500	2.8	2.8	2.8	2.8	2.8
24.000	2.8	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Time-Depth Curve: 10 years - type 3	
Label	10 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.5
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.6	0.6
8.000	0.6	0.6	0.6	0.6	0.6
8.500	0.7	0.7	0.7	0.7	0.7
9.000	0.7	0.8	0.8	0.8	0.8
9.500	0.8	0.9	0.9	0.9	0.9
10.000	1.0	1.0	1.0	1.0	1.1
10.500	1.1	1.1	1.2	1.2	1.2
11.000	1.3	1.3	1.4	1.4	1.5
11.500	1.5	1.6	1.7	1.9	2.1
12.000	2.5	3.0	3.2	3.4	3.5
12.500	3.6	3.6	3.7	3.7	3.8
13.000	3.8	3.9	3.9	3.9	4.0
13.500	4.0	4.0	4.0	4.1	4.1
14.000	4.1	4.2	4.2	4.2	4.2
14.500	4.2	4.3	4.3	4.3	4.3
15.000	4.3	4.4	4.4	4.4	4.4
15.500	4.4	4.5	4.5	4.5	4.5
16.000	4.5	4.5	4.5	4.5	4.6
16.500	4.6	4.6	4.6	4.6	4.6
17.000	4.6	4.6	4.7	4.7	4.7

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	4.7	4.7	4.7	4.7	4.7
18.000	4.7	4.7	4.7	4.7	4.8
18.500	4.8	4.8	4.8	4.8	4.8
19.000	4.8	4.8	4.8	4.8	4.8
19.500	4.8	4.8	4.9	4.9	4.9
20.000	4.9	4.9	4.9	4.9	4.9
20.500	4.9	4.9	4.9	4.9	4.9
21.000	4.9	4.9	4.9	5.0	5.0
21.500	5.0	5.0	5.0	5.0	5.0
22.000	5.0	5.0	5.0	5.0	5.0
22.500	5.0	5.0	5.0	5.0	5.0
23.000	5.0	5.0	5.1	5.1	5.1
23.500	5.1	5.1	5.1	5.1	5.1
24.000	5.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Time-Depth Curve: 100 years - type 3	
Label	100 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.2	0.2	0.2
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.3	0.3
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.4	0.4	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.5	0.5	0.5	0.5	0.5
5.000	0.5	0.5	0.5	0.6	0.6
5.500	0.6	0.6	0.6	0.6	0.6
6.000	0.7	0.7	0.7	0.7	0.7
6.500	0.7	0.8	0.8	0.8	0.8
7.000	0.8	0.8	0.9	0.9	0.9
7.500	0.9	0.9	1.0	1.0	1.0
8.000	1.0	1.1	1.1	1.1	1.1
8.500	1.2	1.2	1.2	1.3	1.3
9.000	1.3	1.4	1.4	1.4	1.5
9.500	1.5	1.6	1.6	1.6	1.7
10.000	1.7	1.8	1.8	1.9	1.9
10.500	2.0	2.0	2.1	2.1	2.2
11.000	2.3	2.3	2.4	2.5	2.6
11.500	2.7	2.9	3.1	3.4	3.8
12.000	4.6	5.3	5.7	6.0	6.2
12.500	6.4	6.5	6.6	6.7	6.8
13.000	6.8	6.9	7.0	7.0	7.1
13.500	7.1	7.2	7.2	7.3	7.3
14.000	7.4	7.4	7.5	7.5	7.6
14.500	7.6	7.6	7.7	7.7	7.7
15.000	7.8	7.8	7.8	7.9	7.9
15.500	7.9	8.0	8.0	8.0	8.0
16.000	8.1	8.1	8.1	8.1	8.2
16.500	8.2	8.2	8.2	8.2	8.3
17.000	8.3	8.3	8.3	8.3	8.4

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	8.4	8.4	8.4	8.4	8.4
18.000	8.5	8.5	8.5	8.5	8.5
18.500	8.5	8.5	8.6	8.6	8.6
19.000	8.6	8.6	8.6	8.6	8.6
19.500	8.7	8.7	8.7	8.7	8.7
20.000	8.7	8.7	8.7	8.8	8.8
20.500	8.8	8.8	8.8	8.8	8.8
21.000	8.8	8.8	8.9	8.9	8.9
21.500	8.9	8.9	8.9	8.9	8.9
22.000	8.9	8.9	9.0	9.0	9.0
22.500	9.0	9.0	9.0	9.0	9.0
23.000	9.0	9.0	9.0	9.1	9.1
23.500	9.1	9.1	9.1	9.1	9.1
24.000	9.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: DA-1A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-1A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-1C
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.040 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.23 ft/s
Segment Time of Concentration	0.120 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	213.00 ft
Is Paved?	False
Slope	0.066 ft/ft
Average Velocity	4.15 ft/s
Segment Time of Concentration	0.014 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.134 hours

Subsection: Time of Concentration Calculations
Label: DA-1C
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.120 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.36 ft/s
Segment Time of Concentration	0.077 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	120.00 ft
Is Paved?	False
Slope	0.058 ft/ft
Average Velocity	3.89 ft/s
Segment Time of Concentration	0.009 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	40.00 ft
Is Paved?	False
Slope	0.100 ft/ft
Average Velocity	5.10 ft/s
Segment Time of Concentration	0.002 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.088 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-2A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	45.00 ft
Manning's n	0.240
Slope	0.089 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.19 ft/s
Segment Time of Concentration	0.067 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	55.00 ft
Manning's n	0.011
Slope	0.018 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.21 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	278.00 ft
Is Paved?	False
Slope	0.065 ft/ft
Average Velocity	4.11 ft/s
Segment Time of Concentration	0.019 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.098 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-2B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-2B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	15.00 ft
Manning's n	0.011
Slope	0.067 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.57 ft/s
Segment Time of Concentration	0.003 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	85.00 ft
Manning's n	0.150
Slope	0.106 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.33 ft/s
Segment Time of Concentration	0.071 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	125.00 ft
Is Paved?	False
Slope	0.056 ft/ft
Average Velocity	3.82 ft/s
Segment Time of Concentration	0.009 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	229.00 ft
Is Paved?	False
Slope	0.035 ft/ft
Average Velocity	3.02 ft/s
Segment Time of Concentration	0.021 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.104 hours

Subsection: Time of Concentration Calculations
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-5A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.070 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.096 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	112.00 ft
Is Paved?	False
Slope	0.054 ft/ft
Average Velocity	3.75 ft/s
Segment Time of Concentration	0.008 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.104 hours

Subsection: Time of Concentration Calculations
Label: DA-5A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-5B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-5B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Runoff CN-Area
Label: DA-1A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	1.310	0.0	0.0	74.000
Asphalt	98.000	0.600	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.910	(N/A)	(N/A)	81.539

Subsection: Runoff CN-Area
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open Space - Good Cond - HSG C	74.000	0.420	0.0	0.0	74.000
Asphalt	98.000	0.180	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.600	(N/A)	(N/A)	81.200

Subsection: Runoff CN-Area
Label: DA-1C
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious	98.000	0.110	0.0	0.0	98.000
Grass - Good Cond, HSG C	74.000	1.260	0.0	0.0	74.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.370	(N/A)	(N/A)	75.927

Subsection: Runoff CN-Area
Label: DA-1D
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	1.380	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	0.090	0.0	0.0	70.000
Impervious	98.000	0.040	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.510	(N/A)	(N/A)	74.397

Subsection: Runoff CN-Area
Label: DA-2A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	2.300	0.0	0.0	74.000
Impervious	98.000	0.230	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	2.530	(N/A)	(N/A)	76.182

Subsection: Runoff CN-Area
Label: DA-2B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious	98.000	0.180	0.0	0.0	98.000
Open Space - Good Cond - HSG C	74.000	0.350	0.0	0.0	74.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.530	(N/A)	(N/A)	82.151

Subsection: Runoff CN-Area
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.820	0.0	0.0	74.000
Impervious	98.000	0.590	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.410	(N/A)	(N/A)	84.043

Subsection: Runoff CN-Area
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	4.890	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	1.610	0.0	0.0	70.000
Impervious	98.000	1.100	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	7.600	(N/A)	(N/A)	76.626

Subsection: Runoff CN-Area
Label: DA-5A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.500	0.0	0.0	74.000
Impervious	98.000	0.270	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.770	(N/A)	(N/A)	82.416

Subsection: Runoff CN-Area
Label: DA-5B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.430	0.0	0.0	74.000
Impervious	98.000	0.140	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.570	(N/A)	(N/A)	79.895

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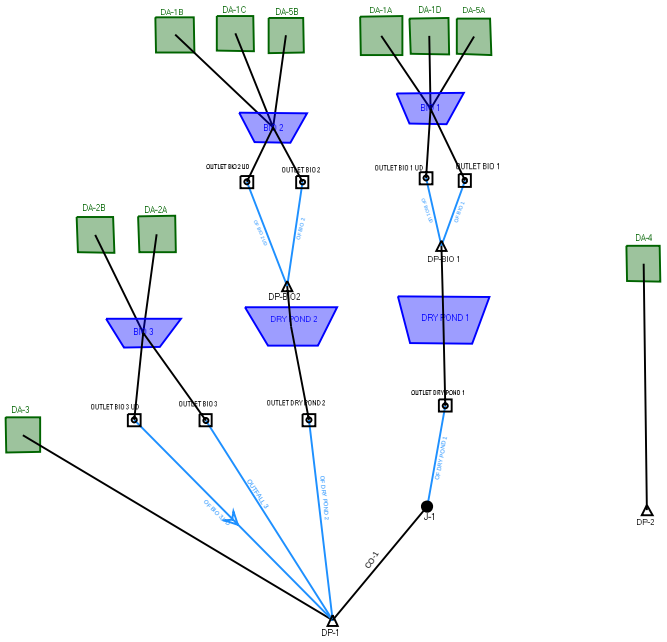
APPENDIX F

Proposed Mitigated Condition PondPack Outputs

Scenario: 1 year



Project Summary	
Title	John Jay Homestead Site and Building Enhancements
Engineer	HB / JMC
Company	CHA
Date	5/9/2024

Notes	400 Jay Street Katonah, Westchester County New York

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Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DA-1A	1 year	1	0.1945	12.110	2.448
DA-1A	10 years	10	0.5025	12.110	6.201
DA-1A	100 years	100	1.1005	12.100	13.041
DA-1C	1 year	1	0.1005	12.160	1.058
DA-1C	10 years	10	0.2973	12.150	3.290
DA-1C	100 years	100	0.7040	12.150	7.684
DA-1D	1 year	1	0.0985	12.120	1.181
DA-1D	10 years	10	0.3062	12.110	3.826
DA-1D	100 years	100	0.7455	12.100	9.094
DA-2A	1 year	1	0.1859	12.120	2.240
DA-2A	10 years	10	0.5497	12.110	6.784
DA-2A	100 years	100	1.3012	12.110	15.641
DA-2B	1 year	1	0.0540	12.110	0.679
DA-2B	10 years	10	0.1394	12.110	1.721
DA-2B	100 years	100	0.3054	12.100	3.619
DA-3	1 year	1	0.1589	12.110	1.998
DA-3	10 years	10	0.3936	12.100	4.816
DA-3	100 years	100	0.8413	12.100	9.859
DA-4	1 year	1	0.5912	12.120	7.113
DA-4	10 years	10	1.7071	12.110	20.933
DA-4	100 years	100	3.9871	12.110	47.577
DA-5A	1 year	1	0.0784	12.110	0.962
DA-5A	10 years	10	0.2025	12.110	2.460
DA-5A	100 years	100	0.4436	12.110	5.185
DA-5B	1 year	1	0.0522	12.140	0.583
DA-5B	10 years	10	0.1409	12.140	1.598
DA-5B	100 years	100	0.3165	12.140	3.491
DA-1B	1 year	1	0.0580	12.110	0.730
DA-1B	10 years	10	0.1531	12.110	1.897
DA-1B	100 years	100	0.3396	12.100	4.045

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
DP-1	1 year	1	0.8514	12.130	6.148
DP-1	10 years	10	2.5477	12.150	23.300
DP-1	100 years	100	5.5384	12.120	48.050
DP-2	1 year	1	0.5912	12.120	7.113
DP-2	10 years	10	1.7071	12.110	20.933
DP-2	100 years	100	3.9871	12.110	47.577
J-1	1 year	1	0.2826	12.680	0.966
J-1	10 years	10	0.9172	12.210	7.641
J-1	100 years	100	1.8471	11.960	9.868

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
BIO 3 (IN)	1 year	1	0.2399	12.120	2.914	(N/A)	(N/A)
BIO 3 (OUT)	1 year	1	0.2162	12.130	2.879	445.60	0.0292
BIO 3 (IN)	10 years	10	0.6891	12.110	8.505	(N/A)	(N/A)
BIO 3 (OUT)	10 years	10	0.6653	12.120	8.466	445.72	0.0354
BIO 3 (IN)	100 years	100	1.6066	12.110	19.249	(N/A)	(N/A)
BIO 3 (OUT)	100 years	100	1.5825	12.110	19.211	445.87	0.0447
BIO 2 (IN)	1 year	1	0.2108	12.130	2.304	(N/A)	(N/A)
BIO 2 (OUT)	1 year	1	0.1861	12.160	2.232	447.61	0.0306
BIO 2 (IN)	10 years	10	0.5914	12.120	6.656	(N/A)	(N/A)
BIO 2 (OUT)	10 years	10	0.5666	12.140	6.572	447.74	0.0366
BIO 2 (IN)	100 years	100	1.3601	12.120	15.016	(N/A)	(N/A)
BIO 2 (OUT)	100 years	100	1.2654	12.040	11.938	448.00	0.0498
BIO 1 (IN)	1 year	1	0.3715	12.110	4.589	(N/A)	(N/A)
BIO 1 (OUT)	1 year	1	0.2913	12.230	2.794	443.63	0.1019
BIO 1 (IN)	10 years	10	1.0113	12.110	12.487	(N/A)	(N/A)
BIO 1 (OUT)	10 years	10	0.9302	12.100	11.423	443.93	0.1493
BIO 1 (IN)	100 years	100	2.2896	12.100	27.312	(N/A)	(N/A)
BIO 1 (OUT)	100 years	100	1.8659	11.940	11.433	444.00	0.1612
DRY POND 2 (IN)	1 year	1	0.1861	12.160	2.232	(N/A)	(N/A)
DRY POND 2 (OUT)	1 year	1	0.1852	12.290	1.698	445.36	0.0130
DRY POND 2 (IN)	10 years	10	0.5666	12.140	6.572	(N/A)	(N/A)
DRY POND 2 (OUT)	10 years	10	0.5651	12.240	5.290	446.97	0.0469
DRY POND 2 (IN)	100 years	100	1.2654	12.040	11.938	(N/A)	(N/A)
DRY POND 2 (OUT)	100 years	100	1.2633	12.120	9.455	447.98	0.0830
DRY POND 1 (IN)	1 year	1	0.2913	12.230	2.794	(N/A)	(N/A)
DRY POND 1 (OUT)	1 year	1	0.2826	12.680	0.966	442.25	0.0622
DRY POND 1 (IN)	10 years	10	0.9302	12.100	11.423	(N/A)	(N/A)
DRY POND 1 (OUT)	10 years	10	0.9172	12.210	7.641	443.87	0.1842
DRY POND 1 (IN)	100 years	100	1.8659	11.940	11.433	(N/A)	(N/A)
DRY POND 1 (OUT)	100 years	100	1.8471	11.960	9.868	443.96	0.1914

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time-Depth Curve: 1 year	
Label	1 year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.3	0.3	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.3	0.3	0.4
8.500	0.4	0.4	0.4	0.4	0.4
9.000	0.4	0.4	0.4	0.4	0.5
9.500	0.5	0.5	0.5	0.5	0.5
10.000	0.5	0.5	0.6	0.6	0.6
10.500	0.6	0.6	0.6	0.7	0.7
11.000	0.7	0.7	0.7	0.8	0.8
11.500	0.8	0.9	1.0	1.0	1.2
12.000	1.4	1.6	1.8	1.8	1.9
12.500	2.0	2.0	2.0	2.1	2.1
13.000	2.1	2.1	2.1	2.2	2.2
13.500	2.2	2.2	2.2	2.2	2.3
14.000	2.3	2.3	2.3	2.3	2.3
14.500	2.3	2.3	2.4	2.4	2.4
15.000	2.4	2.4	2.4	2.4	2.4
15.500	2.4	2.4	2.5	2.5	2.5
16.000	2.5	2.5	2.5	2.5	2.5
16.500	2.5	2.5	2.5	2.5	2.5
17.000	2.5	2.6	2.6	2.6	2.6

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	2.6	2.6	2.6	2.6	2.6
18.000	2.6	2.6	2.6	2.6	2.6
18.500	2.6	2.6	2.6	2.6	2.6
19.000	2.6	2.6	2.6	2.7	2.7
19.500	2.7	2.7	2.7	2.7	2.7
20.000	2.7	2.7	2.7	2.7	2.7
20.500	2.7	2.7	2.7	2.7	2.7
21.000	2.7	2.7	2.7	2.7	2.7
21.500	2.7	2.7	2.7	2.7	2.7
22.000	2.7	2.7	2.8	2.8	2.8
22.500	2.8	2.8	2.8	2.8	2.8
23.000	2.8	2.8	2.8	2.8	2.8
23.500	2.8	2.8	2.8	2.8	2.8
24.000	2.8	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Time-Depth Curve: 10 years - type 3	
Label	10 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.5
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.6	0.6
8.000	0.6	0.6	0.6	0.6	0.6
8.500	0.7	0.7	0.7	0.7	0.7
9.000	0.7	0.8	0.8	0.8	0.8
9.500	0.8	0.9	0.9	0.9	0.9
10.000	1.0	1.0	1.0	1.0	1.1
10.500	1.1	1.1	1.2	1.2	1.2
11.000	1.3	1.3	1.4	1.4	1.5
11.500	1.5	1.6	1.7	1.9	2.1
12.000	2.5	3.0	3.2	3.4	3.5
12.500	3.6	3.6	3.7	3.7	3.8
13.000	3.8	3.9	3.9	3.9	4.0
13.500	4.0	4.0	4.0	4.1	4.1
14.000	4.1	4.2	4.2	4.2	4.2
14.500	4.2	4.3	4.3	4.3	4.3
15.000	4.3	4.4	4.4	4.4	4.4
15.500	4.4	4.5	4.5	4.5	4.5
16.000	4.5	4.5	4.5	4.5	4.6
16.500	4.6	4.6	4.6	4.6	4.6
17.000	4.6	4.6	4.7	4.7	4.7

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	4.7	4.7	4.7	4.7	4.7
18.000	4.7	4.7	4.7	4.7	4.8
18.500	4.8	4.8	4.8	4.8	4.8
19.000	4.8	4.8	4.8	4.8	4.8
19.500	4.8	4.8	4.9	4.9	4.9
20.000	4.9	4.9	4.9	4.9	4.9
20.500	4.9	4.9	4.9	4.9	4.9
21.000	4.9	4.9	4.9	5.0	5.0
21.500	5.0	5.0	5.0	5.0	5.0
22.000	5.0	5.0	5.0	5.0	5.0
22.500	5.0	5.0	5.0	5.0	5.0
23.000	5.0	5.0	5.1	5.1	5.1
23.500	5.1	5.1	5.1	5.1	5.1
24.000	5.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Time-Depth Curve: 100 years - type 3	
Label	100 years - type 3
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.2	0.2	0.2
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.3	0.3
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.4	0.4	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.5	0.5	0.5	0.5	0.5
5.000	0.5	0.5	0.5	0.6	0.6
5.500	0.6	0.6	0.6	0.6	0.6
6.000	0.7	0.7	0.7	0.7	0.7
6.500	0.7	0.8	0.8	0.8	0.8
7.000	0.8	0.8	0.9	0.9	0.9
7.500	0.9	0.9	1.0	1.0	1.0
8.000	1.0	1.1	1.1	1.1	1.1
8.500	1.2	1.2	1.2	1.3	1.3
9.000	1.3	1.4	1.4	1.4	1.5
9.500	1.5	1.6	1.6	1.6	1.7
10.000	1.7	1.8	1.8	1.9	1.9
10.500	2.0	2.0	2.1	2.1	2.2
11.000	2.3	2.3	2.4	2.5	2.6
11.500	2.7	2.9	3.1	3.4	3.8
12.000	4.6	5.3	5.7	6.0	6.2
12.500	6.4	6.5	6.6	6.7	6.8
13.000	6.8	6.9	7.0	7.0	7.1
13.500	7.1	7.2	7.2	7.3	7.3
14.000	7.4	7.4	7.5	7.5	7.6
14.500	7.6	7.6	7.7	7.7	7.7
15.000	7.8	7.8	7.8	7.9	7.9
15.500	7.9	8.0	8.0	8.0	8.0
16.000	8.1	8.1	8.1	8.1	8.2
16.500	8.2	8.2	8.2	8.2	8.3
17.000	8.3	8.3	8.3	8.3	8.4

Subsection: Time-Depth Curve
Label: Time-Depth - 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.500	8.4	8.4	8.4	8.4	8.4
18.000	8.5	8.5	8.5	8.5	8.5
18.500	8.5	8.5	8.6	8.6	8.6
19.000	8.6	8.6	8.6	8.6	8.6
19.500	8.7	8.7	8.7	8.7	8.7
20.000	8.7	8.7	8.7	8.8	8.8
20.500	8.8	8.8	8.8	8.8	8.8
21.000	8.8	8.8	8.9	8.9	8.9
21.500	8.9	8.9	8.9	8.9	8.9
22.000	8.9	8.9	9.0	9.0	9.0
22.500	9.0	9.0	9.0	9.0	9.0
23.000	9.0	9.0	9.0	9.1	9.1
23.500	9.1	9.1	9.1	9.1	9.1
24.000	9.1	(N/A)	(N/A)	(N/A)	(N/A)

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-1A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: DA-1C
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.040 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.16 ft/s
Segment Time of Concentration	0.175 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	213.00 ft
Is Paved?	False
Slope	0.066 ft/ft
Average Velocity	4.15 ft/s
Segment Time of Concentration	0.014 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.189 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.120 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.36 ft/s
Segment Time of Concentration	0.077 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	120.00 ft
Is Paved?	False
Slope	0.058 ft/ft
Average Velocity	3.89 ft/s
Segment Time of Concentration	0.009 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	40.00 ft
Is Paved?	False
Slope	0.100 ft/ft
Average Velocity	5.10 ft/s
Segment Time of Concentration	0.002 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.088 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-2A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	45.00 ft
Manning's n	0.240
Slope	0.089 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.19 ft/s
Segment Time of Concentration	0.067 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	55.00 ft
Manning's n	0.011
Slope	0.018 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.21 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	278.00 ft
Is Paved?	False
Slope	0.065 ft/ft
Average Velocity	4.11 ft/s
Segment Time of Concentration	0.019 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.098 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-2B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

= = = = User Defined

Tc =	Value entered by user
Where:	Tc= Time of concentration, hours

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	15.00 ft
Manning's n	0.011
Slope	0.067 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.57 ft/s
Segment Time of Concentration	0.003 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	85.00 ft
Manning's n	0.150
Slope	0.106 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.33 ft/s
Segment Time of Concentration	0.071 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	125.00 ft
Is Paved?	False
Slope	0.056 ft/ft
Average Velocity	3.82 ft/s
Segment Time of Concentration	0.009 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	229.00 ft
Is Paved?	False
Slope	0.035 ft/ft
Average Velocity	3.02 ft/s
Segment Time of Concentration	0.021 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.104 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-5A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.150
Slope	0.070 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.096 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	112.00 ft
Is Paved?	False
Slope	0.054 ft/ft
Average Velocity	3.75 ft/s
Segment Time of Concentration	0.008 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.104 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: DA-5B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	72.00 ft
Manning's n	0.240
Slope	0.083 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.20 ft/s
Segment Time of Concentration	0.100 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	28.00 ft
Manning's n	0.240
Slope	0.036 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.066 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	57.00 ft
Is Paved?	False
Slope	0.053 ft/ft
Average Velocity	3.71 ft/s
Segment Time of Concentration	0.004 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.171 hours

= = = = SCS Channel Flow

Tc =

R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:

R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

= = = = SCS TR-55 Shallow Concentration Flow

Tc =

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:

V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Runoff CN-Area
Label: DA-1A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	1.310	0.0	0.0	74.000
Asphalt	98.000	0.600	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.910	(N/A)	(N/A)	81.539

Subsection: Runoff CN-Area
Label: DA-1B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open Space - Good Cond - HSG C	74.000	0.420	0.0	0.0	74.000
Asphalt	98.000	0.180	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.600	(N/A)	(N/A)	81.200

Subsection: Runoff CN-Area
Label: DA-1C
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious	98.000	0.110	0.0	0.0	98.000
Grass - Good Cond, HSG C	74.000	1.260	0.0	0.0	74.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.370	(N/A)	(N/A)	75.927

Subsection: Runoff CN-Area
Label: DA-1D
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	1.380	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	0.090	0.0	0.0	70.000
Impervious	98.000	0.040	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.510	(N/A)	(N/A)	74.397

Subsection: Runoff CN-Area
Label: DA-2A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	2.300	0.0	0.0	74.000
Impervious	98.000	0.230	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	2.530	(N/A)	(N/A)	76.182

Subsection: Runoff CN-Area
Label: DA-2B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious	98.000	0.180	0.0	0.0	98.000
Open Space - Good Cond - HSG C	74.000	0.350	0.0	0.0	74.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.530	(N/A)	(N/A)	82.151

Subsection: Runoff CN-Area
Label: DA-3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.820	0.0	0.0	74.000
Impervious	98.000	0.590	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.410	(N/A)	(N/A)	84.043

Subsection: Runoff CN-Area
Label: DA-4
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	4.890	0.0	0.0	74.000
Woods - Good Cond, HSG C	70.000	1.610	0.0	0.0	70.000
Impervious	98.000	1.100	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	7.600	(N/A)	(N/A)	76.626

Subsection: Runoff CN-Area
Label: DA-5A
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.500	0.0	0.0	74.000
Impervious	98.000	0.270	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.770	(N/A)	(N/A)	82.416

Subsection: Runoff CN-Area
Label: DA-5B
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Open space - Good Cond, HSG C	74.000	0.430	0.0	0.0	74.000
Impervious	98.000	0.140	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.570	(N/A)	(N/A)	79.895

Subsection: Elevation-Area Volume Curve
Label: BIO 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
443.00	0.0	0.145	0.000	0.0000	0.0000
444.00	0.0	0.178	0.484	0.1612	0.1612

Subsection: Elevation-Area Volume Curve
Label: BIO 2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
447.00	0.0	0.040	0.000	0.0000	0.0000
448.00	0.0	0.060	0.149	0.0498	0.0498

Subsection: Elevation-Area Volume Curve
Label: BIO 3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
445.00	0.0	0.041	0.000	0.0000	0.0000
446.00	0.0	0.065	0.159	0.0530	0.0530

Subsection: Elevation-Area Volume Curve
Label: DRY POND 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
441.00	0.0	0.037	0.000	0.0000	0.0000
442.00	0.0	0.055	0.138	0.0460	0.0460
443.00	0.0	0.075	0.194	0.0646	0.1106
444.00	0.0	0.095	0.254	0.0846	0.1951
444.50	0.0	0.113	0.312	0.0519	0.2471

Subsection: Elevation-Area Volume Curve
Label: DRY POND 2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
444.00	0.0	0.005	0.000	0.0000	0.0000
445.00	0.0	0.011	0.023	0.0076	0.0076
446.00	0.0	0.020	0.045	0.0151	0.0226
447.00	0.0	0.031	0.075	0.0249	0.0475
448.00	0.0	0.043	0.109	0.0364	0.0839
448.50	0.0	0.049	0.137	0.0229	0.1067

Subsection: Outlet Input Data
Label: BIO 1 UD OUTLET
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	443.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	444.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
User Defined Table	User Defined Rating Table - 1	Forward	TW	0.00	444.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: User Defined Rating Table - 1
Structure Type: User Defined Table

Elevation (ft)	Flow (ft³/s)
443.00	0.029
443.50	0.029
444.00	0.029

Requested Pond Water Surface Elevations	
Minimum (Headwater)	446.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	447.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
User Defined Table	User Defined Rating Table - 1	Forward	TW	0.00	448.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: User Defined Rating Table - 1
Structure Type: User Defined Table

Elevation (ft)	Flow (ft^3/s)
446.00	0.010
446.50	0.010
447.00	0.010

Subsection: Multiple Outfall Rating Curves
Label: BIO 3 (IN)
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Total Pond Outflow Curve for Multiple Outfalls

Headwater Elevation (ft)	Outfall: OUTFALL 3 (ft³/s)	Outfall: OF BIO 3 UD (ft³/s)	Total Flow (ft³/s)
445.00	0.000	0.010	0.010
445.05	0.000	0.010	0.010
445.10	0.000	0.010	0.010
445.15	0.000	0.010	0.010
445.20	0.000	0.010	0.010
445.25	0.000	0.010	0.010
445.30	0.000	0.010	0.010
445.35	0.000	0.010	0.010
445.40	0.000	0.010	0.010
445.45	0.000	0.010	0.010
445.50	0.000	0.010	0.010
445.55	0.937	0.010	0.948
445.60	2.652	0.010	2.663
445.65	4.877	0.010	4.887
445.70	7.530	0.010	7.540
445.75	10.561	0.010	10.571
445.80	13.932	0.010	13.942
445.85	17.616	0.010	17.626
445.90	21.589	0.010	21.600
445.95	24.587	0.010	24.598
446.00	27.779	0.010	27.789

Subsection: Outlet Input Data
Label: BIO 3 UD OUTLET
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	445.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	446.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
User Defined Table	User Defined Rating Table - 1	Forward	TW	0.00	446.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: User Defined Rating Table - 1
Structure Type: User Defined Table

Elevation (ft)	Flow (ft³/s)
445.00	0.010
445.50	0.010
446.00	0.010

Structure ID: TW
Structure Type: TW Setup, DS Channel

Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Composite Rating Curve
Label: BIO 3 UD OUTLET
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
445.00	0.010	(N/A)	0.00
445.05	0.010	(N/A)	0.00
445.10	0.010	(N/A)	0.00
445.15	0.010	(N/A)	0.00
445.20	0.010	(N/A)	0.00
445.25	0.010	(N/A)	0.00
445.30	0.010	(N/A)	0.00
445.35	0.010	(N/A)	0.00
445.40	0.010	(N/A)	0.00
445.45	0.010	(N/A)	0.00
445.50	0.010	(N/A)	0.00
445.55	0.010	(N/A)	0.00
445.60	0.010	(N/A)	0.00
445.65	0.010	(N/A)	0.00
445.70	0.010	(N/A)	0.00
445.75	0.010	(N/A)	0.00
445.80	0.010	(N/A)	0.00
445.85	0.010	(N/A)	0.00
445.90	0.010	(N/A)	0.00
445.95	0.010	(N/A)	0.00
446.00	0.010	(N/A)	0.00

Contributing Structures
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1

Subsection: Composite Rating Curve
Label: BIO 3 UD OUTLET
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Contributing Structures
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1
User Defined Rating Table - 1

Requested Pond Water Surface Elevations	
Minimum (Headwater)	443.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	444.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Weir bio 1	Forward	TW	443.50	444.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir bio 1
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	444.00
1.50	443.50
21.50	443.50
23.00	444.00

Lowest Elevation	443.50 ft
Weir Coefficient	2.80 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	447.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	448.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Weir bio 2	Forward	TW	447.50	448.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir bio 2
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	448.00
1.50	447.50
21.50	447.50
23.00	448.00

Lowest Elevation	447.50 ft
Weir Coefficient	2.80 (ft^0.5)/s

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	445.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	446.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser bio 3	Forward	Culvert bio 3	445.50	446.00
Culvert-Circular	Culvert bio 3	Forward	TW	442.00	446.00
Irregular Weir	Weir bio 3	Forward	TW	445.50	446.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir bio 3
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	446.00
1.50	445.50
21.50	445.50
23.00	446.00

Lowest Elevation	445.50 ft
Weir Coefficient	2.80 (ft^0.5)/s

Structure ID: Riser bio 3
Structure Type: Inlet Box

Number of Openings	1
Elevation	445.50 ft
Orifice Area	5.0 ft²
Orifice Coefficient	0.600
Weir Length	10.00 ft
Weir Coefficient	2.70 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: Culvert bio 3
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	12.0 in
Length	40.00 ft
Length (Computed Barrel)	40.00 ft
Slope (Computed)	0.005 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.400
Kb	0.031
Kr	0.400
Convergence Tolerance	0.00 ft

Inlet Control Data

Equation Form	Form 2
K	0.5340

Inlet Control Data	
M	0.5550
C	0.0196
Y	0.9000
T1 ratio (HW/D)	1.070
T2 ratio (HW/D)	1.211
Slope Correction Factor	-0.500

Use unsubmerged inlet control 1 equation below T1 elevation.
Use submerged inlet control 1 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	443.07 ft	T1 Flow	2.749 ft³/s
T2 Elevation	443.21 ft	T2 Flow	3.142 ft³/s

Structure ID: TW
Structure Type: TW Setup, DS Channel

Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.05 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.05 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft^3/s
Flow Tolerance (Maximum)	10.000 ft^3/s

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
445.00	0.000	(N/A)	0.00
445.05	0.000	(N/A)	0.00
445.10	0.000	(N/A)	0.00
445.15	0.000	(N/A)	0.00
445.20	0.000	(N/A)	0.00
445.25	0.000	(N/A)	0.00
445.30	0.000	(N/A)	0.00
445.35	0.000	(N/A)	0.00
445.40	0.000	(N/A)	0.00
445.45	0.000	(N/A)	0.00
445.50	0.000	(N/A)	0.00
445.55	0.937	(N/A)	0.00
445.60	2.652	(N/A)	0.00
445.65	4.877	(N/A)	0.00
445.70	7.530	(N/A)	0.00
445.75	10.561	(N/A)	0.00
445.80	13.932	(N/A)	0.00
445.85	17.616	(N/A)	0.00
445.90	21.589	(N/A)	0.00
445.95	24.587	(N/A)	0.00
446.00	27.779	(N/A)	0.00

Contributing Structures
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)
(no Q: Riser bio 3,Culvert bio 3,Weir bio 3)

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 3
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Contributing Structures
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3
Riser bio 3,Culvert bio 3,Weir bio 3

Requested Pond Water Surface Elevations	
Minimum (Headwater)	441.00 ft
Increment (Headwater)	0.05 ft
Maximum (Headwater)	444.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser DRY POND 1	Forward	Culvert DRY POND 1	443.50	444.50
Orifice-Circular	Orifice DRY POND 1	Forward	Culvert DRY POND 1	441.00	444.50
Culvert-Circular	Culvert DRY POND 1	Forward	TW	436.00	444.50
Irregular Weir	Weir DRY POND 1	Forward	TW	444.00	444.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser DRY POND 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	443.50 ft
Orifice Area	5.0 ft²
Orifice Coefficient	0.600
Weir Length	10.00 ft
Weir Coefficient	2.70 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: Weir DRY POND 1
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	444.50
1.50	444.00
21.50	444.00
23.00	444.50

Lowest Elevation	444.00 ft
Weir Coefficient	2.80 (ft^0.5)/s

Structure ID: Culvert DRY POND 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	35.00 ft
Length (Computed Barrel)	35.01 ft
Slope (Computed)	0.023 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.000
Kb	0.018
Kr	0.400
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 2
K	0.5340
M	0.5550
C	0.0196
Y	0.9000
T1 ratio (HW/D)	1.070
T2 ratio (HW/D)	1.202
Slope Correction Factor	-0.500

Use unsubmerged inlet control 1 equation below T1 elevation.
Use submerged inlet control 1 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	437.61 ft	T1 Flow	7.575 ft³/s
T2 Elevation	437.80 ft	T2 Flow	8.657 ft³/s

Structure ID: Orifice DRY POND 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	441.00 ft
Orifice Diameter	6.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Composite Rating Curve
Label: DRY POND 1 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
441.00	0.000	(N/A)	0.00
441.05	0.007	(N/A)	0.00
441.10	0.022	(N/A)	0.00
441.15	0.053	(N/A)	0.00
441.20	0.089	(N/A)	0.00
441.25	0.135	(N/A)	0.00
441.30	0.196	(N/A)	0.00
441.35	0.251	(N/A)	0.00
441.40	0.326	(N/A)	0.00
441.45	0.393	(N/A)	0.00
441.50	0.495	(N/A)	0.00
441.55	0.519	(N/A)	0.00
441.60	0.560	(N/A)	0.00
441.65	0.626	(N/A)	0.00
441.70	0.662	(N/A)	0.00
441.75	0.668	(N/A)	0.00
441.80	0.703	(N/A)	0.00
441.85	0.733	(N/A)	0.00
441.90	0.763	(N/A)	0.00
441.95	0.793	(N/A)	0.00
442.00	0.852	(N/A)	0.00
442.05	0.846	(N/A)	0.00
442.10	0.888	(N/A)	0.00
442.15	0.912	(N/A)	0.00
442.20	0.936	(N/A)	0.00
442.25	0.966	(N/A)	0.00
442.30	0.983	(N/A)	0.00
442.35	1.007	(N/A)	0.00
442.40	1.013	(N/A)	0.00
442.45	1.037	(N/A)	0.00
442.50	1.073	(N/A)	0.00
442.55	1.079	(N/A)	0.00
442.60	1.121	(N/A)	0.00
442.65	1.121	(N/A)	0.00
442.70	1.138	(N/A)	0.00
442.75	1.156	(N/A)	0.00
442.80	1.180	(N/A)	0.00
442.85	1.216	(N/A)	0.00
442.90	1.216	(N/A)	0.00
442.95	1.234	(N/A)	0.00
443.00	1.252	(N/A)	0.00
443.05	1.270	(N/A)	0.00
443.10	1.287	(N/A)	0.00
443.15	1.323	(N/A)	0.00

Subsection: Composite Rating Curve
Label: DRY POND 1 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
443.20	1.323	(N/A)	0.00
443.25	1.359	(N/A)	0.00
443.30	1.353	(N/A)	0.00
443.35	1.371	(N/A)	0.00
443.40	1.407	(N/A)	0.00
443.45	1.401	(N/A)	0.00
443.50	1.419	(N/A)	0.00
443.55	1.734	(N/A)	0.00
443.60	2.301	(N/A)	0.00
443.65	3.064	(N/A)	0.00
443.70	3.898	(N/A)	0.00
443.75	4.911	(N/A)	0.00
443.80	5.949	(N/A)	0.00
443.85	7.117	(N/A)	0.00
443.90	8.369	(N/A)	0.00
443.95	9.704	(N/A)	0.00
444.00	11.110	(N/A)	0.00
444.05	13.218	(N/A)	0.00
444.10	15.934	(N/A)	0.00
444.15	19.065	(N/A)	0.00
444.20	22.555	(N/A)	0.00
444.25	26.359	(N/A)	0.00
444.30	30.466	(N/A)	0.00
444.35	34.846	(N/A)	0.00
444.40	39.180	(N/A)	0.00
444.45	42.696	(N/A)	0.00
444.50	46.391	(N/A)	0.00

Contributing Structures
(no Q: Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)

Subsection: Composite Rating Curve
Label: DRY POND 1 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Riser DRY POND 1,Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)

Composite Outflow Summary

Contributing Structures
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1 (no Q: Weir DRY POND 1)
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1

Composite Outflow Summary

Contributing Structures
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1
Riser DRY POND 1,Orifice DRY POND 1,Culvert DRY POND 1,Weir DRY POND 1

Requested Pond Water Surface Elevations	
Minimum (Headwater)	444.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	448.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Area	Orifice DRY POND 2B	Forward	Culvert DRY POND 2	445.75	448.50
Inlet Box	Riser DRY POND 2	Forward	Culvert DRY POND 2	447.75	448.50
Orifice-Circular	Orifice DRY POND 2A	Forward	Culvert DRY POND 2	444.00	448.50
Culvert-Circular	Culvert DRY POND 2	Forward	TW	443.30	448.50
Irregular Weir	Weir DRY POND 2 ES	Forward	TW	448.00	448.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert DRY POND 2 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	22.00 ft
Length (Computed Barrel)	22.00 ft
Slope (Computed)	0.014 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.400
Kb	0.012
Kr	0.400
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 2
K	0.5340
M	0.5550
C	0.0196
Y	0.9000
T1 ratio (HW/D)	1.070
T2 ratio (HW/D)	1.207
Slope Correction Factor	-0.500

Use unsubmerged inlet control 1 equation below T1 elevation.
Use submerged inlet control 1 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	445.44 ft	T1 Flow	15.550 ft³/s
T2 Elevation	445.71 ft	T2 Flow	17.772 ft³/s

Structure ID: Riser DRY POND 2 Structure Type: Inlet Box	
Number of Openings	1
Elevation	447.75 ft
Orifice Area	5.0 ft²
Orifice Coefficient	0.600
Weir Length	10.00 ft
Weir Coefficient	2.70 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: Weir DRY POND 2 ES
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	448.50
1.50	448.00
21.50	448.00
23.00	448.50

Lowest Elevation	448.00 ft
Weir Coefficient	2.80 (ft^0.5)/s

Structure ID: Orifice DRY POND 2A Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	444.00 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.600

Structure ID: Orifice DRY POND 2B Structure Type: Orifice-Area	
Number of Openings	1
Elevation	445.75 ft
Orifice Area	0.5 ft²
Top Elevation	446.25 ft
Datum Elevation	445.75 ft
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel

Structure ID: TW
Structure Type: TW Setup, DS Channel

Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft^3/s
Flow Tolerance (Maximum)	10.000 ft^3/s

Subsection: Composite Rating Curve
Label: DRY POND 2 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
444.00	0.000	(N/A)	0.00
444.10	0.028	(N/A)	0.00
444.20	0.107	(N/A)	0.00
444.30	0.228	(N/A)	0.00
444.40	0.386	(N/A)	0.00
444.50	0.576	(N/A)	0.00
444.60	0.787	(N/A)	0.00
444.70	1.017	(N/A)	0.00
444.80	1.147	(N/A)	0.00
444.90	1.266	(N/A)	0.00
445.00	1.372	(N/A)	0.00
445.10	1.468	(N/A)	0.00
445.20	1.565	(N/A)	0.00
445.30	1.648	(N/A)	0.00
445.40	1.732	(N/A)	0.00
445.50	1.813	(N/A)	0.00
445.60	1.891	(N/A)	0.00
445.70	1.964	(N/A)	0.00
445.75	2.000	(N/A)	0.00
445.80	2.205	(N/A)	0.00
445.90	2.613	(N/A)	0.00
446.00	3.023	(N/A)	0.00
446.10	3.425	(N/A)	0.00
446.20	3.822	(N/A)	0.00
446.30	4.112	(N/A)	0.00
446.40	4.311	(N/A)	0.00
446.50	4.499	(N/A)	0.00
446.60	4.675	(N/A)	0.00
446.70	4.849	(N/A)	0.00
446.80	5.012	(N/A)	0.00
446.90	5.176	(N/A)	0.00
447.00	5.328	(N/A)	0.00
447.10	5.470	(N/A)	0.00
447.20	5.623	(N/A)	0.00
447.30	5.753	(N/A)	0.00
447.40	5.895	(N/A)	0.00
447.50	6.026	(N/A)	0.00
447.60	6.157	(N/A)	0.00
447.70	6.287	(N/A)	0.00
447.75	6.353	(N/A)	0.00
447.80	6.698	(N/A)	0.00
447.90	8.023	(N/A)	0.00
448.00	9.875	(N/A)	0.00
448.10	13.879	(N/A)	0.00

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
448.20	19.761	(N/A)	0.00
448.30	26.928	(N/A)	0.00
448.40	35.063	(N/A)	0.00
448.50	44.211	(N/A)	0.00

Contributing Structures
(no Q: Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Orifice DRY POND 2B,Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)

Subsection: Composite Rating Curve
Label: DRY POND 2 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Contributing Structures
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Riser DRY POND 2,Weir DRY POND 2 ES)
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Weir DRY POND 2 ES)
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Weir DRY POND 2 ES)
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2 (no Q: Weir DRY POND 2 ES)
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2,Weir DRY POND 2 ES
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2,Weir DRY POND 2 ES
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2,Weir DRY POND 2 ES
Orifice DRY POND 2B,Riser DRY POND 2,Orifice DRY POND 2A,Culvert DRY POND 2,Weir DRY POND 2 ES

Subsection: Composite Rating Curve
Label: DRY POND 2 OUTLET STRUCTURE
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Composite Outflow Summary

Contributing Structures
Orifice DRY POND
2B,Riser DRY POND
2,Orifice DRY POND
2A,Culvert DRY POND
2,Weir DRY POND 2 ES

Subsection: Interconnected Pond Routing Summary
Label: BIO 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	443.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.029	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.230	443.63	0.1019

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.110	4.589	0.000	0.000
Pond Outflow...	12.230	2.794	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.3715	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.2913	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.3715 ac-ft
Volume (Total Out ICPM)	0.2913 ac-ft
Volume (Ending)	0.0812 ac-ft
Elevation (Ending)	443.50 ft
Difference	-0.0011 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.3 %

Subsection: Interconnected Pond Routing Summary
Label: BIO 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	443.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.029	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.210	443.93	0.1493

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.110	12.487	0.000	0.000
Pond Outflow...	12.100	11.423	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	1.0113	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.9302	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	1.0113 ac-ft
Volume (Total Out ICPM)	0.9302 ac-ft
Volume (Ending)	0.0823 ac-ft
Elevation (Ending)	443.51 ft
Difference	-0.0013 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.1 %

Subsection: Interconnected Pond Routing Summary
Label: BIO 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	443.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.029	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	11.950	444.00	0.1612

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.100	27.312	0.000	0.000
Pond Outflow...	11.940	11.433	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	2.2896	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	1.8659	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	2.2896 ac-ft
Volume (Total Out ICPM)	1.8659 ac-ft
Volume (Ending)	0.0843 ac-ft
Elevation (Ending)	443.52 ft
Difference	0.3393 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	14.8 %

Subsection: Interconnected Pond Routing Summary
Label: BIO 2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	447.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.010	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.160	447.61	0.0306

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.130	2.304	0.000	0.000
Pond Outflow...	12.160	2.232	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.2108	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.1861	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.2108 ac-ft
Volume (Total Out ICPM)	0.1861 ac-ft
Volume (Ending)	0.0250 ac-ft
Elevation (Ending)	447.50 ft
Difference	-0.0004 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.2 %

Subsection: Interconnected Pond Routing Summary
Label: BIO 2
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	447.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.010	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.140	447.74	0.0366

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.120	6.656	0.000	0.000
Pond Outflow...	12.140	6.572	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.5914	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.5666	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.5914 ac-ft
Volume (Total Out ICPM)	0.5666 ac-ft
Volume (Ending)	0.0253 ac-ft
Elevation (Ending)	447.51 ft
Difference	-0.0005 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.1 %

Subsection: Interconnected Pond Routing Summary
Label: BIO 2
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	447.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.010	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.090	448.00	0.0498

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.120	15.016	0.000	0.000
Pond Outflow...	12.040	11.938	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	1.3601	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	1.2654	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	1.3601 ac-ft
Volume (Total Out ICPM)	1.2654 ac-ft
Volume (Ending)	0.0256 ac-ft
Elevation (Ending)	447.52 ft
Difference	0.0690 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	5.1 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 1
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	441.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.680	442.25	0.0622

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.230	2.794	0.000	0.000
Pond Outflow...	12.680	0.966	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.2913	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.2826	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.2913 ac-ft
Volume (Total Out ICPM)	0.2826 ac-ft
Volume (Ending)	0.0087 ac-ft
Elevation (Ending)	441.19 ft
Difference	0.0000 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 1
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	441.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.210	443.87	0.1842

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.100	11.423	0.000	0.000
Pond Outflow...	12.210	7.641	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.9302	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.9172	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.9302 ac-ft
Volume (Total Out ICPM)	0.9172 ac-ft
Volume (Ending)	0.0129 ac-ft
Elevation (Ending)	441.28 ft
Difference	0.0001 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 1
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	441.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	11.960	443.96	0.1914

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	11.940	11.433	0.000	0.000
Pond Outflow...	11.960	9.868	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	1.8659	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	1.8471	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	1.8659 ac-ft
Volume (Total Out ICPM)	1.8471 ac-ft
Volume (Ending)	0.0187 ac-ft
Elevation (Ending)	441.41 ft
Difference	0.0001 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 2
Scenario: 1 year

Return Event: 1 years
Storm Event: 1 year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	444.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.290	445.36	0.0130

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.160	2.232	0.000	0.000
Pond Outflow...	12.290	1.698	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.1861	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.1852	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.1861 ac-ft
Volume (Total Out ICPM)	0.1852 ac-ft
Volume (Ending)	0.0009 ac-ft
Elevation (Ending)	444.12 ft
Difference	0.0000 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 2
Scenario: 10 years

Return Event: 10 years
Storm Event: 10 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	444.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.240	446.97	0.0469

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.140	6.572	0.000	0.000
Pond Outflow...	12.240	5.290	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	0.5666	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	0.5651	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	0.5666 ac-ft
Volume (Total Out ICPM)	0.5651 ac-ft
Volume (Ending)	0.0014 ac-ft
Elevation (Ending)	444.19 ft
Difference	0.0000 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

Subsection: Interconnected Pond Routing Summary
Label: DRY POND 2
Scenario: 100 years

Return Event: 100 years
Storm Event: 100 years - type 3

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions			Calculation Tolerances		
Elevation (Starting Water Surface Computed)	444.00	ft	Flow Tolerance (Minimum)	0.000	ft³/s
Volume (Starting)	0.0000	ac-ft	Maximum Iterations	35	
Outflow (Starting)	0.000	ft³/s	ICPM Time Step	0.010	hours

	Maximum Storage		
	Time to Peak (hours)	Elevation (ft)	Volume (ac-ft)
	12.120	447.98	0.0830

	Forward Flow Peaks		Reverse Flow Peaks	
	Time to Peak (hours)	Flow (Peak) (ft³/s)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Pond Inflow....	12.040	11.938	0.000	0.000
Pond Outflow...	12.120	9.455	0.000	0.000

	Total Volume In		Total Volume Out	
	Volume (ac-ft)	Direction	Volume (ac-ft)	Direction
Pond Inflow....	1.2654	Forward	0.0000	Reverse
Pond Outflow...	0.0000	Reverse	1.2633	Forward

Mass Balance (ac-ft)	
Volume (Initial ICPM)	0.0000 ac-ft
Volume (Total In ICPM)	1.2654 ac-ft
Volume (Total Out ICPM)	1.2633 ac-ft
Volume (Ending)	0.0020 ac-ft
Elevation (Ending)	444.27 ft
Difference	0.0001 ac-ft
Percent of Inflow Volume (Interconnected Pond Mass Balance)	0.0 %

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BIO 2 (Interconnected Pond Routing Summary, 10 years)...

BIO 2 (Interconnected Pond Routing Summary, 100 years (100 years))...92

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BIO 3 (Elevation-Area Volume Curve, 1 years (1 year))...42

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BIO 3 (IN) (Multiple Outfall Rating Curves, 1 years)...

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BIO 3 UD OUTLET (Composite Rating Curve, 1 years)...

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BIO 3 UD OUTLET (Outlet Input Data, 1 years)...

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Composite Outlet Structure - 2 (Outlet Input Data, 1 years (1 year))...56, 57

Composite Outlet Structure - 2 (Outlet Input Data, 1 years)...

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DA-1A (Runoff CN-Area, 1 years)...

DA-1A (Time of Concentration Calculations, 1 years (1 year))...10, 11

DA-1A (Time of Concentration Calculations, 1 years)...

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DA-1B (Runoff CN-Area, 1 years)...

DA-1B (Time of Concentration Calculations, 1 years (1 year))...12, 13

DA-1B (Time of Concentration Calculations, 1 years)...

DA-1C (Runoff CN-Area, 1 years (1 year))...32

DA-1C (Runoff CN-Area, 1 years)...

DA-1C (Time of Concentration Calculations, 1 years (1 year))...14, 15

DA-1C (Time of Concentration Calculations, 1 years)...

DA-1D (Runoff CN-Area, 1 years (1 year))...33

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DA-1D (Time of Concentration Calculations, 1 years (1 year))...16, 17

DA-1D (Time of Concentration Calculations, 1 years)...

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DA-2A (Runoff CN-Area, 1 years)...

DA-2A (Time of Concentration Calculations, 1 years (1 year))...18, 19

DA-2A (Time of Concentration Calculations, 1 years)...

DA-2B (Runoff CN-Area, 1 years (1 year))...35

DA-2B (Runoff CN-Area, 1 years)...

DA-2B (Time of Concentration Calculations, 1 years (1 year))...20, 21

DA-2B (Time of Concentration Calculations, 1 years)...

DA-3 (Runoff CN-Area, 1 years (1 year))...36

DA-3 (Runoff CN-Area, 1 years)...

DA-3 (Time of Concentration Calculations, 1 years (1 year))...22, 23

DA-3 (Time of Concentration Calculations, 1 years)...

DA-4 (Runoff CN-Area, 1 years (1 year))...37

DA-4 (Runoff CN-Area, 1 years)...

DA-4 (Time of Concentration Calculations, 1 years (1 year))...24, 25

DA-4 (Time of Concentration Calculations, 1 years)...

DA-5A (Runoff CN-Area, 1 years (1 year))...38

DA-5A (Runoff CN-Area, 1 years)...

DA-5A (Time of Concentration Calculations, 1 years (1 year))...26, 27

DA-5A (Time of Concentration Calculations, 1 years)...

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DRY POND 1 (Interconnected Pond Routing Summary, 1 years (1 year))...93

DRY POND 1 (Interconnected Pond Routing Summary, 1 years)...

DRY POND 1 (Interconnected Pond Routing Summary, 10 years (10 years))...94

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DRY POND 1 (Interconnected Pond Routing Summary, 100 years (100 years))...95

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DRY POND 1 OUTLET STRUCTURE (Composite Rating Curve, 1 years)...

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DRY POND 2 (Interconnected Pond Routing Summary, 1 years (1 year))...96

DRY POND 2 (Interconnected Pond Routing Summary, 1 years)...

DRY POND 2 (Interconnected Pond Routing Summary, 10 years (10 years))...97

DRY POND 2 (Interconnected Pond Routing Summary, 10 years)...

DRY POND 2 (Interconnected Pond Routing Summary, 100 years (100 years))...98

DRY POND 2 (Interconnected Pond Routing Summary, 100 years)...

DRY POND 2 OUTLET STRUCTURE (Composite Rating Curve, 1 years (1 year))...80, 81, 82, 83, 84, 85, 86

DRY POND 2 OUTLET STRUCTURE (Composite Rating Curve, 1 years)...

DRY POND 2 OUTLET STRUCTURE (Outlet Input Data, 1 years (1 year))...76, 77, 78, 79

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Time-Depth - 1 (Time-Depth Curve, 10 years)...

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Time-Depth - 1 (Time-Depth Curve, 100 years)...

APPENDIX G

Water Quality Volume and Runoff Reduction Volume Computations

Version 1.8 Total Water Quality Volume Calculation
Last Updated: 11/09/2015 WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	1	
P=	2.80	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	1.91	0.60	31%	0.33	6,459	Bioretention 1A
2	0.60	0.18	30%	0.32	1,951	Bioretention 1B
3	0.53	0.18	34%	0.36	1,916	Bioretention2B
4	8.16	0.14	2%	0.07	5,428	Tree Planting/Tree Pit DA 1C+1D+2A+3+5A+5B
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	11.20	1.10	10%	0.14	15,754	Subtotal 1
Total	11.20	1.10	10%	0.14	15,754	Initial WQv

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	8.16	0.14	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	8.16	0.14	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	11.20	1.10	10%	0.14	15,754
Subtract Area	-8.16	-0.14			
WQv adjusted after Area Reductions	3.04	0.96	32%	0.33	10,327
Disconnection of Rooftops		0.00			

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	8.16	0.14		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4				
	Bioretention & Infiltration Bioretention	F-5	3.04	0.96	4723	5603
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction		→	8.16	0.14	5428	
Totals by Volume Reduction		→	0.00	0.00	0	
Totals by Standard SMP w/RRV		→	3.04	0.96	4723	5603
Totals by Standard SMP		→	0.00	0.00		0
Totals (Area + Volume + all SMPs)		→	11.20	1.10	10,151	5,603
	Impervious Cover √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C	100.00	30%
D		20%
Total Area	100	
Calculate the Minimum RRv		
S =	0.30	
Impervious =	1.10	*acre*
Precipitation	2.8	*in*
Rv	0.95	
Minimum RRv	3,186	*ft3*
	0.07	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	15754	*0.362*
30	Total RRV Provided	10151	*0.233*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	3186	*0.073*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	5603	*0.129*
34	Sum of Volume Reduced & Treated	15754	*0.362*
34	Sum of Volume Reduced and Treated	15754	*0.362*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: *Sand* - 3.5 ft/day (City of Austin 1988); *Peat* - 2.0 ft/day (Galli 1990); *Leaf Compost* - 8.7 ft/day (Claytor and Schueler, 1996); *Bioretention Soil* (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
1	1.91	0.60	0.31	0.33	6459.22	2.80	Bioretention 1A
Enter Impervious Area Reduced by Disconnection of Rooftops			31%	0.33	6,459	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		6,459	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	*Af*	5383	*ft^2*	

Determine Actual Bio-Retention Area			
Filter Width	30	*ft*	
Filter Length	210	*ft*	
Filter Area	6300	*ft^2*	
Actual Volume Provided	7560	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	3,024			
RRv applied	3,024	*ft^3*	*This is 40% of the storage provided or WQv whichever is less.*	
Volume Treated	3,435	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: *Sand* - 3.5 ft/day (City of Austin 1988); *Peat* - 2.0 ft/day (Galli 1990); *Leaf Compost* - 8.7 ft/day (Claytor and Schueler, 1996); *Bioretention Soil* (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
2	0.60	0.18	0.30	0.32	1951.49	2.80	Bioretention 1B
Enter Impervious Area Reduced by Disconnection of Rooftops			30%	0.32	1,951	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		1,951	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	*Af*	1626	*ft^2*	

Determine Actual Bio-Retention Area			
Filter Width	15	*ft*	
Filter Length	116	*ft*	
Filter Area	1740	*ft^2*	
Actual Volume Provided	2088	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	835			
RRv applied	835	*ft^3*	*This is 40% of the storage provided or WQv whichever is less.*	
Volume Treated	1,116	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: *Sand* - 3.5 ft/day (City of Austin 1988); *Peat* - 2.0 ft/day (Galli 1990); *Leaf Compost* - 8.7 ft/day (Claytor and Schueler, 1996); *Bioretention Soil* (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
3	0.53	0.18	0.34	0.36	1915.91	2.80	Bioretention2B
Enter Impervious Area Reduced by Disconnection of Rooftops			34%	0.36	1,916	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		1,916	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	*Af*	1597	*ft^2*	

Determine Actual Bio-Retention Area			
Filter Width	15	*ft*	
Filter Length	120	*ft*	
Filter Area	1800	*ft^2*	
Actual Volume Provided	2160	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	864			
RRv applied	864	*ft^3*	*This is 40% of the storage provided or WQv whichever is less.*	
Volume Treated	1,052	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Tree Planting/Tree Pits

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Precipitation *(in)*	Description
4	8.16	0.14	0.02	0.07	5427.58	2.80	Tree Planting/Tree Pit DA 1C+1D+2A+3+5A+5B

Do you intend to use this practice for area reduction or volume reduction?	Area	Design practice using criteria below

Design Elements			
Is another area based practice applied to this area?	*No*		
Diameter of Mature Canopy	16	*ft*	
Area Reduced per Tree	100	*sf*	*For up to a 16-foot diameter canopy of a mature tree, the area considered for reduction shall be ½ the area of the tree*
Number of Trees	61		
Total Area Reduced	6129.28	*sf*	
	0.14	*af*	*Okay*
Area Ratio: Total to Impervious area	58.3		*Okay*
Are All Criteria in Section 5.3.4 met?	*Yes*		

Area Reduction Adjustments		
Subtract	8.16	*Acres from total Area*
Subtract	0.14	*Acres from total Impervious Area*

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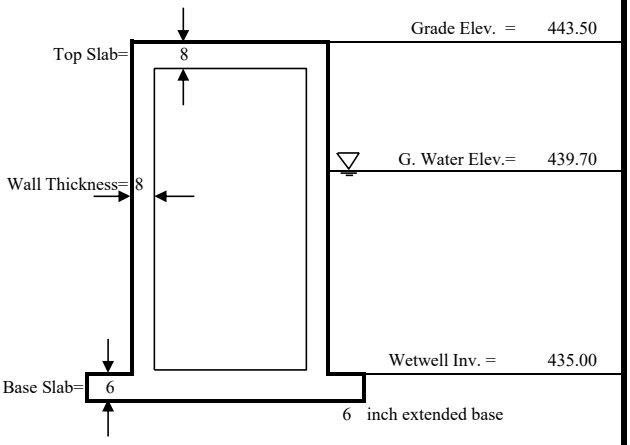
Subject: Precast Concrete Structures - Buoyancy Calculations

Outlet Control Structure Dry Pond #1



Structure Characteristics		
Diameter =	5.0	feet
Height =	8.5	feet
Wall Thickness =	0.67	feet
Extended Base =	0.5	feet
Top Slab Thickness =	0.67	feet
Base Thickness =	0.5	feet
Access Opening Dia. =	4	feet
Hatch Opening Length =	0	feet
Ground Water Depth =	**3.8**	**feet**
Unit Weight of Concrete =	150.0	lbs/cf
Unit Weight of Soil =	120.0	lbs/cf
Unit Weight of Water =	62.4	lbs/cf

Structure Top Slab Weight Calculation		
Area =	32	sf
Area of Hatch Opening =	13	sf
Net Area =	19	sf
Volume =	13	cf
Weight =	1,904	lbs

Structure Body Weight Calculation		
Area =	12	sf
Volume =	93	cf
Weight =	13,947	lbs

Manhole Base Weight Calculation		
Area =	42	sf
Volume =	21	cf
Weight =	3,168	lbs

Total Weight of Wetwell = 19019 lbs

Soil Weight Calculation (buoyancy on soil is subtracted)		
Area =	11	sf
Volume =	91	cf
Weight =	5,256	lbs

Total Resistant Force = 24,275 lbs

Buoyancy Force Calculation		
Volume Displaced By Structure =	206	cf
Weight =	12,879	lbs

Factor of Safety = 1.88 O.K.

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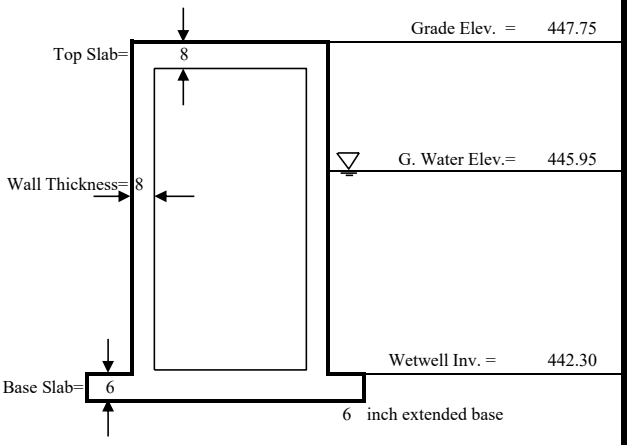
Subject: Precast Concrete Structures - Buoyancy Calculations

Outlet Control Structure Dry Pond #2



Structure Characteristics		
Diameter =	5.0	feet
Height =	5.5	feet
Wall Thickness =	0.67	feet
Extended Base =	0.5	feet
Top Slab Thickness =	0.67	feet
Base Thickness =	0.5	feet
Access Opening Dia. =	4	feet
Hatch Opening Length =	0	feet
Ground Water Depth =	**1.8**	**feet**
Unit Weight of Concrete =	150.0	lbs/cf
Unit Weight of Soil =	120.0	lbs/cf
Unit Weight of Water =	62.4	lbs/cf

Structure Top Slab Weight Calculation		
Area =	32	sf
Area of Hatch Opening =	13	sf
Net Area =	19	sf
Volume =	13	cf
Weight =	1,904	lbs

Structure Body Weight Calculation		
Area =	12	sf
Volume =	57	cf
Weight =	8,514	lbs

Manhole Base Weight Calculation		
Area =	42	sf
Volume =	21	cf
Weight =	3,168	lbs

Total Weight of Wetwell = 13586 lbs

Soil Weight Calculation (buoyancy on soil is subtracted)		
Area =	11	sf
Volume =	59	cf
Weight =	3,370	lbs

Total Resistant Force = 16,956 lbs

Buoyancy Force Calculation		
Volume Displaced By Structure =	150	cf
Weight =	9,332	lbs

Factor of Safety = 1.82 O.K.

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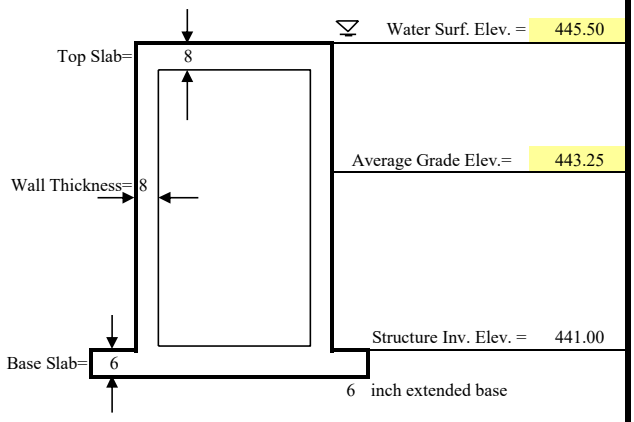
Subject:			

Outlet Control Structure Bioretention #3

Worst case scenario for the purposes of this design is a water surface elevation equal to the top of structure.



Outfall Structure Characterisics		
Width (ID) =	4	feet
Length (ID) =	4	feet
Height =	4.50	feet
Wall Thickness =	0.67	feet
Extended Base =	0.5	feet
Top Slab Thickness =	0.667	feet
Base Thickness =	0.5	feet
Hatch Opening Width =	3.5	feet
Hatch Opening Length =	3.5	feet
Unit Weight of Concrete =	150.0	lbs/cf
Unit Weight of Soil =	120.0	lbs/cf
Unit Weight of Water =	62.4	lbs/cf

Top Slab Weight Calculation		
Area =	28.5	sf
Area of Hatch Opening =	12	sf
Net Area =	16	sf
Volume =	11	cf
Weight =	1,621	lbs

Outfall Structure Body Weight Calculation		
Area =	12.5	
Volume =	56	cf
Weight =	8,405	lbs

Base Weight Calculation		
Area =	40.1	sf
Volume =	20	cf
Weight =	3,009	lbs

Total Weight of Structure = 13035 lbs

[1]Soil Weight Calculation (buoyancy on soil is subtracted)		
Area =	11.7	sf
Volume =	26	cf
Weight =	1,512	lbs

Total Resistant Force = 14,547 lbs

Buoyancy Force Calculation		
Volume Displaced By Wetwell =	148	cf
Weight =	9,241	lbs

Factor of Safety = 1.57 O.K.

[1] Weight of soil is conservatively estimated as a rectangular column over the footprint of the extended base.

APPENDIX H

Phasing Plan, Grading and Drainage Plan
and ESC Plan and Details

APPENDIX I

Inspection Forms

John Jay Homestead Site and Building Enhancements

PERMIT NUMBER: NYR-

PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name John Jay Homestead Site and Building Enhancements

GP-0-20-001 Permit No. NYR **Date of Authorization** _____

Name of Owner/Operator _____

General Contractor _____

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

Site Assessment and Inspections -

a. The Owner or Operator agrees to have a Qualified Inspector[1] conduct an assessment of the site prior to the commencement of construction. The Qualified Inspector shall certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

b. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the owner or operator can stop conducting inspections. The owner or operator shall resume inspections as soon as soil disturbance activities are reinitiated.

c. For construction sites where soil disturbance activities have been shut down with partial project completion, the owner or operator can stop conducting inspections if all areas disturbed (as of the project shutdown date) have achieved final stabilization and all post-construction stormwater management practices, required for the completed portion of the project, have been constructed in conformance with the SWPPP and are operational.

d. Following the commencement of construction, site inspections shall be conducted by the Qualified Inspector to ensure that erosion and sediment controls are being maintained in effective operating condition at all times. Inspections shall occur at least: (i) Twice every 7 calendar days for construction sites where soil disturbance activities are occurring; (ii) twice every 7 calendar days for construction sites where soil disturbance activities are occurring and the Owner/Operator has received authorization to disturb greater than five (5) acres of soil at any one time; (iii) once every thirty (30) calendar days for construction sites where soil disturbance activities have been temporarily suspended and temporary stabilization measures have been applied to all disturbed areas; and (iv) for construction sites where soil disturbance activities have been shut down with partial project completion, the Qualified Inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization, and all post-construction stormwater management practices for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

e. The owner or operator shall notify the Regional Office stormwater contact person in writing prior to reducing the frequency of any inspections.

f. The Owner/Operator shall maintain a record of all inspection reports in the site log book. The site log book shall be maintained on site and be made available to the permitting authorities upon request. Prior to the commencement of construction,[2] the Owner/Operator shall certify in the site log book that the SWPPP is prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

g. Prior to filing of the Notice of Termination or the end of permit term, the Owner/Operator shall have the Qualified Inspector perform a final site inspection. The Qualified Inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

[1]"Qualified Inspector" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed Professional Engineer (PE), licensed Landscape Architect, or other Department endorsed individual(s). It may also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist provided that person has training in the principles and practices of erosion and sediment control. Training means that person has received four (4) hours of training endorsed by the Department and shall receive four (4) hours of training every three (3) years after the initial training session.
[2]"Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
[3]"Final stabilization" means that all soil disturbance activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established, or equivalent stabilization measures (such as the use of mulches or geotextiles, rock rip-rap or washed/crushed stone) have been employed on all disturbed areas that are not covered by permanent structures, concrete or pavement.

John Jay Homestead Site and Building Enhancements

PRE-CONSTRUCTION SITE ASSESSMENT FORM

Inspector Name and Title	**Date and Time of Inspection**
Qualified Inspector	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the following forms is accurate and complete.

a. Notice of Intent, SWPPP, and Contractors' Certification:

Yes	No	NA	
☒	☐	☐	Has a Notice of Intent been filed with the NYS Department of Conservation?
☐	☐	☐	Is the SWPPP on-site? Where? _____
☐	☐	☐	Is the Plan current? What is the latest revision date? _____
☐	☐	☐	Have all contractors involved with implementing the erosion and sediment control portions of the SWPPP signed the contractor's certification?

b. Resource Protection

Yes	No	NA	
☐	☐	☐	Are construction limits clearly flagged or fenced?
☐	☐	☐	Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, etc. have been flagged for protection.
☐	☐	☐	Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

c. Surface Water Protection

Yes	No	NA	
☐	☐	☐	Clean stormwater runoff has been diverted away from areas to be disturbed.
☐	☐	☐	Bodies of water located either on site or in the vicinity of the site have been identified and protected.
☐	☐	☐	Appropriate practices to protect on-site or downstream surface waters are installed.

d. Stabilized Construction Entrance

Yes	No	NA	
☐	☐	☐	A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
☐	☐	☐	Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
☐	☐	☐	Sediment tracked onto public streets is removed or cleaned on a regular basis.

e. Perimeter Sediment Controls

Yes	No	NA	
☐	☐	☐	Silt fence material and installation comply with the standard drawing and specifications.
☐	☐	☐	Silt fences are installed at appropriate spacing intervals
☐	☐	☐	Sediment/detention basin was installed
☐	☐	☐	Sediment traps and barriers are installed.

John Jay Homestead Site and Building Enhancements

PERMIT NUMBER: NYR- INSPECTION REPORT #__ :

John Jay Homestead Historic Site, Katonah, NY 10536	
Location	**Date and Time of Inspection**
Qualified Inspector (name and title)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the following forms is accurate and complete.

☐ **Weekly Inspection**

Current Phase of Construction (if applicable):

Estimated Current Total Disturbed Area:

IMMEDIATE ACTION ITEMS / INSPECTION SUMMARY:

It is the responsibility of the Qualified Inspector to notify the owner/operator and appropriate contractor of any corrective actions that need to be taken within one (1) business day of the completion of an inspection. It is the responsibility of the contractor (subcontractor) to begin implementing the corrective actions within one (1) business day of this notification and complete the corrective action within a reasonable time frame. If there are action items from the previous inspection which have not been addressed, so note.

Per the GP-0-20-001, Digital photographs with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions shall be included with each inspection report. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. Paper color copies of these digital photographs shall be attached to the inspection report, documenting the completion of the corrective action work within seven (7) calendar days of that inspection.

1. GENERAL HOUSEKEEPING

Includes description of the weather and soil conditions (e.g. dry, wet, saturated) during the time of the inspection, a description of the condition of the runoff at all points of discharge from the construction site (including identification of any discharges of sediments from construction site), inspection for stream/pond turbidity, oil and floating substances, visible oil film, or globules or grease, contractor preparedness for implementation of erosion and sediment control, impact on adjacent property, and dust control.

Yes **No**

☐ ☐ Is there immediate action required regarding General Housekeeping?

Notes:

2. EXCAVATION DEWATERING

Includes inspection ensuring that clean water from upstream pool is being pumped to the downstream pool, that sediment laden water from work area is being discharged to a silt-trapping device, and that constructed upstream berm has one-foot minimum freeboard.

Yes **No**

☐ ☐ Is there immediate action required regarding Excavation Dewatering?

Notes:

3. INTERCEPTOR DIKES AND SWALES

Includes inspection ensuring that dikes and swales are installed per plan with minimum side slopes 2H:1V or flatter, are stabilized by geotextile fabric, seed, or mulch with no erosion occurring, and that sediment-laden runoff is directed to sediment trapping structure.

Yes **No**

☐ ☐ Is there immediate action required regarding an Interceptor Dike or Swale?

Notes:

4. EROSION & SEDIMENT CONTROL

Includes inspection ensuring that erosion and sediment control practices are located and installed correctly, BMPs are maintained per specifications, stockpiles are stabilized and contained, de-watering operations prevent direct discharges to sensitive features, and that clearing and grading operations are divided into stages for large areas. Identification of all erosion and sediment control practices that need repair or maintenance.

Yes **No**

☐ ☐ Is there immediate action required regarding Erosion & Sediment Control?

Notes:

5. AREAS OF DISTURBANCE

Includes description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since last inspection.

Yes **No**

☐ ☐ Is there immediate action required regarding stabilizing disturbed areas?

Notes:

6. STABILIZED CONSTRUCTION ACCESS

Includes inspection ensuring that stone is clean enough to effectively remove mud from vehicles, is installed per standards and specifications, that all traffic use the stabilized entrance to enter and leave site, and that adequate drainage is provided to prevent ponding at entrance.

Yes **No**

☐ ☐ Is there immediate action required regarding a Stabilized Construction Entrance?

Notes:

7. REINFORCED SILT FENCE

Includes inspection ensuring that silt fence is installed on contour, 10 feet from toe of slope, joints are constructed by wrapping the two ends together for continuous support, steel posts installed (if applicable), installed on downstream side of slope, maximum 6' intervals with 6 x 6 inch 14 gage wire, fabric is buried minimum of 6 inches, posts are stable, fabric is tight and without rips or frayed areas, and that sediment accumulation is less than 1/3 the height of the silt fence.

Yes **No**

☐ ☐ Is there immediate action required regarding Silt Fence?

Notes:

8. STONE CHECK DAM

Includes inspection ensuring that stone check dam channels are without erosion (i.e., flow is not eroding soil underneath or around the structure), that check dam is in good condition (i.e., rocks have not been displaced and no permanent pools behind the structure), and that sediment accumulation is less than design capacity.

Yes **No**

☐ ☐ Is there immediate action required regarding a Stone Check Dam?

Notes:

9. COMPOST FILTER SOCK

Includes inspection ensuring that compost filter sock is anchored in earth with 2"x2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock. Damaged filter socks shall be replaced or repaired according the manufacturer's recommendations.

Yes **No**

☐ ☐ Is there immediate action required regarding Compost Filter Sock?

Notes:

10. FILTER FABRIC (DROP) INLET PROTECTION

Includes inspection ensuring that protection is installed with 2-inch x 4-inch wood frame and wood posts, with maximum 3-foot spacing, is buried a minimum of 8 inches and secured to frame/posts with staples at max 8-inch spacing, has posts with 3-foot maximum spacing between posts, has posts that are stable, fabric is tight and without rips or frayed areas, and that sediment accumulation is within design capacity.

Yes **No**

☐ ☐ Is there immediate action required regarding Filter Fabric (Drop) Inlet Protection?

Notes:

11.TEMPORARY SEDIMENT TRAP

Includes inspection ensuring that outlet structure is constructed per the approved plan or drawing, that geotextile fabric has been placed beneath rock fill, and that sediment accumulation is within design capacity.

Yes **No**

☐ ☐ Is there immediate action required regarding Temporary Sediment Traps?

Notes:

12. CONCRETE WASHOUT

Includes inspection ensuring that the concrete washout is constructed and maintained per the approved plan or drawing.

Yes	No	
☐	☐	Is there immediate action required regarding Concrete Washouts?

Notes:

13. STORMWATER BASIN

Includes inspection ensuring that Permanent Stormwater Basins are installed per plans and specifications.

Yes	No	
☐	☐	Is there immediate action required regarding Stormwater Basins?

Notes:

14. CURRENT PHASE OF POST-CONSTRUCTION STORMWATER PRACTICES

Includes inspection of current phase of all post-construction stormwater management practices, identification of all construction that is not in conformance with the SWPPP and technical standards, identify corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices, and to correct deficiencies identified with the construction of post-construction stormwater management practice(s).

Yes	No	
☐	☐	Is there immediate action required regarding the current phase of post-construction stormwater management practices?

Notes:

ADDITIONAL NOTES / MODIFICATIONS

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:	4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX J

Post Construction Operation and Maintenance

Bioretention Operation and Maintenance

Project: _____
Location: _____
Site Status: _____
_____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Maintenance Required	Comments
1. Debris Cleanout	**(Monthly)**	
1. Bioretention and contributing areas clean of debris	YES ☐ NO ☐	
2. No dumping of yard wastes into practice	YES ☐ NO ☐	
3. Litter (branches, etc.) have been removed	YES ☐ NO ☐	
2. Vegetation	**(Monthly)**	
1. Plant height not less that water depth	YES ☐ NO ☐	
2. Fertilized per specifications	YES ☐ NO ☐	
3. Plant composition according to Approved plans	YES ☐ NO ☐	
4. No placement of inappropriate plants	YES ☐ NO ☐	
5. Grass height not greater than 6 inches	YES ☐ NO ☐	
6. No evidence of erosion	YES ☐ NO ☐	

CHA	**Bioretention Operation and Maintenance**

Maintenance Item	Maintenance Required	Comments
3. Check Dams/Energy Dissipaters/sumps (Annual, After Major Storms)		
1. No evidence of structural deterioration	YES ☐ NO ☐	
2. Any grates are in good condition	YES ☐ NO ☐	
3. No evidence of spalling or cracking of Structural parts	YES ☐ NO ☐	
4. Outlet/Overflow Spillway (Annual)		
1. Good Condition, no need for repairs	YES ☐ NO ☐	
2. No evidence of erosion (if draining into a Natural channel)	YES ☐ NO ☐	
5. Overall Function of Facility (Annual)		
1. Evidence of flow bypassing facility	YES ☐ NO ☐	
2. No noticeable odors outside of facility	YES ☐ NO ☐	

Comments:

____

____

____

____

____

Actions to be Taken:

____

____

____

____

____

Tree Planting / Tree Pit Operation and Maintenance

Project: _____
Location: _____
Site Status: _____
_____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Maintenance Required	Comments
1. Assess Tree Health	**(Quarterly, After Major Storms)**	
1. Provide necessary mulching, watering, and fertilized per specifications	YES ☐ NO ☐	
2. Inspect tree for damages or dead limbs; prune as necessary	YES ☐ NO ☐	
3. Inspect tree for evidence of insect and disease damage; treat as necessary	YES ☐ NO ☐	
4. No evidence of erosion and dumping of yard wastes	YES ☐ NO ☐	

Comments:

_____
_____
_____
_____

Actions to be Taken:

_____
_____
_____
_____

APPENDIX K

Notice of Intent (NOI) and

SPDES General Permit (GP-0-20-001)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.37

(Submission #: HQ0-KM9J-F68EM, version 1)

Details

Originally Started By	hugo bouillon
Alternate Identifier	John Jay Homestead Site and Building Enhancements
Submission ID	HQ0-KM9J-F68EM
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
NYS Parks, Recreation and Historic Preservation Taconic Region

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Cooper

Owner/Operator Contact Person First Name
Linda

Owner/Operator Mailing Address
9 Old Post Road, PO Box 308

City
Staatsburg

State
NY

Zip
12580

Phone
8458893811

Email
Linda.Cooper@parks.ny.gov

Federal Tax ID
14-601-3200

> If the owner/operator is an organization, provide the Federal Tax ID number, or Employer Identification Number (EIN), in the format xx-xxxxxxx. If the owner/operator is an individual and not an organization, enter "Not Applicable" or "N/A" and do not provide the individual's social security number.

Project Location

Project/Site Name
John Jay Homestead Site and Building Enhancements

Street Address (Not P.O. Box)
400 Jay St

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Bedford

State
NY

Zip
10536

DEC Region
3

> The DEC Region must be provided. Please use the NYSDEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm which DEC Region this site is located in. To view the DEC Regions, click on "Other Useful Reference Layers" on the left side of the map, then click on "DEC Administrative Boundary." Zoom out as needed to see the Region boundaries.
> For projects that span multiple Regions, please select a primary Region and then provide the additional Regions as a note in Question 39.

County
WESTCHESTER

Name of Nearest Cross Street
Katonah Woods Road

Distance to Nearest Cross Street (Feet)
200

Project In Relation to Cross Street
South

Tax Map Numbers Section-Block-Parcel
61.5-1-6

Tax Map Numbers
NONE PROVIDED

> If the project does not have tax map numbers (e.g. linear projects), enter “Not Applicable” or "N/A".

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
41.251574,-73.66010779999999

Project Details

2. What is the nature of this project?
Redevelopment with increase in impervious area

> For the purposes of this eNOI, “New Construction” refers to any project that does not involve the disturbance of existing impervious area (i.e. 0 acres). If existing impervious area will be disturbed on the project site, it is considered redevelopment with either increase in impervious area or no increase in impervious area.

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Other: Historical, Educational, Recreational Land

Post-Development Future Land Use
Other: Historical, Educational, Recreational Land

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
62.0

Total Area to be Disturbed (acres)
8.3

Existing Impervious Area to be Disturbed (acres)
2.2

Future Impervious Area Within Disturbed Area (acres)
2.7

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
97

D (%)
3

7. Is this a phased project?
Yes

8. Enter the planned start and end dates of the disturbance activities.

Start Date
06/03/2024

End Date
03/31/2026

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Wetlands and tributary to Cross River Reservoir and tributary to Stone Hill River

> Drainage ditches and storm sewer systems are not considered surface waterbodies. Please identify the surface waterbody that they discharge to. If the nearest surface waterbody is unnamed, provide a description of the waterbody, such as, "Unnamed tributary to Niagara River."

9a. Type of waterbody identified in question 9?
Lake Off Site
Stream/Creek On Site
Wetland/State Jurisdiction On Site (Answer 9b)

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
Delineated by Consultant

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
Yes

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
Yes

> Please use the DEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm if this site is located in one of the watersheds of an AA or AA-S classified water. To view the watershed areas, click on "Permit Related Layers" on the left side of the map, then click on "Class AA AAS Watersheds."

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
No

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
Yes

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
CHA Consulting

Contact Name (Last, First)
Bennett, Samuel

Mailing Address
3 Winners Circle

City
Albany

State
New York

Zip
12205

Phone
(518) 453-8254

Email
sbennett@chasolutions.com

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
NONE PROVIDED
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Dust Control
Stabilized Construction Entrance
Silt Fence
Straw/Hay Bale Dike
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Topsoiling
Straw/Hay Bale Dike
Seeding
Protecting Vegetation
Mulching

Permanent Structural
Land Grading
Retaining Wall
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Reduction of Clearing and Grading
Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.362

29. Post-construction SMP Identification

Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.233

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.073

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.

Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs

Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
0.129

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
0.362

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.0

CPv Provided (acre-feet)
0.0

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
52.11

Post-Development (CFS)
44.23

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
117.27

Post-Development (CFS)
95.63

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NYS OPRHP Taconic Region

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
Since the proposed redevelopment project is located within the NYC Watershed East of the Hudson River as shown in Appendix C of the SPDES Permit, the WQv and RRv required were calculated based on the 1-year, 24-hour storm over the new impervious areas within the disturbance limits. The project proposes to install 3 new bioretention areas, 2 dry ponds, and new tree planting to provide WQv and RRv treatment and peak flow mitigation to discharge into the existing wetlands and unnamed tributary to Cross River Reservoir. Also, the project proposes to remove an existing entrance drive that will reduce over 25% impervious area within the disturbed drainage sub-area discharging into the existing wetlands and unnamed tributary to Stone Hill River. The SWPPP will be reviewed and approved by the NYCDEP prior to submission of the NOI.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs

Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
8.16

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
0.14

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
0.88

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
No

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
No

> Please note that per Part VII.H.4. of GP-0-20-001, the MS4 SWPPP Acceptance Form must be signed by a principal executive officer or ranking elected official of the MS4, or a duly authorized representative of that person.

MS4 SWPPP Acceptance Form Download

Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First name MI Last Name

Signature Date

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: John Jay Homestead State Historic Site

eNOI Submission Number: HQ0-KM9J-F68EM

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

_____

Signature

_____

Date

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020 Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

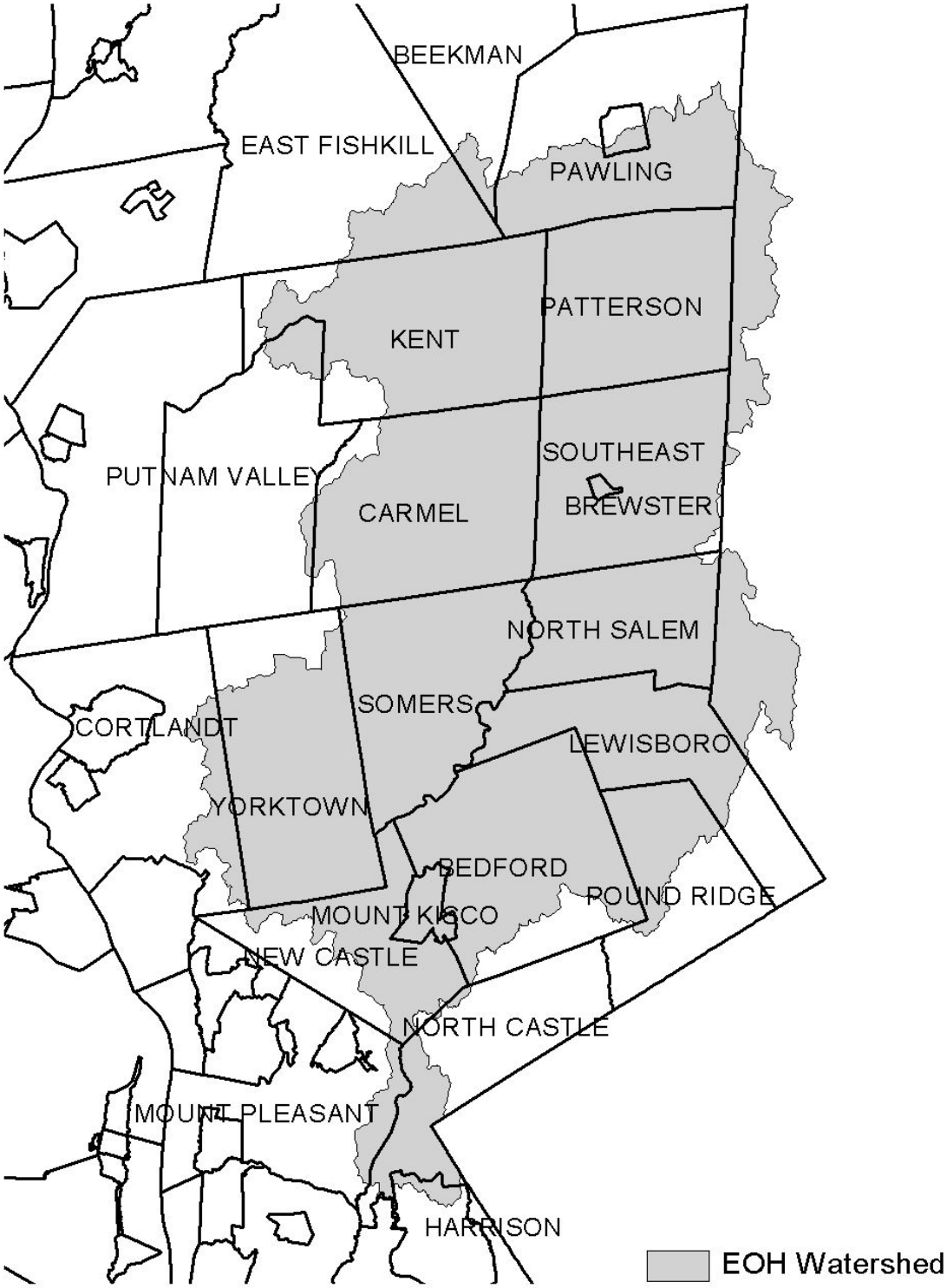


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

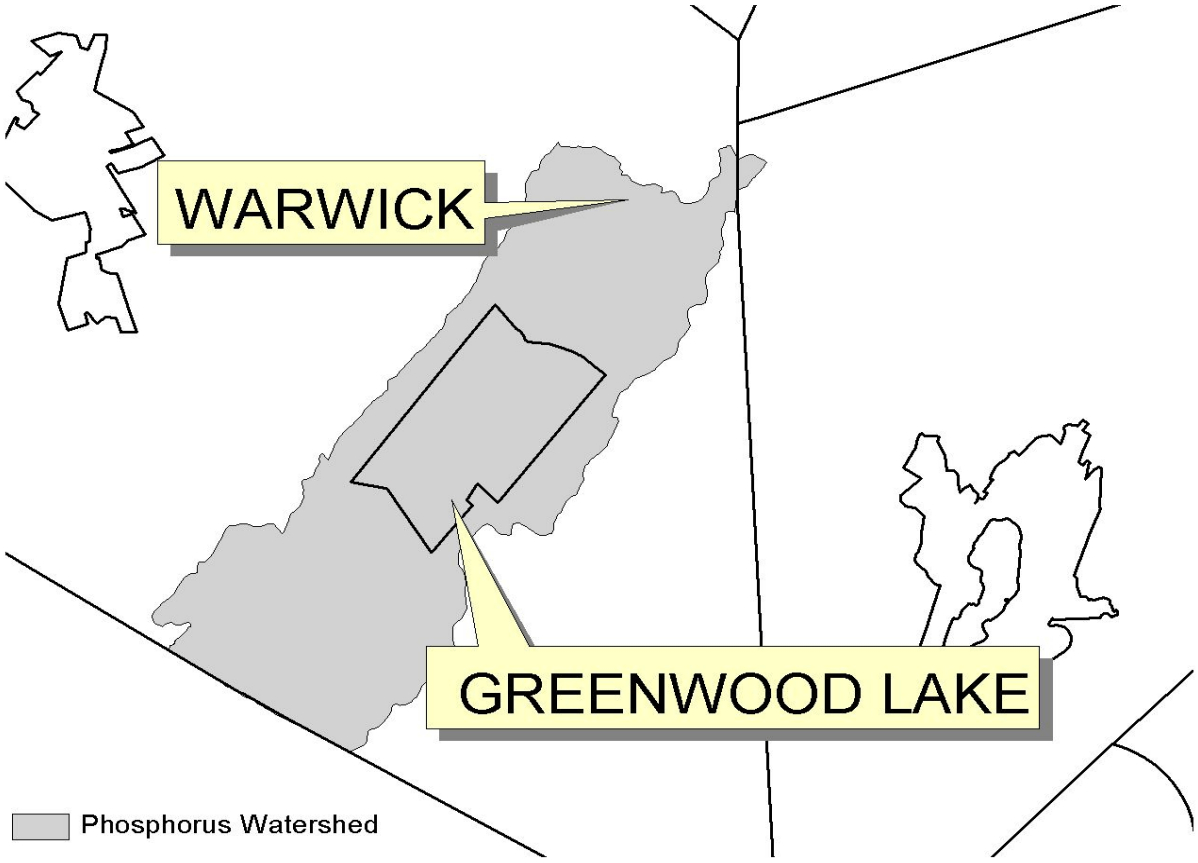


Figure 4 - Oscawana Lake Watershed

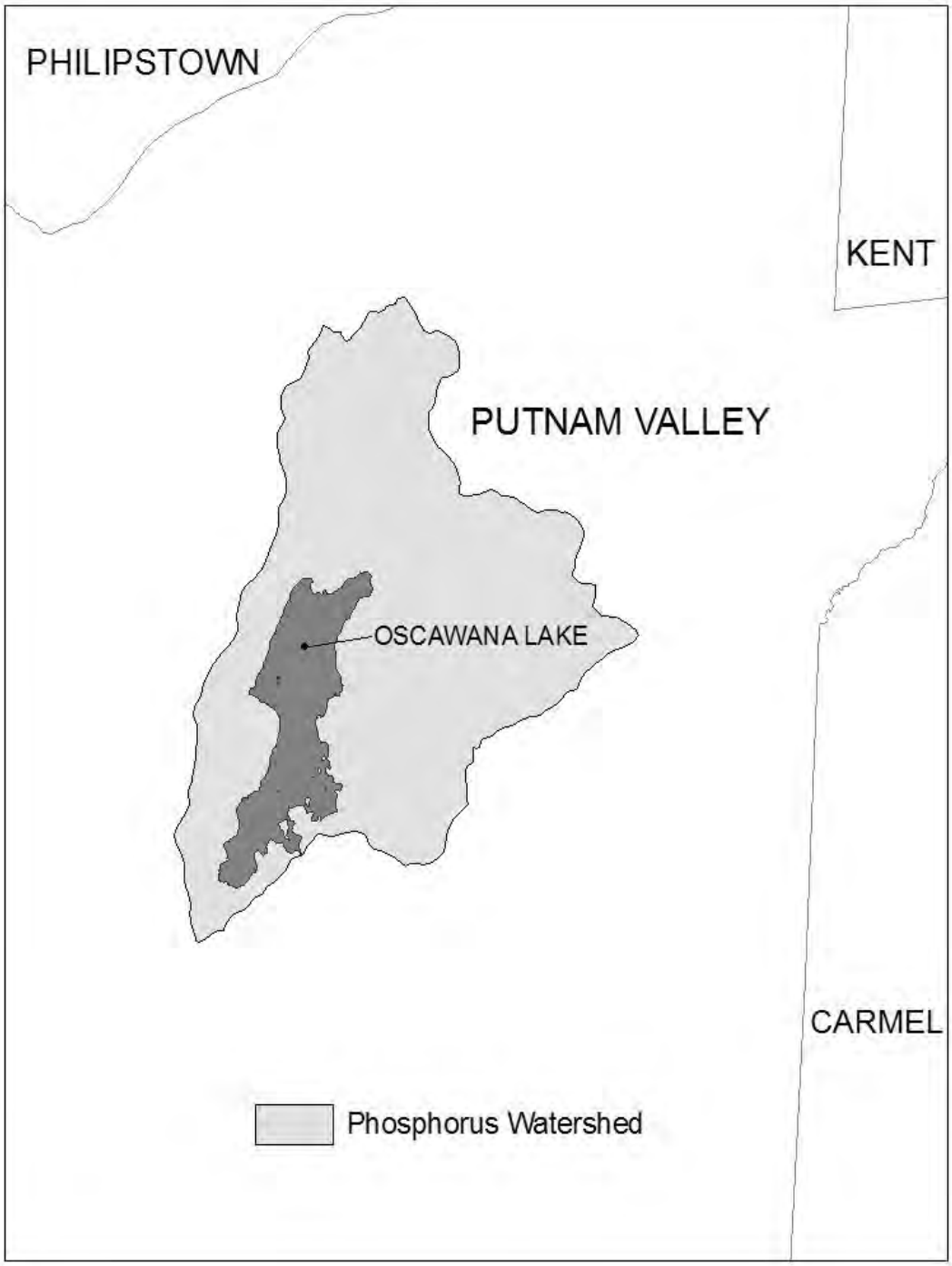
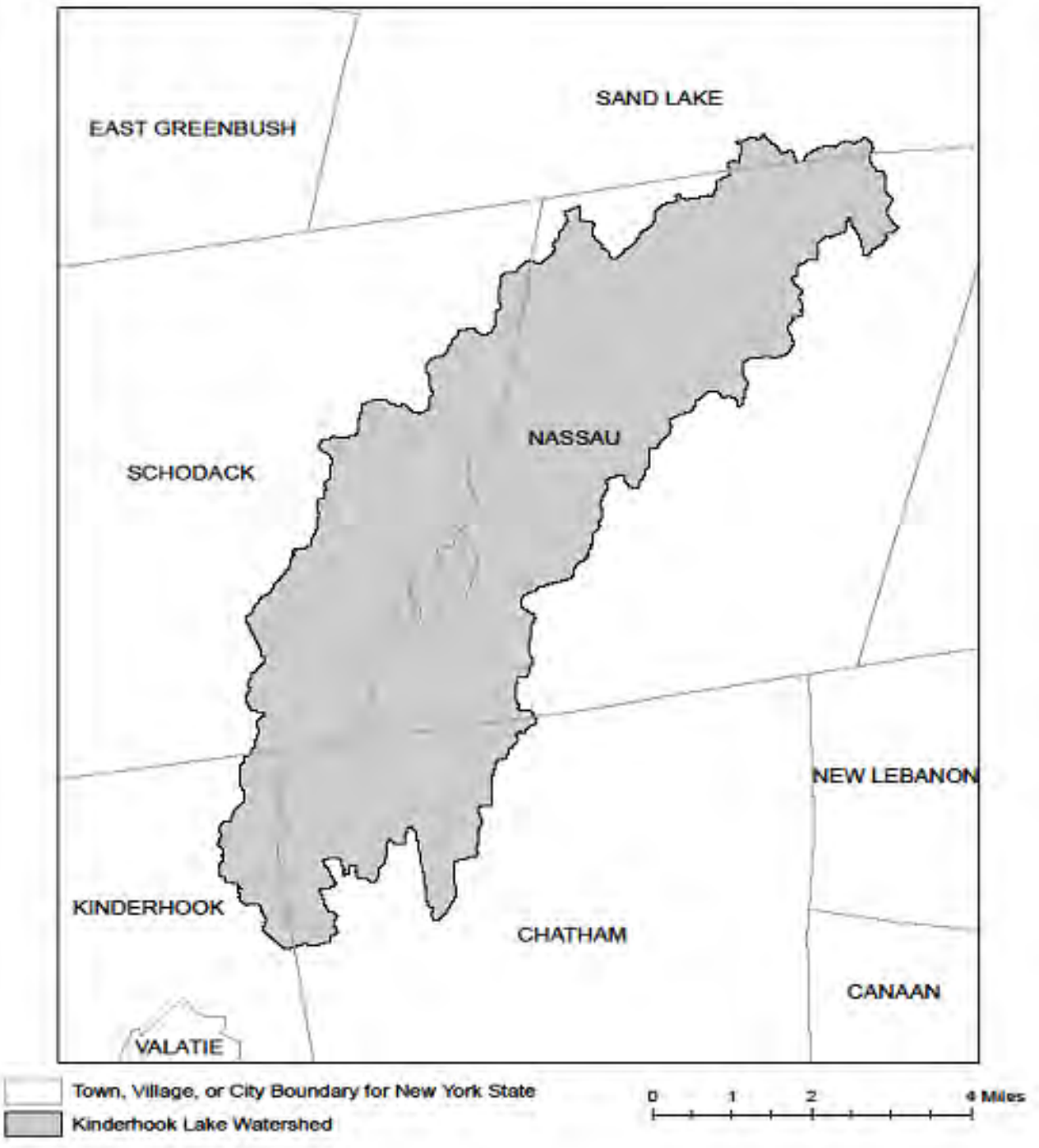


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1W White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project:		
Project Location (describe, and attach a general location map):		
Brief Description of Proposed Action (include purpose or need):		
Name of Applicant/Sponsor:	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐ Yes ☐ No		
b. City, Town or Village Planning Board or Commission ☐ Yes ☐ No		
c. City, Town or Village Zoning Board of Appeals ☐ Yes ☐ No		
d. Other local agencies ☐ Yes ☐ No		
e. County agencies ☐ Yes ☐ No		
f. Regional agencies ☐ Yes ☐ No		
g. State agencies ☐ Yes ☐ No		
h. Federal agencies ☐ Yes ☐ No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐ Yes ☐ No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐ Yes ☐ No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐ Yes ☐ No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐ Yes ☐ No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐ Yes ☐ No

2003 Comprehensive Plan, Town Of Bedford, New York

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐ Yes ☐ No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐ Yes ☐ No

If Yes, identify the plan(s):

The Bedford Hills Greenbelt, from the 2003 Comprehensive Plan

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐ Yes ☐ No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. N/A ☐ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?

_____
_____

b. Is the use permitted or allowed by a special or conditional use permit? N/A ☐ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? N/A ☐ Yes ☐ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? _____

b. What police or other public protection forces serve the project site?

_____

c. Which fire protection and emergency medical services serve the project site?

_____

d. What parks serve the project site?

_____
_____

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?

_____

b. a. Total acreage of the site of the proposed action? _____ acres
b. Total acreage to be physically disturbed? _____ acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☐ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☐ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

_____
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☐ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:

- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year **Both are unknown and dependent on funding.**
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

_____
_____

f. Does the project include new residential uses? ☐ Yes ☐ No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☐ Yes ☐ No
If Yes,
i. Total number of structures _____
ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length
iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☐ No
If Yes,
i. Purpose of the impoundment: _____
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:
_____
iii. If other than water, identify the type of impounded/contained liquids and their source.
_____
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☐ No
If Yes:
i .What is the purpose of the excavation or dredging? _____
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
_____
_____
iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No
If yes, describe. _____
_____
v. What is the total area to be dredged or excavated? _____acres
vi. What is the maximum area to be worked at any one time? _____ acres
vii. What would be the maximum depth of excavation or dredging? _____ feet
viii. Will the excavation require blasting? ☐ Yes ☐ No
ix. Summarize site reclamation goals and plan: _____
_____
_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☐ No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____
_____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? Yes ☐ No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☐ No

If Yes: **While significant potable water infrastructure will be modified, no significant change in potable water use is anticipated.**

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☐ No

If Yes: **While significant sanitary infrastructure will be modified, no significant change in sanitary waste generation is anticipated.**

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☐ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)

_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources. _____

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

_____

- Will stormwater runoff flow to adjacent properties? ☐ Yes ☐ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☐ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

_____

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☐ No N/A

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐ Yes ☐ No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐ Yes ☐ No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐ Yes ☐ No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐ Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? Yes No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐ Yes ☐ No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐ Yes ☐ No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐ Yes ☐ No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? **N/A - Not a commercial or industrial project.** ☐ Yes ☐ No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐ Yes ☐ No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

_____

_____

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

n. Will the proposed action have outdoor lighting? ☐ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

_____

_____

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☐ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

_____

_____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☐ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:_____

_____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

_____

_____

_____

_____

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? **N/A - Not a commercial or industrial project.** ☐ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____

  _____
- Operation: _____

  _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____

  _____
- Operation: _____

  _____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☐ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☐ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

_____

_____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

_____

_____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

_____

_____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

_____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

_____

_____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)

☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

_____

_____

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces			
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: _____ _____			

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☐ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☐ No

If Yes,

i. Identify Facilities:

_____

_____

e. Does the project site contain an existing dam? ☐ Yes ☐ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☐ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☐ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☐ No

If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____

_____

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

_____

_____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? _____ feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site: _____ _____%
_____ _____%
_____ _____%

d. What is the average depth to the water table on the project site? Average: _____ feet

e. Drainage status of project site soils: ☐ Well Drained: _____% of site
☐ Moderately Well Drained: _____% of site
☐ Poorly Drained _____% of site

f. Approximate proportion of proposed action site with slopes: ☐ 0-10%: _____% of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☐ No
If Yes, describe: _____

_____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

_____

i. Is the project site in a designated Floodway? ☐ Yes ☐ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☐ No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site: _____

_____ _____ _____

_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐ Yes ☐ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☐ No

If Yes:

i. Species and listing (endangered or threatened):_____

_____

_____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☐ No

If Yes:

i. Species and listing:_____

_____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☐ No

If yes, give a brief description of how the proposed action may affect that use: _____

_____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☐ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☐ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☐ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

_____

_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☐ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District

ii. Name: Jay, John, Homestead

iii. Brief description of attributes on which listing is based:

Historic structures related to one of the founding fathers.

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: John Jay Homestead State Historic Site

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): State Historic Site

iii. Distance between project and resource: 0 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

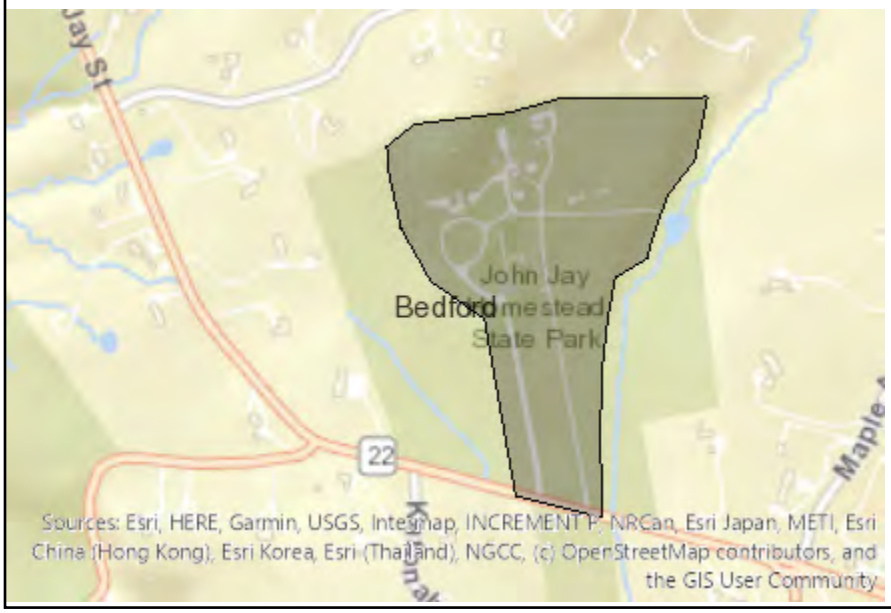
Applicant/Sponsor Name Erin Moroney Date 03/25/2024

Signature Erin Moroney Title Architectural Conservator/ Project Manager

PRINT FORM

EAF Mapper Summary Report

Tuesday, February 13, 2024 8:19 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	NYC Watershed Boundary
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No

E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	Yes
E.3.d [Critical Environmental Area - Name]	County & State Park Lands
E.3.d.ii [Critical Environmental Area - Reason]	Exceptional or unique character
E.3.d.iii [Critical Environmental Area – Date and Agency]	Agency:Westchester County, Date:1-31-90
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Jay, John, Homestead
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

John Jay Homestead State Historic Site
2023 Site Enhancements Project
Project Description

Landscape and Civil

Tree Preparation Prior

1. Air spade trenching to expose roots of existing trees at proposed site work.
2. Evaluation of the exposed tree roots and root and/or crown pruning to mitigate site construction impact on the existing trees.

Tree Protection During

1. Tree protection fencing around all trees within the areas of work.
2. Closing off farm road during construction to protect the existing allee of trees. Opened only for the construction of the new farm road and adjacent landscape work.
3. Installation of root protection matting at areas of site work around existing trees.

Hardscape

1. The repaving of farm road to become the main vehicular entrance to the site, with the removal of the existing road and small parking lot in the center of the lawn leading up to Bedford House.
2. Installation of a 90+ space, terraced parking area located in the northeast corner of the site near the existing orchard. The upper terrace parking area will be chip seal asphalt and the lower terrace will have a chip seal drive aisle and stabilized turf grass system parking spaces. Grade changes on the west of the parking area and between the terraces will be managed by stone veneered concrete retaining walls.
3. The parking lot will be accessed by a new chip seal roadway connected to the farm road across from the potting shed. The road will head east along the edge of the existing meadow on the south side of the brick lot then head north just east of the existing stone walls east of the prefab cottage to the parking area.
4. Vehicular access controls will be located at the intersections of the farm road and Brick Cottage Road and at the new access road to the parking lot. The gated arms will limit access to the internal roadway system to authorized vehicles.
5. The internal roads will be narrowed and replaced with new chip seal pavement and used only by parks and other authorized vehicles. This will mainly be for drop off in front of the Bedford House as well as deliveries and maintenance vehicles.
6. Installation of chip seal accessible path system that will connect the parking lot with the visitor center, Bedford House, Laundry Building, Potting Shed, and the gardens. The accessible paths at some locations will include ramps with handrails to meet accessible path requirements.
7. The courtyard between the coachman's house and carriage barn will be lowered to meet accessibility requirements and paved with an accessible, aggregate, paving system. A low dry laid stone wall will edge the north side of the courtyard, with a planting bed between the wall the south side of the Coachman's House. A new bluestone path and stairs will allow access to the mechanical space on the ground floor of the Coachman's House. River stones set in concrete edging the east, south, and West sides of courtyard will be pitched to surface drains. Bluestone pavers will be located at the entry doors to both buildings.

8. The existing bluestone pavement at the west terrace of Bedford House will be salvaged and reset on a new concrete base to provide the accessible route to the ballroom. The planting bed between the path and the ballroom will be replanted to remove vegetation which is encroaching the path. The bluestone steps will be salvaged and reset on a new concrete base.
9. The rear garden of Bedford House will be disturbed by foundation waterproofing and site utility work requiring replacement of the garden. The slightly raised planting beds will be edged with bluestone curbs. New aggregate paving will be installed around the perimeter. The area between the planters will be lawn with bluestone steppingstones.

Landscape

1. The allee of trees will be restored along farm road and brick lot road using species native to the northeast and complimentary to the existing tree species which currently line the road.
2. A small number of deciduous and ornamental trees will be placed around the site at key locations, including a linden tree in front of the Bedford House.
3. The overgrown lilac hedge west of farm road above the stone wall will be removed and replaced with a new hedge of a small variety of lilac species, slightly moved west to get out of the canopy of the trees lining farm road.
4. The new parking area at the northwest corner of the site will impact the existing orchard. The existing fruit trees will be transplanted nearby early in the project next to the parking area.
5. New shrub, groundcover, and perennial planting will be installed in front of the Bedford House porch and the south side of the Coachman's House.
6. Areas disturbed by new construction, the roadway and parking area that are being removed, will be reseeded with the same grass seed mix currently in use on the site.
7. The new access road to the parking lot will have a grass edge. A strip adjacent to the grass edge will be seeded with native meadow plants.

Wayfinding and Signage

1. Provide wayfinding and regulatory signage throughout the site
2. Provide interpretive signage at building entries
3. Provide gateway monument at site entry
4. Provide orientation kiosks

Site Utilities

New septic system located at the brick cottage and laundry building. New septic system will include removal/capping of the old system and the installation of a septic tank and leach field.

Stormwater Management

Proposed development of new stormwater management to mitigate the new impervious areas along the meadow road and orchard parking lot. The development may include but not limited to; bioretention basin, catch basins, manholes, planters, vegetative swales and rain gardens.

Sitewide – Mechanical

1. Overview: provide closed-loop geothermal ground loops for heating and cooling the Bedford House, Main Barn, Visitor Center, and Brick Cottage.
2. Refer to mechanical scope for each building for ground loop information.

Sitewide – Electrical

1. Overview: replace the existing single phase power feed to the property with a new three phase service that will provide both single and three services to the buildings.
2. A new three phase service will be brought in from Jay Street. The high voltage primary will run from the existing utility pole on the south side of Jay Street, overhead to a new pole on the north side of Jay Street. NYSEG to provide new utility pole with step tub on property side of jay street and run primaries overhead from existing utility pole. The step-tub transformer is to be installed on this new pole to transform the voltage from 5kv to 15kv as equipment is more readily available at this voltage.
3. From the pole, the primaries will run underground up farm road to a utility owned fused switch box that serves as the shut off point for the single and three phase transformers it serves, as well as daisy chained to the second switching box which will serve a three phase transformer for the brick cottage. Each switch box can serve up to two (2) three phase transformers or up to six (6) single phase transformers or any combination thereof. The first switch box will serve a three phase transformer located to the east of the Bedford House staff door. This transformer will provide three phase service to the Bedford House as well as the Laundry Building. The switch box will also serve single phase transformers which provides service to the carriage barn, Coachman's House, Main Barn, Potting Shed, pump house and maintenance building.
4. All primary and secondary utility lines and conduit will be run underground throughout the complex. Existing utility poles on property will be removed.
5. Due to the limited electrical needs of the school house and play house, branch circuits will be run from the Bedford House to serve these buildings.
6. Site lighting at pedestrian paths/walkways, parking areas, drives and externally illuminated signage. Provide branch circuiting for site lighting from the Bedford House including low voltage transformers and timeclock control with override features.

Sitewide – Fire Suppression

1. Overview: provide a new campus fire main feeding hydrants on site and the brick cottage.
2. Provide a new 15,000 gallon tank buried below grade adjacent to the maintenance building.
3. Install a 500 gpm diesel-engine fire pump in a prefabricated enclosure sitting above the tank.
4. Run a new 6" fire main from the pump house to the brick cottage.
5. Install hydrants fed from the fire main to allow support fire fighting activities at Main Barn, Coachman's Cottage, Visitors Center and Laundry Building.

Buildings:

Bedford House

Architectural

Interior

1. Restore existing wood and plaster substrates throughout, including replacement of missing lath, patching of missing or cracked plaster areas, and skim coating of all walls and ceilings. Remove existing loose / deteriorated painted finishes. Remove existing wall and floor coverings.
2. Install historic wall coverings, floor finishes including carpet and floor cloth, restore existing wood floors, and paint wall and ceiling finishes where indicated.
3. Restore existing windows throughout: replace deteriorated wood elements to match existing, replace cracked glazing, replace window putty, replace missing or damaged hardware, and restore window operation where currently inoperable.
4. Remove existing fireplace surrounds where indicated, and install salvaged historic marble surrounds, Including replacement of missing marble elements.
5. Restore existing wood stairs to remain, including replacement of missing or damaged decorative elements, refastening of loose decorative elements and handrail system. Removal, cataloging, and reinstallation of stair elements in original location as required to allow for structural repair work.
6. Restore existing interior doors throughout. Maintain existing historic sample at each door which Illustrates historic paint layers.
7. Remove existing lighting fixtures and install new lighting fixtures in new and existing locations throughout.
8. Install new exterior stair and lift at front porch.
9. Install new interior ramp, elevator, and stair at interior.
10. Modify localized floor levels for ADA access.
11. Install sloped subflooring at doors to provide ADA access.
12. Renovate or remove existing bathrooms.
    A. At locations where no new bathrooms will be installed, or where a fixture will be removed, cap plumbing connections.
    B. At locations where new bathrooms will be installed in existing configurations, replace all fixtures and finishes.
    C. At locations where bathrooms will be reconfigured/expanded, provide new plumbing, new fixtures and plumbing connections, new wall / floor / ceiling finishes, new full height toilet stall partitions and doors, and new lighting.
13. Install exterior subgrade waterproofing where indicated.
14. Restore basement interior wall and ceiling finishes where indicated.

Exterior

1. Roof:
    A. Replace wood shingles at roof. Repair roof sheathing as needed.
    B. Replace bituminous membrane at flat roofs with resin roofing.
    C. Repair brick at chimneys and provide new caps where existing are damaged.
    D. Replace copper gutters and leaders in existing locations.

2. Facades:
   A. Strip and repaint all wood siding. Reattach displaced units. Repair cracks, remove unused anchors and replace deteriorated panels.
   B. Strip, clean, repoint and repaint brick masonry areas. Replace spalled, cracked or deteriorated units.
   C. Clean and repoint stone masonry. Repair cracked units and remove unused anchors. Provide new stone units, where missing.
   D. Repair cracked concrete slab and prep for new topping slab.
3. Doors:
   A. Replace damaged or missing elements at doors and door surrounds.
   B. Repair cracked or checked wood.
   C. Replace glazing putty and cracked lites.
   D. Strip and repaint doors and door surrounds.

Structural

Structural rehabilitation to the Bedford House as it relates to the conversion of the house to exhibition space.

Structural modifications to the Bedford House as it relates to the installation of new accessibility features.

The Bedford House is proposed to receive a number of structural improvements, including a new slab on grade within the 1926 basement, structural reinforcement of the ground and second floor framing to accommodate code-minimum residential live loads, reinforcement and re-levelling of the main stair between the ground to second floors, the provision of a new access stair between all levels of the house, as well as modifications and additions to the structure to accommodate improved accessibility both into and within the house. A costing alternate is proposed whereby the third floor framing and the main stair between the second and third floors is to be structurally reinforced to accommodate code-minimum residential live loads.

HazMat

Remove the following assumed asbestos-containing materials:
Corrugated pipe insulation, pipe insulation, subgrade waterproofing tar, braided wire insulation, boiler components, 12”x12” tan vinyl floor tile and associated mastic, chimney components, flashing to skylight, multi-layer roofing composite, and exterior vapor barrier.

Remediate microbial growth and manage lead-based paint / lead-containing paint.

Mechanical

1. Overview: replace the existing chilled water cooling/hot water heating system with a new geothermal heat pump system.
2. Geo-exchange bore field.
   A. Install a new vertical bore field in the land to the southwest of the Bedford House.
   B. Bore field to consist of 20 vertical 4” diameter boreholes 350 feet deep.
   C. Install 2x 350 foot sections of 1-1/4” HDPE tubing with a fusion-welded u-bend at the bottom of the tubing in each borehole.

D. Install thermally enhanced grout in each borehole.
E. Connect 4 boreholes in a manifold and run four sets of 2” HDPE supply and return piping to the basement of the Bedford House.
F. Install 2 pumps in the basement of the Bedford House to circulate water through the ground loop and the water-source vrf heat pump unit.

3. HVAC system.
A. Remove the 4 pipe air handlers and fan-coil units in the house. Retain the existing supply and return ducts.
B. Remove chilled water and hot water piping in the Bedford House.
C. Install two water-source vrf heat pumps compressor units in the basement.
D. Install 5 new indoor air handler to replace existing 4 pipe air handlers.
E. Install new free-standing vrf console units to replace existing console fan coil units.
F. Provide new automatic control system.

Electrical

1. Overview: replace the existing single phase service to the building with a new 3 phase service.
2. New three phase service will originate from a new transformer located near the staff entrance and enter the building in the basement. It will terminate in a main service disconnect switch that will feed a new 600a, three phase distribution panel. This panel will include a circuit breaker to back feed existing 600a single phase distribution panel serve as the replacement distribution panel for the existing panel. New 'MDP' will contain additional circuit breakers to serve a new subpanel in the basement and one at the third floor to provide power to new mechanical loads.
3. New lighting throughout building with local switching. Provide occupancy sensors in restroom stalls.

Plumbing

1. Overview: modify the existing plumbing systems to support the new architectural plans.
2. Plumbing work includes: new toilets, lavatories, water heater, modifications to domestic hot and cold-water piping for new restrooms, and modifications to sanitary waste & vent piping for new restrooms.
3. Existing well water supply and sanitary waste to septic system to remain.

Fire Suppression

1. Overview: modify the layout of the existing mist fire suppression system to support new architectural plans.
2. Relocate existing Marrioff sprinkler heads and/or add new ones, where indicated on plans. Overview: modify the layout of the existing mist fire suppression system to support new architectural plans.
3. Relocate existing Marrioff sprinkler heads and/or add new ones, where indicated on plans.

Fire Detection

1. Overview: modify the layout of the existing Vesda fire detection system to support new architectural plans.
2. Relocate detection intake points and tubing or provide new as needed.

Alternate 1: Basement discovery zone kitchen 1: restore existing wall and floor finishes to remain. Restore existing masonry fireplace, including installation of new mantle. Install new exit signage and lighting, and provide new electrical connections.

Alternate 2: Basement discovery zone kitchen 2: restore existing wall and floor finishes to remain. Restore existing masonry fireplace, including installation of new mantle. Install new exit signage and lighting, and provide new electrical connections.

Alternate 3:

1. All finish repair and restoration work at the 3rd floor interior, including patching/repair/replacement of plaster, restoration of trim and interior door, restoration of wood flooring, restoration of existing fireplace, restoration of existing built-in cabinetry.

2. Structural repair work for 3rd floor framing.

Alternate 4: Provide 16 gauge copper gutters, downspouts, and associated straps in lieu of base bid galvlium gutters and downspouts. Provide compatible fasteners.

Carriage Barn / Visitor Center

Architectural

1. Reorganize the building so that it is entered from a newly designed courtyard at the north with the 1911 annex used for visitor services and ticketing and the original carriage barn fully devoted to an expanded exhibit space.
2. Insulate exterior walls and roof of the 1911 annex and the floor of the hayloft in the original structure so the building has 4 season building usage.
3. Increase the number of restrooms for visitors (3 gender neutral restrooms to be provided).
4. Make the building fully accessible. Raise floor in various areas to achieve this.
5. Selectively remove portions of walls in the original building for visitor flow as an exhibit space.
6. Repaint all wood on the exterior (siding, windows, doors, shutters, trim).
7. Repaint all wood on the interior (walls, ceilings, columns, doors, windows).
8. Expand and reorganize the ticketing area.
9. Expand and reorganize the gift shop area.
10. Provide new lighting.

Structural

Crack injection and parging repair within the annex of the carriage barn is proposed as part of a repair program for this space.

Mechanical

1. Overview: install a new geothermal heat pump system servicing three buildings Carriage House, Coachman’s House and Main Barn.
2. Geo-exchange bore field (Main Barn & Coachman's House).

A. Install a new vertical bore field in the land to the west of the Visitor Center.
B. Bore field to consist of 9 vertical 4” diameter boreholes 500 feet deep.
C. Install 2x 500 foot sections of 1-1/4” HDPE tubing with a fusion-welded u-bend at the bottom of the tubing in each borehole.
D. Install thermally enhanced grout in each borehole.
E. Boreholes will be divided into three groups for piping and each group will have a 1.5” supply and 1.5” return line to the basement of the Coachman's house. (Total 6 pipes to bore field.)
F. Install 2 pumps in the basement of the Coachman's House to circulate water through the ground loop and the water-source heat pump units in Main Barn and Visitor Center.

3. Visitor Center HVAC system.
A. Run geothermal loop supply and return from below grade to heat pumps in 2nd floor mechanical room.
B. Install two new water-to-air heat pumps in new mechanical room on 2nd floor.
C. Support the heat pumps on spring vibration isolators.
D. Provide watertight pan below entire heat pump.
E. Run sheet metal ductwork across the 2nd floor to feed ceiling supply and return grilles.
F. Insulate ductwork with r-8 cellular glass insulation.
G. Provide a new toilet exhaust fan for the restroom. Each stall to have an exhaust grill.
H. Provide new automatic control system.

Electrical

A. A new single phase underground service from the transformer.
B. New 200a panel located in electrical room to provide power to HVAC equipment and building loads.
C. New lighting throughout building with local switching and occupancy sensors in restroom area and self-contained exit signs at egress doors.

Plumbing

Modify the existing plumbing systems to support the new architectural plans.

Plumbing work includes new toilets, lavatories, water heater, modifications to domestic hot and cold-water piping for new restroom and modifications to sanitary waste & vent piping for new restroom.

Existing well water supply and sanitary waste to septic system to remain.

Fire Detection

1. Overview: provide new addressable fire alarm system.
2. Provide smoke detectors for heated areas and heat detectors for unheated areas.
3. Provide pull stations by egress doors.
4. Provide ADA compliant horn/strobe annunciators.
5. Install a fire alarm annunciator panel where indicated on plans.
6. Tie systems into dialers for automatic notification.

Main Barn

Architectural

1. Renovate the east annex to change it from a storage shed to exhibit space: new slab on grade, wood strip flooring, wood ceiling below rafters, gypsum board furring partition in front of stone walls.
2. Repair all cracks in parging of stone walls in annex.
3. Insulate the floor of the hayloft, the roof of the east annex, and the north and south gable ends of the Annex so the building has 3 season usage.
4. Replace all the barn doors with new to match that are fully insulated and weather stripped.
5. Replace all the windows with new to match that are insulated.
6. Repaint all wood on the exterior (siding, windows, doors, shutters, trim).
7. Strip paint from all exposed wood on the interior (walls, ceilings, structure).
8. Remove cement stucco coating on the interior of the stone walls at the main barn (not the annex). Alternate: Repaint stucco coating.
9. Level out concrete slab at areas of interior ramps in main barn.
10. Create a new sensory space within the main barn with insulated walls and a dropped ceiling and carpet.
11. Infill drop in wood floor at stair to annex in main barn.
12. Provide new stair and storage area between main barn and annex.
13. Provide new lighting.
14. Provide new heating and cooling system.

Structural

Structural rehabilitation to the main barn annex as it relates to the continued use of the space as a Storage facility.

Mechanical (also see Carriage Barn / Visitor Center)

1. Overview: install a new geothermal heat pump system servicing three buildings Carriage House, Coachman's House and Main Barn.
   Install 2 pumps in the basement of the Coachman's House to circulate water through the ground loop and the water-source heat pump units in Main Barn and Visitor Center (see Carriage Barn / Visitor Center).
2. Main Barn HVAC system.
   A. Run geothermal loop supply and return from below grade to heat pumps in 2nd floor mechanical room.
   B. Install two new water-to-air heat pumps in new mechanical room on 2nd floor.
   C. Support the heat pumps on spring vibration isolators.
   D. Provide watertight pan below entire heat pump.
   E. Run sheet metal ductwork across the 2nd floor to feed ceiling supply and return grilles.
   F. Insulate ductwork with R-8 cellular glass.
   G. Provide new automatic control system.

Electrical

A new single phase underground service from the transformer.

Existing 200a panel to remain in service.

New lighting throughout building with local switching and self-contained exit signs at egress doors.

Fire Detection

1. Overview: provide new addressable fire alarm system.
2. Provide smoke detectors for heated areas and heat detectors for unheated areas.
3. Provide pull stations by egress doors.
4. Provide ADA compliant horn/strobe annunciators.
5. Install a fire alarm annunciator panel where indicated on plans.
6. Tie systems into dialers for automatic notification.

School House

Architectural

Façade

1. Clean stone façade.
2. Repoint stone masonry where existing mortar is damaged or missing.
3. Reset stone steps.
4. Clean, repair and repaint 2nd floor wood windows and doors, including cellar access doors.
5. Replace wood windowsills at 2nd floor windows.
6. Replace deteriorated portions of frame at 2nd floor windows.
7. Provide new flashing at chimney base.
8. Provide new gutters and leaders.

HazMat

Remove asbestos-containing exterior window glazing.

Remediate microbial growth and manage lead-based paint / lead-containing paint.

Alternate 1 - at wood windows at 2nd floor only, provide new finish over existing finish.

For estimating purposes - allow for the following:

1. Scrape loose paint and clean knots following all EPA and OSHA requirements.
2. Sand existing paint coatings to provide a smooth, even surface for new paint finish. Contractor to follow all EPA and OSHA requirements.
3. At areas where wood knots are visible, apply one (1) coat of knot sealer recommended by topcoat manufacturer.
4. Apply Fiberlock lead barrier compound professional lead encapsulant/sealant (type iii) at areas of paint loss to seal paint edges.

5. Prime edges, ends, faces and undersides of wood with ppg seal grip gripper interior/exterior 100% acrylic latex primer, 17-921xi series.
6. Fill holes and imperfections in the finish surfaces with putty or plastic wood filler to provide an even surface. Sand smooth when dried.
7. Apply two (2) coats of ppg Acri-shield max exterior 100% acrylic latex satin, 739-10 series in a custom color.

Laundry Building

Architectural

1. Gut renovation of the interior to create 7 new gender neutral restrooms to replace separate men's and women's restrooms.
2. Reorganize accessible approach to building with new stairs and ramp.
3. Repaint all wood on the exterior (siding, windows, doors, trim).
4. Repaint all exterior wall surfaces, to remain, on the interior surface (walls, ceilings, doors, windows).
5. Provide new lighting.

Structural

The laundry building is proposed to receive a new entry deck, featuring both stairs and a ramp, to facilitate access to both front doors of the building. Temporary shoring of the existing low roof is required to facilitate the installation of the new entry deck and stairs.

Mechanical

1. Overview: new air-source heat pump system to heat and cool the laundry building.
2. New 3 ton VRF outdoor unit mounted on a pad adjacent to the building.
3. 1 new 3 ton indoor unit.
4. Supply air ducts in attic feeding ceiling diffusers.
5. Return air ducts in attic feeding return grilles in each restroom.
6. Refrigerant piping between outdoor and indoor units.
7. Condensate drain for indoor unit.

Electrical

1. Overview: new three phase service from same transformer serving the Bedford House.
2. Electrical work includes new 100a, 120/208v, three phase panel in electrical closet to provide power to HVAC and all building loads.
3. New lighting with local switching in common areas and occupancy sensors in individual stalls. Self-contained exit sign at egress door. Linear strip lighting in attic space.

Plumbing

1. Overview: modify the existing plumbing systems to support the new architectural plans.
2. Plumbing work includes new toilets, lavatories, water heater, copper domestic hot and cold-water piping for new restrooms and PVC sanitary waste & vent piping for new restrooms.

3. Existing well water supply to remain. Refer to civil scope for sanitary waste and septic system.

Fire Detection

1. Overview: provide new addressable fire alarm system for the building.
2. Provide smoke detectors for heated areas and heat detector for attic.
3. Provide pull stations by egress doors.
4. Provide ADA compliant horn/strobe annunciators.
5. Install a fire alarm annunciator panel in front lobby.
6. Tie system into dialer for automatic notification.

Brick cottage

Architectural

1. Exterior brick repair where indicated, all brick to be stripped and recoated with breathable material. Localized face brick repointing and replacement upon removal of existing coating.
2. Strip and paint exterior roughened cementitious parging. Localized repointing upon removal of existing coating.
3. Replacement of copper roof.
4. Replacement of all gutters and leaders.
5. All asphalt shingles replaced with cedar shingles.
6. Replace metal siding at dormers with cedar shingles.
7. Chimney, cap, and flashing repair.
8. New basement bulkhead access doors.
9. Replace all window sashes at windows to remain with IGU units.
10. Replacement of select wood windowsills.
11. Replacement of (2) doors with windows; brick infill below windowsill level.
12. Restoration of (3) existing wood doors. Replacement of all other doors.
13. Provide new wood stair and railings on northwest entrance, including new support posts, framing, Stringers, treads and floorboards.
14. Remove and reconstruct south entry porch & stair, including support posts, framing, stringers, treads, railings and floorboards. Entry porch roof structure to be maintained and shored as required. Allow for Opening for and provide new ADA access lift, including frost slab.
15. New Lula elevator, shaft, sump-pump and pad located where previous service stair existed.
16. Interior renovation of two rooms on first floor; rehabilitation with program change (open concept layout) in remainder. Includes installation of pantry with sink at lunch/meeting room.
17. Removal and reconstruction of 1st floor framing and bearing and partition walls at select locations.
18. Gut second floor and allow for program change with second GNR. Includes full removal of 2nd floor framing and partition walls. Includes full reconstruction of 2nd floor framing and partition walls.
19. Add interior incline lift, wood stair, landing, railings and raise floor in one room for ADA access.
20. Reconstruct interior wood stair and railings to 2nd floor.
21. Remove all walls and floor in the mezzanine level, reconstruct partial floor and walls for mechanical space and provide access hatch.
22. Provide new lighting.
23. Provide new power and communications.
24. Provide new plumbing.

25. Provide new heating and cooling system.
26. Create new window well at basement window for HVAC louver clearance.

Structural

1. Structural rehabilitation to the brick cottage as it relates to the conversion of the house to office space, including new roof framing, partial first floor framing, full 2nd floor framing and mezzanine floor framing. Includes new interior wall framing at select locations on the 1st floor and all walls on 2nd floor. Also includes repairs to exterior masonry including injection grout repairs and introduction of steel lintel at window opening. Includes replacement of steel lintel at interior masonry wall at basement. Includes Injection grout repairs at interior of basement walls.

2. The brick cottage is proposed to undergo a wholesale renovation, including entirely new wall, floor and roof framing throughout. Existing masonry will be stabilized and repaired as required. New stairs are to be provided between the original house and the adjacent office space at the ground floor, along with new sleepers within the ground floor meeting space to raise the floor elevation to match the adjoining spaces. A new front entry deck and stairs, along with new rear entry stairs, are proposed. Temporary shoring of the existing low roof is required to facilitate the installation of the new entry deck and stairs. As both the ceilings in the ground floor meeting room and the second floor of the original building are intended to feature exposed rafters, the ceiling joists are to be replaced with a custom steel tie-rod and Turnbuckle rafter tie. A costing alternate is proposed whereby shoring is proposed to prevent significant collapse of the structure, should restoration be deferred by up to 20 years.

HazMat

Remove the following assumed asbestos-containing materials:

Subgrade waterproofing tar, corrugated pipe insulation and associated jacket, remnant fibrous paper, flue packing, wallpaper, corrugated pipe insulation and associated jacket, rope gasket to boiler, fireplace components, 12"x12" self-stick floor tile, multi-layer roofing composite, vapor barrier beneath metal siding, and chimney components.

Remediate microbial growth and manage lead-based paint / lead-containing paint.

Mechanical

1. Overview: install a new geothermal heat pump heating and cooling system.
2. Geo-exchange bore field.
   A. Install a new vertical bore field in the land to the north of the brick cottage.
   B. Bore field to consist of 8 vertical 4” diameter boreholes 350 feet deep.
   C. Install two 350 foot sections of 1-1/4” HDPE tubing with a fusion-welded u-bend at the bottom of the tubing in each borehole.
   D. Install thermally enhanced grout in each borehole.
   E. Boreholes will be divided into two groups for piping and each group will have a 1.5” supply and 1.5” return line to the basement of the Brick Cottage. (Total 4 pipes to bore field from building.)
   F. Connect 2 borehole groups in a manifold in the basement of the Brick Cottage.
   G. Install 2 pumps in the basement of the brick cottage to circulate water through the ground loop and the water-source heat pump units in the building.

3. HVAC system
   A. Install two water-source VRF heat pump compressor packages in the basement.
   B. Install 4 new indoor air handlers.
   C. Install a VRF indoor heat pump in the basement to provide heating and cooling to the main block of the first floor via floor grilles.
   Run sheet metal ductwork in the basement.
   D. Install a VRF indoor heat pump in the storage room (112) to provide heating and cooling to the storage room and server room on the first floor wing. Run sheet metal ductwork in the in the storage room and in soffits where necessary to conceal.
   E. Install a VRF indoor heat pump in the mechanical mezzanine to provide heating and cooling to the open office and conference room on the first floor wing. Run sheet metal ductwork in the mezzanine.
   F. Install a VRF indoor heat pump on the second floor to provide heating and cooling to the second floor of the main block. Run sheet metal ductwork up into the attic. Run sheet metal ductwork in the attic to feed ceiling supply and return grilles.
   G. Provide watertight pans below the entirety of each heat pump.
   H. Insulate all ductwork with R-8 cellular glass insulation.
   I. Provide toilet exhaust for the restrooms.
   J. Provide new automatic control system.

Electrical

1. Overview: new 200a, 120/208v three phase underground service from pad mounted transformer located behind the building.
2. Electrical work includes:
   A. New main panel in basement to serve new HVAC equipment, lighting and receptacle loads and other building loads.
   B. New subpanel fed from main panel is possible in 2nd/ floor to minimize branch circuit runs to the 2nd/ floor.
3. New lighting throughout building with local switching and self-contained exit signs at egress doors.

Plumbing

1. Overview: modify the existing plumbing systems to support the new architectural plans.
2. Plumbing work includes new toilets, lavatories, water heater, copper domestic hot and cold-water piping for new restrooms and PVC sanitary waste & vent piping for new restrooms.
3. Existing well water supply to remain. Refer to civil scope for sanitary waste and septic system.

Fire Suppression

1. Overview: provide a new dry pipe sprinkler system for the building.
2. Connect to new campus fire suppression main for water supply.
3. Install dry pipe sprinkler valve.
4. Provide a nitrogen generator to maintain corrosion free pressure maintenance in dry piping.

Fire Detection

1. Overview: provide new addressable fire alarm system for the building.
2. Provide smoke detectors for heated areas and heat detectors for unheated areas.

3. Provide pull stations by egress doors.
4. Provide ADA compliant horn/strobe annunciators.
5. Install a fire alarm annunciator panel in front lobby.
6. Tie system into dialer for automatic notification.

Alternate 1 – Stabilization

1. Roof replacement localized roofing repairs, repair material to be compatible with existing roofing system.
   For estimating purposes, allow for the following:
   1. Allow for (100) sf of localized roof repairs at existing copper roof areas.
   2. Allow for (100) sf of localized roof repairs at existing asphalt shingle roof areas.
2. Interior shoring. Standard wood timber shoring at interior, located in basement, 1st & 2nd floors. Refer to structural drawings.
3. Gutter replacement replace all gutters & leaders per drawings & specifications.
4. Chimney repairs & cap replacement. Chimney repairs per drawings & specifications. Includes repairs at full perimeter of flashings at all chimneys.
5. Masonry repointing & brick replacement.
   For estimating purposes, allow for the following:
   1. Allow for (50) sf of masonry repointing.
   2. Allow for (50) sf of brick replacement.
6. Repair existing window. Replace wood window sills as indicated on elevations and per specifications.
7. Plywood protection. Install plywood protection at basement access door, east elevation 2nd floor window & louver & at all basement window openings.
   For estimating purposes, allow for the following:
   1. Install 3/4" thick pressure treated plywood with stainless steel anchors into masonry joints. Do not install anchors into body of masonry unit.
8. Injection grout repair. At brick masonry locations noted on drawings. Refer to elevations & structural drawings.
   For estimating purposes, in addition to the work shown on the drawings, allow for (10) lf of injection grout repair.
9. Masonry repointing & grout injection repair at interior of basement masonry walls.
   For estimating purposes, allow for the following:
   1. Allow for (20) sf of m-r6 masonry repointing.
   2. Allow for (20) linear feet of grout injection repair.
10. Wood - replace deteriorated element.
Replace portions of the wood fascia boards per drawings & specifications.
   For estimating purposes, in addition to the locations shown on the drawings, allow for the following:
   1. Allow for (8) linear feet of wood fascia board replacement.

Potting Shed

Architectural

1. Insulate and seal gap between wood framing and stone wall at northeast corner of meeting room.
2. Cut new opening in masonry wall to connect both cellars.
3. Fill in exterior stair to meeting room cellar.

4. Partial soffit repair.
5. Replace door to meeting room on east elevation with new inswinging door to match.
6. Provide new ADA access ramp with deck & entry stair on east entrance for accessible access to shed and garden to the west.
7. Provide new wood stair from potting shed to cellar.

Structural

The potting shed is proposed to receive a new entry deck, featuring both stairs and a ramp, to facilitate access to both front doors of the shed. The exterior cellar access stair is to be infilled, and a new opening made in the interior foundation wall to facilitate access to both areas of the cellar from the interior access hatch.

Coachman's House

Architectural

1. Repair all exterior wood siding, remove coatings on all exterior wood siding, repair wood where damaged and refinish.
2. Replace south door to basement, remove screen.
3. Partial window repair on east elevation.
4. Create new mechanical room for geothermal equipment in east bay of cellar. Provide slab on grade to replace existing wood floor.
5. Remove moss and biologic growth from existing roof shingles

HazMat

Remove asbestos-containing exterior window glazing and boiler components.

Remediate microbial growth and manage lead-based paint / lead-containing paint.

Mechanical (also see Carriage Barn / Visitor Center).

1. Overview: install a new geothermal heat pump system servicing three buildings Carriage House, Coachman’s House and Main Barn.
2. Geo-exchange bore field (common for Main Barn & Coachman's House.
   A. Boreholes will be divided into three groups for piping and each group will have a 1.5” supply and 1.5” return line to the basement of the Coachman's House. (Total 6 pipes to bore field.)
   B. Connect 3 boreholes groups in a manifold in the basement of the Coachman's House.
   C. Install 2 pumps in the basement of the Coachman's House to circulate water through the ground loop and the water-source heat pump units in Main Barn and Visitor Center.
3. Coachman's house HVAC system
   Provide 1.5” valved and capped connections for future use in the Coachman’ cottage.

Electrical

A new single phase underground service will originate from a transformer by the stone wall. This transformer will also serve the Visitor Center and Main Barn.

New 100a, 120/240v, single phase panel at the lower level to provide power to new HVAC equipment and other building loads.

Add LED strip lights to new mechanical room with local switch.

Plumbing

Modify the existing plumbing systems to provide make-up water feed for geothermal loop.
Plumbing work includes modifications to domestic cold-water piping.

Fire Detection

1. Overview: provide new addressable fire alarm system.
2. Provide smoke detectors for heated areas and heat detectors for unheated areas.
3. Provide pull stations by egress doors.
4. Provide ADA compliant horn/strobe annunciators.
5. Install a fire alarm annunciator panel, where indicated on plans.
6. Tie systems into dialers for automatic notification.

Maintenance Building

Architectural

1. Reattach displaced cement board siding and seal all gaps between siding
2. Replace damaged panels.
3. Replace all wood trim at corners.
4. Clean and repaint wood and cement board exterior (siding, wood trim, windows, doors, roof trim)
5. Replace garage doors.
6. Replace cracked glass at window.
7. Replace door at west elevation with new door to match
8. Provide new GWB ceilings with insulation above ceiling and new lighting throughout.

Mechanical

1. Overview: new air-source heat pump system to heat and cool the occupied portion (not garage bays) of the maintenance building.
2. Work includes:
   A. New 3 ton VRF outdoor unit mounted on a pad adjacent to the building.
   B. 1 new 3 ton indoor unit.
   C. Exposed supply air ducts with sidewall diffusers.
   D. Exposed return air duct.
   E. Refrigerant piping between outdoor and indoor units.

F. Condensate drain for indoor unit.

Electrical

1. New 400a, 120/240v single phase underground service from upsized transformer at existing pad near east end of building.
2. New 400a panel to back feed existing 200a panel as well as provide power to new HVAC loads, EV chargers and maintenance equipment.
3. New lighting throughout building with local switching and self-contained exit signs at egress doors.

Alternate 1 - At wood doors and windows, provide new finish over existing finish.

For estimating purposes - allow for the following:

1. Scrape loose paint and clean knots following all EPA and OSHA requirements.
2. Sand existing paint coatings to provide a smooth, even surface for new paint finish. Contractor to follow all EPA and OSHA requirements.
3. At areas where wood knots are visible, apply one (1) coat of knot sealer recommended by topcoat manufacturer.
4. Apply Fiberlock lead barrier compound professional lead encapsulant/sealant (type iii) at areas of paint loss to seal paint edges.
5. Prime edges, ends, faces and undersides of wood with ppg seal grip gripper interior/exterior 100% acrylic latex primer, 17-921xi series.
6. Fill holes and imperfections in the finish surfaces with putty or plastic wood filler to provide an even surface. Sand smooth when dried.
7. Apply two (2) coats of ppg Acri-shield max exterior 100% acrylic latex satin, 739-10 series in a custom color.

Playhouse

Architectural

Façade

1. Clean and repaint façade (wood siding and trim, windows and door).
2. Scrape, prime and paint wood porch floor boards and posts.
3. Replace damaged wood siding panel near base.
4. Provide dutchman repairs at deteriorated post bases.
5. Clean debris and biological growth from roof.

Agency Use Only [If applicable]

Project : JJHSHS 2023 Site Enhancements 250 200

Date : 3/26/2024

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "**Yes"** to a numbered question, please complete all the questions that follow in that section.
- If you answer "**No"** to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land

Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1)

☐ NO ☑ YES

If "Yes", answer questions a - j. If "No", move on to Section 2.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☑	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☑	☐
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☑	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☑	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☑	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☑	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☑	☐
h. Other impacts: _____ _____		☐	☐

2. Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g)

☑ NO ☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____ _____	E2g	□	□
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	□	□
c. Other impacts: _____ _____		□	□

3. Impacts on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h)

☐ NO ☑ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	☑	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	☑	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	☑	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	☑	☐
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	☑	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	☑	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	☑	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	☑	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	☑	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	☑	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	☑	☐

l. Other impacts: _____ _____		☐	☐

4. Impact on groundwater

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)

☐ NO ☑ YES

If "Yes", answer questions a - h. If "No", move on to Section 5.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	☑	☐
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	☑	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	☑	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	☑	☐
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	☑	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	☑	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	☑	☐
h. Other impacts: _____ _____		☐	☐

5. Impact on Flooding

The proposed action may result in development on lands subject to flooding. (See Part 1. E.2)

☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", move on to Section 6.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	☐	☐
b. The proposed action may result in development within a 100 year floodplain.	E2j	☐	☐
c. The proposed action may result in development within a 500 year floodplain.	E2k	☐	☐
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	☐	☐
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	☐	☐
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	☐	☐

g. Other impacts: _____ _____		☐	☐

6. Impacts on Air

The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO_2)	D2g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N_2O)	D2g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF_6)	D2g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐
vi. 43 tons/year or more of methane	D2h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐
f. Other impacts: _____ _____		☐	☐

7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) ☐ NO ☑ YES

If "Yes", answer questions a - j. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☑	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☑	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☑	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☑	☐

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	☑	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: NY Natural Heritage	E2n	☑	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	☑	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____ _____	E1b	☑	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	☑	☐
j. Other impacts: _____ _____		☐	☐

8. Impact on Agricultural Resources

The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☐ NO ☑ YES

If "Yes", answer questions a - h. If "No", move on to Section 9.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	☑	☐
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, Elb	☑	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	☑	☐
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	☑	☐
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	El a, E1b	☑	☐
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	☑	☐
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	☑	☐
h. Other impacts: _____		☐	☐

9. Impact on Aesthetic Resources

The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.)

☐ NO ☑ YES

If "Yes", answer questions a - g. If "No", go to Section 10.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☑	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☐	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	 ☑ ☑	 ☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	 ☑ ☑	 ☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☑	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile ½ -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☑	☐
g. Other impacts: _____ _____		☐	☐

10. Impact on Historic and Archeological Resources

The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.)

☐ NO ☑ YES

If "Yes", answer questions a - e. If "No", go to Section 11.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☑	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☑	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☑	☐

d. Other impacts: _____ _____		☐	☐
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	☐	☐
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	☐	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	☐	☐

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
(See Part 1. C.2.c, E.1.c., E.2.q.)
If "Yes", answer questions a - e. If "No", go to Section 12.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	□	□
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	□	□
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	□	□
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	□	□
e. Other impacts: _____ _____		□	□

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d)
If "Yes", answer questions a - c. If "No", go to Section 13.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	☑	☐
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	☑	☐
c. Other impacts: _____ _____		☐	☐

13. Impact on Transportation

The proposed action may result in a change to existing transportation systems. ☑ NO ☐ YES
(See Part 1. D.2.j)
If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☐	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☐	☐
c. The proposed action will degrade existing transit access.	D2j	☐	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☐	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☐	☐
f. Other impacts: _____ _____		☐	☐

14. Impact on Energy

The proposed action may cause an increase in the use of any form of energy. ☐ NO ☑ YES
(See Part 1. D.2.k)
If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☑	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☑	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☑	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☑	☐
e. Other Impacts: _____ _____		☐	☐

15. Impact on Noise, Odor, and Light

The proposed action may result in an increase in noise, odors, or outdoor lighting. ☐ NO ☑ YES
(See Part 1. D.2.m., n., and o.)
If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☑	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☑	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☑	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☑	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☑	☐
f. Other impacts: _____ _____		☐	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.) ☐ NO ☑ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No,or small impact may cccur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	☑	☐
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	☑	☐
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	☑	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	☑	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	☑	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	☑	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	☑	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	☑	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	☑	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	☑	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	☑	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	☑	☐
m. Other impacts: _____ _____		☐	☐

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. ☑ NO ☐ YES

(See Part 1. C.1, C.2. and C.3.)

If "Yes", answer questions a - h. If "No", go to Section 18.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, Elb	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☐	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character

The proposed project is inconsistent with the existing community character. ☑ NO ☐ YES

(See Part 1. C.2, C.3, D.2, E.3)

If "Yes", answer questions a - g. If "No", proceed to Part 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☐	☐
g. Other impacts: _____ _____		☐	☐

PRINT FULL FORM

Full Environmental Assessment Form
Part 3 - Evaluation of the Magnitude and Importance of Project Impacts
and
Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:
To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

See "JJH SHS 2023 Site Enhancements FEAF Part 3 Attachment.pdf", below.

Determination of Significance - Type 1 and Unlisted Actions

SEQR Status: ☑ Type 1 ☐ Unlisted

Identify portions of EAF completed for this Project: ☑ Part 1 ☑ Part 2 ☑ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the The Office of Parks, Recreation and Historic Preservation as lead agency that:

☑ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: John Jay Homestead SHS 2023 Site Enhancements 250 200

Name of Lead Agency: Office of Parks, Recreation and Historic Preservation

Name of Responsible Officer in Lead Agency: Garrett L. W. Jobson

Title of Responsible Officer: Capital District Manager, Hudson Valley District

Signature of Responsible Officer in Lead Agency: Garrett L. W. Jobson Digitally signed by Garrett L. W. Jobson Date: 2024.05.20 14:37:56 -04'00' Date:

Signature of Preparer (if different from Responsible Officer) Daniel E. Lewis Date: 4/30/2024

For Further Information:

Contact Person: Erin Moroney

Address: 1 Delaware Ave North, Cohoes, NY 12047

Telephone Number: 518-268-2173

E-mail: erin.moroney@parks.ny.gov

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

PRINT FULL FORM

John Jay Homestead State Historic Site
2023 Site Enhancements 250 200
Full Environmental Assessment Form Part 3 Attachment

1. Impact on Land - Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. Yes, the proposed action will involve construction and other physical alteration of the land surface.

a. The proposed action may involve construction on land where depth to water table is less than 3 feet. Groundwater is shallow in multiple locations across the site. No new basements, crawl spaces or other below grade structures will be constructed. Depth to ground water is greater in locations where utilities will be placed below grade. Those utilities will be set appropriately above seasonal high ground water. Geothermal units may be set within the water table. Those units will not be adversely impacted by groundwater nor impact groundwater. Stormwater recharge basins will be set an appropriate distance above the water table as per the NYS DEC stormwater design manual.

b. The proposed action may involve construction on slopes of 15% or greater. Not applicable.

c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface. Not applicable.

d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material. Not applicable.

e. The proposed action may involve construction that continues for more than one year or in multiple phases. Construction may occur in multiple phases, but the overall level of activity will not be substantially different from a single-phase project. Certain sections of the park will be closed off during construction but some of those areas are not currently open or accessible to the public. Closures are temporary, even for areas currently accessible. Consequences of the project lasting more than one year or occurring in multiple phases are low as the impacts would not be felt by anyone except for park patrons and the park is large enough such that those impacts will be minimized and distributed across the park expanse.

f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides). Grading and construction activities will result in loose soil being present on site. Erosion and sediment control and best management practices will be employed to prevent any loose soil from leaving the work site or reaching any sensitive areas.

g. The proposed action is, or may be, located within a Coastal Erosion hazard area. Not applicable.

Section Summary: New structures will be set appropriate distances above ground water. The project may occur over more than 12 months or be phased. Consequences of that phasing are minimal. Proposed actions will result in loose soil. Erosion and sediment control and other best management practices will be employed, as needed, such that no loose soil or other project related materials will reach any sensitive areas.

No significant impacts on land will occur.

2. Impact on Geological Features - The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). No, the site has no unique or unusual land forms, or National Natural Landmarks.

No impacts on geological features will occur.

3. Impact on Surface Water - **The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes).** Yes, the proposed action may affect one or more wetlands or other surface water bodies.

a. The proposed action may create a new water body. Not applicable.

b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water. Not applicable.

c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body. Not applicable.

d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body. The new drive and parking lot are upslope of existing wetlands and waterbodies. Erosion and sediment control and best management practices will be employed to prevent any loose soil from reaching any sensitive areas. Parking will be a mix of pervious and impervious surfaces. Storm water off of those new surfaces will be diverted to infiltration basins. Any overflow from those infiltration basins will be directed to proposed turf grass surfaces where it will have additional opportunity to infiltrate prior to reaching any surface waterbody. Vegetation within the infiltration basin and between the overflow and surface waters will provide some filtration of storm water contaminants. Energy from the discharge will be reduced by the use of rip rap at the discharge location or with the use of level spreaders. All stormwater controls will meet the requirements of the NYS DEC Stormwater Design Manual. Impacts to surface waterbodies or wetlands will be minimized.

e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediment. Proposed actions are upslope of existing waterbodies. Erosion and sediment control and best management practices will be employed to prevent any loose soil from reaching any sensitive areas. Turbidity will be minimized.

f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water. Not applicable.

g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s). No wastewater will be discharged to surface waters. Stormwater may overflow from infiltration basins and eventually reach surface waters. That storm water will have multiple opportunities to be infiltrated and filtered by vegetation prior to reaching surface waters. Energy from that discharge will be minimized prior to reaching surface waters.

h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies. During construction, erosion and sediment control and best management practices will be employed to prevent any loose soil, or

other project related material, from reaching any waterbodies. During operation, storm water will have opportunity to infiltrate and be filtered prior to reaching any surface water. Siltation of waterbodies will be minimized.

i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action. During construction, erosion and sediment control and best management practices will be employed to prevent any loose soil, or other project related material, from reaching any waterbodies. During operation, storm water will have opportunity to infiltrate and be filtered prior to reaching any surface water. Impacts to adjacent and downstream water quality will be minimized.

j. The proposed action may involve the application of pesticides or herbicides in or around any water body. Not applicable.

k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities. Existing structures have individual or grouped on-site sanitary systems. Existing effluent may eventually reach surface waters through horizontal flow through soil or may reach groundwater. No new sanitary systems are proposed, but several of the structures will have their systems replaced. New systems will improve waste treatment efficiency and may improve effluent quality. No effluent is proposed to be directed to surface waters. Effluent may still reach surface water or ground water after passing through soil. However, there will be no significant increase in effluent over existing. No adverse changes in impacts from onsite sanitary systems to surface waters will occur.

Section Summary: Construction activities will result in loose soil upslope from surface waters. Erosion and sediment control as well as best management practices will be employed as needed to minimize impacts to surface waters. Storm water will be controlled on site through infiltration and vegetative filtration. Storm water impacts to surface waters will be minimized. Potential sanitary waste impacts to surface waters will not be significantly increased over existing.

No significant impacts to surface waters will occur.

4. Impact on Ground Water - The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. Yes, the proposed actions may have the potential to introduce contaminants to ground water.

a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells. No new potable water consuming resources are proposed. Anticipated potable water use is not expected to change significantly.

b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Not applicable.

c. The proposed action may allow or result in residential uses in areas without water and sewer services. Not applicable.

d. The proposed action may include or require wastewater discharged to groundwater.

Existing structures have individual or grouped on-site sanitary systems. No new sanitary systems are proposed, but several of the structures will have their systems replaced. New systems will improve waste treatment efficiency and may improve effluent quality. All state and local sanitary design requirements will be followed. No significant increase in effluent is proposed. No adverse changes in impacts from onsite sanitary systems to ground waters will occur.

While not wastewater, stormwater will also be retained and recharged to ground. In compliance with the NYSDEC's Stormwater Management Design Manual, the proposed site stormwater system will meet the required stormwater runoff reduction based upon the new impervious surface. As part of the SWPPP requirements, the design details and calculations will be submitted to NYSDEC for approval and permitting.

Geothermal wells will be employed to heat and cool one or more of the facilities. A mixture of water and a number of non-toxic chemical constituents, within an enclosed system, installed at relatively significant depth, will be pumped through heat exchangers and retuned. No ground water is used in these systems. No change in ground water levels will occur. System will be inspected at regular intervals for leaks. Chemical components are non-toxic, if leaks were to occur.

e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated. Not applicable.

f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer. Not applicable.

g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources. Not applicable.

Section Summary: Sanitary and storm water will continue to be directed to ground and will continue to impact ground water. New sanitary systems may improve effluent quality. No significant increase in effluent volume is anticipated. More storm water will be directed to ground. Discharge to ground will follow NYS DEC Stormwater Design Manual requirements.

No significant impacts to groundwater will occur.

5. impact on Flooding - The proposed action may result in development on lands subject to flooding. No proposed actions will occur on lands subject to flooding.

No significant impacts from flooding will occur.

6. Impact on Air - The proposed action may include a state regulated air emission source. No, the proposed action does not include a state regulated air emission source. While there will be staff and patron vehicular access into the site, the low volume means that emissions from those vehicles won't exceed any thresholds of concern. In addition, OPRHP fleet is migrating to no emission vehicles, which will, eventually, reduce air impacts from those vehicles.

No significant impacts on air will occur.

7. Impacts on Plants and Animals - The proposed action may result in a loss of flora or fauna. Yes, proposed actions may result in the loss of flora and fauna. Most flora lost is not part of any natural system but existing site landscaping. Lost vegetation will be replaced in multiple locations, site wide.

a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over or near the site. Not applicable.

b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government. Not applicable.

c. The proposed action may cause reduction in population or loss of individuals of any species of special concern or conservation need as listed by New York State or the federal government, that use the site or are found on, over or near the site. Not applicable.

d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government. Not applicable.

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect. Not applicable.

f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Not applicable.

g. The proposed action may substantially interfere with nesting/breeding/foraging, or overwintering habitat for the predominant species that occupy or use the project site. Not applicable.

h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. No loss of forest, grassland or any other important habitat is proposed. Minor losses of existing landscaped vegetation will be offset by proposed plantings.

i. The proposed action (commercial, industrial or recreational projects, only) involves the use of herbicides or pesticides. Not applicable.

Section Summary: There are no known rare, threatened or endangered species on site. There are no known species of special concern or important habitats on site. Vegetation to be removed is landscaping and that loss will be replaced in multiple locations on site.

No significant impacts on plants and animals will occur.

8. Impact on Agricultural Resources - The proposed action may impact agricultural resources. No commercial agriculture occurs on site. However, agriculturally productive soils have been identified for most of the site. Some of those soils will be paved over for the new parking lot and access roadway. Some existing paved over soils will be restored as pavement is removed from existing parking and some roadways.

a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System. Agriculturally productive soils have been identified for most of the site. Some of those soils will be paved over for the new parking lot and access roadway. Some existing paved over soils will be restored as pavement is removed from existing parking and some roadways. Regardless, the site is state property and transferring state property to private ownership is extremely difficult. Even if OPRHP wished to transfer the property, they probably couldn't. As such, the site will never be used for commercial agriculture and minor losses of productive soils are inconsequential.

b. The proposed action may sever, cross or otherwise limit access to agricultural land(includes cropland, hayfields, pasture, vineyard, orchard, etc). Not applicable.

c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land. Not applicable.

d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District. There will be a net increase in paved surfaces of less than 0.5 acres. Paving is not an irreversible loss of agricultural lands. Regardless, the site is state property and transferring state property to private ownership is extremely difficult. Even if OPRHP wished to transfer the property, they probably couldn't. As such, the site will never be used for commercial agriculture and minor losses of agricultural lands are inconsequential.

e. The proposed action may disrupt or prevent installation of an agricultural land management system. Not applicable.

f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland. Not applicable.

g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan. Not applicable.

Section Summary: While the site has productive soils, and minor gardening occurs on site, the site is not currently used for agricultural purposes and will not be used for agricultural purposes in any foreseeable future. Proposed actions are reversable. Minor losses of productive soils and agricultural lands are an acceptable trade-off for the increases in recreational use and the preservation of cultural resources.

No significant impacts on agricultural resources will occur.

9. Impact on Aesthetic Resources - The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. No. No changes in land uses are proposed. No new structures are proposed. Site resources, including access roads and parking lots will be rearranged. The existing access road and parking lot are not original to the site and are in the view shed of the Bedford House. The view from the manor house is a defining element of the site. The access road and parking lot are proposed to be removed to return the site to a more accurate representation of the original layout. To accommodate these changes, a new access road and parking lot will be installed elsewhere on the lot. Proposed locations for these resources is limited due to historic viewsheds, historic remnants, topography and

depth to ground water / wetland issues. The new parking lot location, within an existing meadow area, will be heavily screened, with vegetation, from neighbors to the north and more lightly, but adequately, screened, by vegetation in the parking lot and recharge basin, from neighbors in the northeast and east. The relocation of existing resources does not constitute a change in use. The change in view, from a meadow to more heavily vegetated area does not constitute a change in use. The vantage points where this change will occur are not publicly accessible. The neighbor's views, while potentially different, will still be of a natural environment.

No significant impacts on aesthetic resources will occur.

10. Impact on Historic and Archeological Resources - The proposed action may occur in or adjacent to a historic or archaeological resource. Yes, proposed actions will occur in or adjacent to historic and archeological resource.

a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places. Multiple historic structures will be repaired and restored. The NY State Historic Preservation Office has determined that the proposed work will have No Adverse Impact upon historic resources (see letter dated April 29, 2024) provided the following conditions are met:

1. The potting shed shall be treated as described in the e-mail dated 4/24/2024.
2. The Brick Cottage stabilization plans shall be submitted for review and comment when they are available.
3. Any substantive changes proposed to the project shall be submitted for our review and comment.
4. Any additional work, not detailed in the effect finding letter, will need to be submitted as a new project for review.

b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory. The entire site is identified by the NY State Historic Preservation Office as being sensitive for archaeological resources. See 10.a., above.

c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Not applicable.

Section Summary: Although the project impacts both historical and archaeological resources, the NY State Historic Preservation Office has determined that No Adverse Impact upon historic resources will occur, as long as conditions are met.

No significant impacts to historic or archaeological resources will occur.

11. Impact on Open Space and Recreation - The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open

space plan. Yes, during construction, the proposed action may temporarily reduce the amount of open space and recreational opportunities available to park patrons.

a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to storm water storage, nutrient cycling, wildlife habitat. Not applicable.

b. The proposed action may result in the loss of a current or future recreational resource. No permanent loss of existing recreational resources is proposed. Proposed action is improvements to recreational resources and open space. Proposed action will require temporary reductions in existing recreational resources (during construction), which will be of a short duration.

c. The proposed action may eliminate open space or recreational resource in an area with few such resources. Not applicable.

d. The proposed action may result in loss of an area now used informally by the community as an open space resource. Not applicable.

Section Summary: The proposed action will improve the site's recreational opportunities. Temporary negative impacts are an acceptable tradeoff for those improvements.

No significant adverse impacts on open space and recreating will occur. Only positive permanent impacts are anticipated.

12. Impact on Critical Environmental Areas - The proposed action may be located within or adjacent to a critical environmental area (CEA). Yes, the proposed action is within a CEA. In 1990, Westchester County nominated all county and state parkland within the county as CEA due to the "Exceptional or unique character" for providing county residents with parkland and open space. In the case of JJH SHS, the unique character is due to the historic nature of the site and the open space of the site.

a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA. No permanent reduction in open space is proposed. No permanent reduction in the number of historic resources is proposed. Temporary reduction in open space and historic resources will occur during construction. That temporary reduction is an acceptable trade off for the improvements that are proposed.

b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA. Repair and restoration to multiple historic resources is proposed. Improvements to landscaping and scenic infrastructure is proposed. Both are positive benefits to the quality of the historic resources and open space.

Section Summary: No permanent negative impacts to the CEA, or the characteristics used for that designation, will occur. Positive impacts are anticipated due to the repair and restoration of historic resources and improvements to open space. Temporary negative impacts during construction will be of a short duration.

No significant impacts critical environmental areas will occur.

13. Impact on Transportation - The proposed action may result in a change to existing transportation systems. No, the proposed action will not result in changes to existing transportation systems.

No significant changes to existing transportation systems will occur.

14. Impact on Energy - The proposed action may cause an increase in the use of any form of energy. Replacement of utility infrastructure is proposed. Upgrades to utilities for many buildings is proposed. Several buildings will receive access upgrades, to include elevators, which will increase energy consumption, insignificantly, above current usage.
a. The proposed action will require a new, or an upgrade to an existing, substation. Not applicable.

b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use. Not applicable.

c. The proposed action may utilize more than 2,500 MWhrs per year of electricity. Not applicable.

d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed. Not applicable.

Section Summary: No new energy using facilities are proposed. Minor increases in energy use at existing facilities is proposed. Improvements in infrastructure, including installation of geothermal systems, are likely to reduce energy consumption.

No significant impact on energy will occur.

15. Impact on Noise, Odor, and Light - The proposed action may result in an increase in noise, odors, or outdoor lighting. Yes, the proposed action may result in an increase in noise, odors and outdoor lighting.

a. The proposed action may produce sound above noise levels established by local regulation. No new operational noise is proposed. Typical construction noise will be temporary and limited to normal operating / daylight hours. Most work is centrally located on the site and no work is immediately adjacent to any residential neighbors. No noise baffling vegetation is proposed to be removed.

b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home. Blasting is not proposed. There is a school whose property line is within 1,500 feet of the project. However, no academic or dormitory buildings are within 1,800 feet of the project.

c. The proposed action may result in routine odors for more than one hour per day. Some proposed actions may increase odor over existing / ambient, especially paving. Most of those actions will occur near the center core of the site and not immediately adjacent to any of the residential neighbors. Odors

are not anticipated to be noticeable beyond the property line. Those increases in odor will be temporary and during normal daylight / operational hours.

d. The proposed action may result in light shining onto adjoining properties. Existing site lighting may be visible from neighboring properties. Some increase in external lighting is proposed. Lighting is not intended to run all night and will be controlled by timers and staff. No screening vegetation will be removed. No significant changes to light impacts are anticipated.

e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions. Additional external lighting is proposed. Lighting is not intended to run all night and will be controlled by timers and staff. Most lights will be dark sky compliant, as needed. Regional impacts to night sky pollution are already significant. Minor changes, on site, will not be a significantly increase over regional impacts.
Section Summary: Typical construction noise and odor will occur. Work will be temporary and mostly restricted to the center core of the site and away from any residential neighbors. No screening vegetation will be removed. Increased light will not run all night and not be a significant increase over existing (especially regionally).

No significant increase in noise, odors, or outdoor lighting will occur.

16. Impact on Human Health - The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. Yes, the proposed action may result in exposure to existing sources of contaminants.

a. The proposed action is located within 1500 feet of a school, hospital, licensed daycare center, group home, nursing home or retirement community. The adjacent property to the northwest is a school. The only known hazardous materials on site are within or on the exterior of the historic buildings (lead paint, potentially asbestos). Hazardous materials will be professionally abated. All appropriate handling procedures will be followed. No proposed actions will create situations where hazardous material leave the property or reaches the school.
b. The site of the proposed action is currently undergoing remediation. Not applicable.

c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action. Not applicable.

d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction). Not applicable.

e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health. Not applicable.

f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health. Not applicable.

g. The proposed action involves construction or modification of a solid waste management facility. Not applicable.

h. The proposed action may result in the unearthing of solid or hazardous waste. There are no known subsurface solid or hazardous materials on the site. The only known hazardous materials are in or on the historic buildings (lead paint, potentially asbestos). Those materials will be professionally abated and disposed of properly, off-site.

i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste. Not applicable.

j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste. Not applicable.

k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures. Not applicable.

l. The proposed action may result in the release of contaminated leachate from the project site. Not applicable.

Section Summary: On site hazardous materials will be professionally abated and properly disposed of off-site. No other solid or hazardous materials are known to exist on site.

No significant impacts on human health from exposure to new or existing sources of contaminants will occur.

17. Consistency with Community Plans - The proposed action is not consistent with adopted land use plans. No, the proposed action is consistent with, or does not impede, any community plan.

18. Consistency with Community Character - The proposed project is inconsistent with the existing community character. No, the proposed action, which maintains the use of the site as a state historic site, is consistent with the low density, scenic character of the area and enhances the natural beauty and quality of the area.

The proposed action is consistent with the community character.

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APPENDIX 8

Geotechnical Engineering Report – May 2024

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